

**COMPETENCIES OF ELEMENTARY GRADE TEACHERS  
IN MATHEMATICS: BASIS FOR A TEACHERS'  
TRAINING PROGRAM/DESIGN**

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A Thesis  
Presented to  
The Faculty of College of Graduate Studies  
Samar State University  
Catbalogan City, Samar

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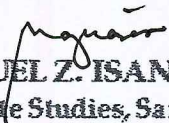
In Partial Fulfillment  
of the Requirement for the Degree  
Master of Arts in Education (MAEd)  
Major in Elementary Education

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**ALEJANDRO A. MALUTO**  
**March, 2012**

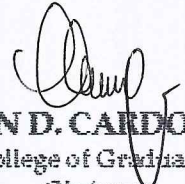
## APPROVAL SHEET


This thesis entitled "COMPETENCIES OF ELEMENTARY GRADE TEACHERS IN MATHEMATICS: BASIS FOR A TEACHERS' TRAINING PROGRAM/DESIGN" has been prepared and submitted by ALEJANDRO A. MALUTO, who having passed the comprehensive examination, are hereby recommended for oral examination.

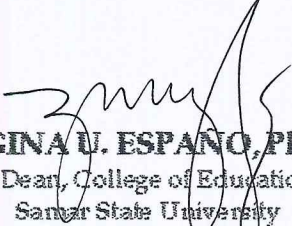
  
**MANUEL Z. ISANAN, Ph.D.**  
Dean, Graduate Studies, Samar Colleges, Inc.  
Adviser


---

Approved by the Committee on Oral Examination on February 24, 2012 with a rating of **PASSED**.

  
**MARILYN D. CARDOSO, Ph. D.**  
Dean, College of Graduate Studies.  
Chairman

  
**EUSEBIO T. PACOLOR, Ph.D.**  
Retired University President  
Samar State University  
Member


  
**GINA U. ESPANO, Ph.D.**  
Dean, College of Education  
Samar State University  
Member

  
**LETECIA R. GUERRA, Ph. D.**  
Chief, Curriculum Implementation Division  
DepEd Samar  
Member

---

Accepted and approved in partial fulfillment of the requirements for the degree, Masters of Arts in Education (MAEd) major in Mathematics.

February 24, 2012  
Date of Oral Defense

  
**VICTORIA M. TAFALLA, Ph.D.**  
Dean, College of Graduate Studies

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## ABSTRACT

This study assessed the competencies of elementary grade teachers in Mathematics in the District of Motiong, Division of Samar for school year 2011-2012, with the end in view of proposing for a teachers' training program/design. This study employed descriptive-developmental research using the research-questionnaire as the main instrument. Majority of the teacher-respondents teaching Mathematics in the District of Motiong were major in General Education, accounting for 20 or 26.32 percent, while eight of them or 10.53 percent were majors in English; four each or 5.26 percent each were majors in Mathematics and Industrial Education; three or 3.95 percent majored Social Studies; two each or 2.63 percent each majored in Science, Araling Panlipunan, HE and Secondary Education, and only one or 1.32 percent majored PE. The remaining 28 teacher-respondents or 36.84 percent did not disclose their major field in their baccalaureate degrees. Despite the constraints presented previously, the Mathematics teacher-respondents manifested very satisfactory performance in the discharge of their functions as Mathematics subject teachers. The mathematics teacher-respondents manifested a high level of teaching competence in the subject along the three areas, namely: personal, professional and pedagogical competencies. An enhancement material or a training design for that matter should be implemented among the teachers handling Mathematics subjects considering that most of them are non-mathematics majors and it should be implemented in the district for enhancement purposes among Mathematics teachers.

## TABLE OF CONTENTS

	Page
TITLE PAGE .....	i
APPROVAL SHEET .....	ii
ACKNOWLEDGMENT .....	iii
DEDICATION .....	v
ABSTRACT .....	vi
TABLE OF CONTENTS .....	vii
Chapter	
<b>1 THE PROBLEM AND ITS SETTING .....</b>	<b>1</b>
Introduction .....	1
Statement of the Problem .....	5
Hypotheses .....	8
Theoretical Framework .....	10
Conceptual Framework .....	10
Significance of the Study .....	13
Scope and Delimitation .....	14
Definition of Terms .....	15
<b>2 REVIEW OF RELATED LITERATURE AND STUDIES .....</b>	<b>17</b>
Related Literature .....	17
Related Studies .....	28
<b>3 METHODOLOGY .....</b>	<b>36</b>
Research Design .....	36

Instrumentation .....	37
Validation of Instrument .....	38
Sampling Procedure .....	40
Data Gathering Procedure .....	40
Statistical Treatment of Data .....	42
<b>4 PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA .....</b>	<b>45</b>
<b>5 SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION .....</b>	<b>119</b>
Summary of Findings .....	119
Conclusions .....	124
Recommendations .....	128
<b>BIBLIOGRAPHY .....</b>	<b>129</b>
<b>ANNEXES .....</b>	<b>133</b>
<b>CURRICULUM VITAE .....</b>	<b>148</b>
<b>LIST OF TABLES .....</b>	<b>153</b>
<b>LIST OF FIGURES .....</b>	<b>156</b>

## Chapter 1

### THE PROBLEM AND ITS SETTING

#### Introduction

Human undertakings are influenced by factors and situations that affect the individual's productivity. It would be in the field of work for employees in an organization, or it could be in a simple classroom situation.

A pupil learns more if all the circumstances surrounding him are favorable for the release of his potentials. These situations could be the learner himself; his personality, attitudes and other characteristics as well as his needs and concerns. It could be the teacher in the classroom, the facilities of the school, the peers of the learner or the parents at home. This could also be influenced by the people in the community where the learner lives.

Mathematics is an integral system of ideas. It includes social and computational aspects involving principles and processes as well as social concepts (Cagaanan, 1993:328). As such, learning mathematics, just like any other subject, happens in a context, in an environment made up of the family, the school and the community, which contribute to the education that makes up the totality of the learner.

Developing computational skills and problem solving abilities is one of the main objectives of Mathematics instruction in school. It is of vital importance and must therefore be given focus in classroom instruction. Although several

factors are associated with the achievement of pupils in Mathematics, many are still focused on the teacher and the student himself as the major characters in the development of skills especially the computational and problem solving.

The national development goals embodied in Presidential Decree No. 6-A serve as the ultimate objective in which all instructional efforts are directed. From these goals are derived the present national educational aims. In turn, aims of Mathematics instruction in the elementary level are defined (Dizon, 1990: 136).

The low performance in the elementary grades is a big challenge that faces the teachers, school administrators, supervisors and top-ranking DepEd officials in the echelon. The teachers must address this big problem of declining quality education, for they are the single most important factor in attaining quality education (Sutaria, 1994:28). This is so because the teachers are at the forefront in the battlefield, so to speak, and they are directly in contact with the pupils.

If the good teacher is interested to produce good quality graduates, he should use varied techniques, strategies, approaches, processes and methods with teaching aids and devices which suit the subject matter in order that he can deliver the goods and services to his pupils effectively and efficiently. The goal of every learning situation is lesson mastery which is indicated in the results of tests and other measures.

Schools today play an important role in nation-building for they serve as laboratories in preparing the pupils for life. In like manner, the schools provide

the pupils relevant and useful experiences that will help make each one of them good, useful and productive citizens.

The mission of education therefore is to provide quality basic education that is equitably accessible that will lay the foundation for holistic lifelong learning and creative rational thinking, develop Filipinos who are functionally literate, socially and morally nationalistic yet receptive to positive global influence and develop the Filipino child as a total person.

Based on the educational goals, the education sectors realigned the elementary Mathematics curriculum. Mathematics education undertaken at each instructional level sets objectives that are unique making it distinguished from vocational or technical endeavor is but a response to mandate of the 1987 Philippine Constitution which states that Science and Technology are essential for national development and progress. It is the responsibility of the state to give priority to research and development, invention, and their utilization, training and services. It shall support indigenous, appropriate and self-reliant, scientific and technological capabilities and their application to the country's productive system and national life (Nolledo, 1998: 172).

Among the innovative directors in the Mathematics program is the shifting of the instructional emphasis from the content aspect of mathematics to the process of it. The focus of the elementary mathematics program under the New Elementary School Curriculum (NESC) is on the nature of computational

and problem solving process, so that the pupils will move progressively towards the attainment of its objectives which are consistent with the nature of mathematics (Cruz, 1997: 114).

In the elementary schools, Mathematics is taught to enhance the pupils' functional literacy, which includes numeracy and his capability as a responsible and productive member of his community. An elementary school child should be able to demonstrate acquisition of intellectual processes like computational and problem solving skills (Manual of Mathematics Instruction, 1991: 12).

In the Division of Samar, particularly in the District of Motiong, teachers are trained through seminars and workshops on how to strengthen and intensify their efforts to develop young children to fit into the world influenced by science and technology. However, in the actual implementation of the mathematics programs in their respective schools or classes, teachers encountered several problems. Thus, this investigation was conducted to assess the competencies of the elementary grade teachers in teaching mathematics and to avert the prevailing problems of teaching the subject as basis for structuring a proposed teachers' training program/design in mathematics teaching.

### **Statement of the Problem**

This study assessed the competencies of elementary grade teachers in Mathematics in the District of Motiong, Division of Samar for school year 2011 – 2012, with the end in view of proposing for a teachers' training program/design.

Specifically, it sought to answer the following questions:

1. What is the profile of the mathematics teachers in the District of Motiong in terms of:

- 1.1 age and sex;
- 1.2 civil status;
- 1.3 educational background;
- 1.4 years of service;
- 1.5 average monthly family income;
- 1.6 family size;
- 1.7 number of years in teaching mathematics;
- 1.8 classification of class;
- 1.9 relevant in-service trainings attended;
- 1.10 performance rating for the last three years, and
- 1.11 attitude towards teaching Mathematics?

2. What is the mastery level of the teacher-respondents as revealed by the achievement test in Mathematics?

3. Is there a significant relationship between the mastery level of the teacher-respondents and their profile, namely:

- 3.1 age and sex;
- 3.2 civil status;
- 3.3 educational background;
- 3.4 years of service;
- 3.5 average monthly family income;
- 3.6 family size;
- 3.7 number of years in teaching mathematics;
- 3.8 classification of class;
- 3.9 relevant in-service trainings attended;
- 3.10 performance rating for the last three years, and
- 3.11 attitude towards teaching Mathematics?

4. What is the level of competencies of the mathematics teachers as perceived by the school administrators and themselves along the following areas:

- 4.1 personal competency;
- 4.2 professional competency; and
- 4.3 pedagogical competency?

5. Is there a significant difference in the perception of the school administrators and mathematics teachers in the level of competencies of the elementary grade teachers in terms of the following areas:

- 5.1 personal competency;
- 5.2 professional competency; and
- 5.3 pedagogical competency?

6. Is there a significant relationship between the level of competencies of the elementary grade mathematics teachers and their personal variates in terms of the following:

- 6.1 age and sex;
- 6.2 civil status;
- 6.3 educational background;
- 6.4 years of service;
- 6.5 average monthly family income;
- 6.6 family size;
- 6.7 number of years in teaching mathematics;
- 6.8 classification of class;
- 6.9 relevant in-service trainings attended;
- 6.10 performance rating for the last three years, and
- 6.11 attitude towards teaching Mathematics?

7. What problems are encountered by the mathematics teachers relative to their teaching Mathematics subject?

8. What solutions may be recommended by the mathematics teachers to address the problems they encountered relative to their teaching Mathematics subject?

9. What teachers' training program/design may be proposed based on the findings of the study to enhance the competencies of the Mathematics teachers?

### Hypothesis

From the aforelisted specific questions, the following null hypotheses were formulated and tested in this study:

1. There is no significant relationship between the mastery level of the teacher-respondents and their profile, namely:

- 1.1 age and sex;
- 1.2 civil status;
- 1.3 educational background;
- 1.4 years of service;
- 1.5 average monthly family income;
- 1.6 family size;
- 1.7 number of years in teaching mathematics;
- 1.8 classification of class;
- 1.9 relevant in-service trainings attended;
- 1.10 performance rating for the last three years, and

1.11 attitude towards teaching Mathematics.

2. There is no significant difference in the perception of the school administrators and mathematics teachers in the level of competencies of the elementary grade teachers in terms of the following areas:

2.1 personal competency;

2.2 professional competency; and

2.3 pedagogical competency.

3. There is no significant relationship between the level of competencies of the elementary grade mathematics teachers and their personal variates in terms of the following:

3.1 age and sex;

3.2 civil status;

3.3 educational background;

3.4 years of service;

3.5 average monthly family income;

3.6 family size;

3.7 number of years in teaching mathematics;

3.8 classification of class;

3.9 relevant in-service trainings attended;

3.10 performance rating for the last three years, and

3.11 attitude towards teaching Mathematics.

### **Theoretical Framework**

This study was based on the precepts that pupils can acquire knowledge, concepts and principles only if they have mastered the underlying processes in any subject (Gagne, 1993: 144).

The acceptance of process learning as an area of concern in education has created a need to measure the process skill development of pupils in the elementary (Linn, 2005: 12).

This study was anchored also on the theory of Cage (1989: 301), a psychologist and educator who claimed that obvious condition of learning is the classroom teacher, upon whom the major responsibility of increasing the learning experience rests.

In this regard, the teacher must be very competent and knowledgeable in line to his educational qualification, so with his teaching experience and his in-service training and seminars attended in order to impart the best he could give to his students.

### **Conceptual Framework**

The working process of this particular study is presented in Figure 1.

The base reflects the locale of the study, which is the District of Motiong, Division of Samar involving the Mathematics teachers and school administrators as respondents. The focus of the study will be on the level of competencies of the

Mathematics teachers so that the next frames depict the major variables to be captured using the self-made questionnaire.

The left box depicts the personal variates of the Mathematics teachers such as age and sex; civil status; educational background; years of service; monthly income; family size; number of years in teaching Mathematics; relevant trainings attended and performance rating for the last three years. The boxes at the right depicts the perception of the two respondents on the level of competencies of the Mathematics teachers along personal competency; professional competency and pedagogical competency, which will be compared for any significant difference.

The level of competencies of the Mathematics teachers will too be correlated with their personal variates to determine any significant relationship, that is, to ascertain whether the former is influenced by the latter. This is represented by the two-way arrow placed in between the two bigger boxes.

Further, the problems encountered by the Mathematics teachers in teaching the subject will also be ascertained as well as will solicit suggested solutions from the same Mathematics teachers to address the problems they encountered.

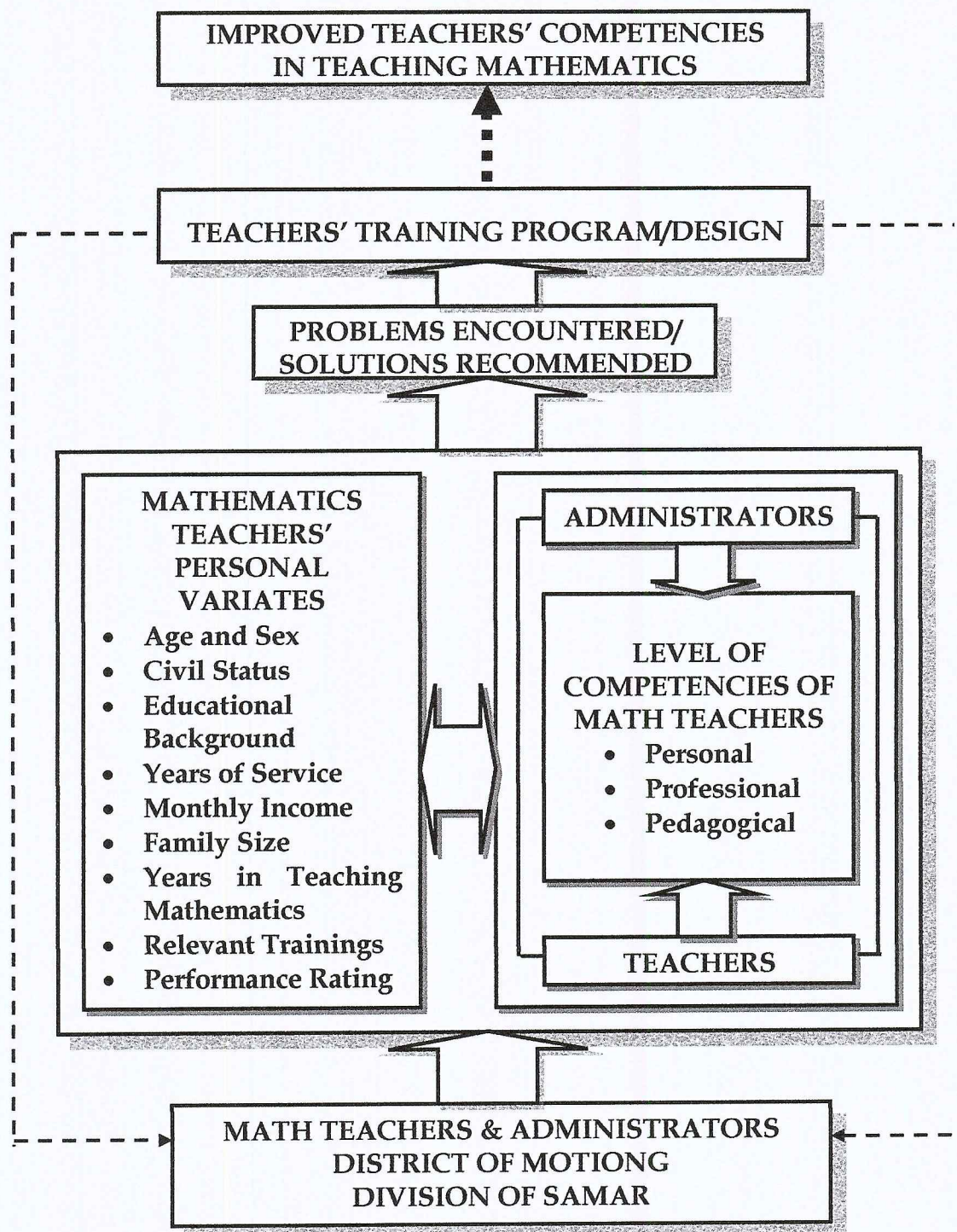


Figure 1. The Conceptual Framework of the Study

The findings and their implications will serve as input for the proposed teachers' training program/design for the Mathematics teachers. A feedback mechanism will be provided to the locale of the study that will in turn lead to the ultimate goal of this particular study, which is, improved teachers' competencies in teaching Mathematics subject.

### **Significance of the Study**

The end result of this research would benefit the following persons:

**The teachers.** The result of this study would provide the teachers a deeper insight into the expected competencies in teaching the different science processes in the elementary schools. This would also enable them to have a clear picture of their strengths and weakness in teaching the subject that can be inferred from the teaching strategies that they would use. This study also would find out the different problems encountered in teaching the subject and how the teachers counteract the problems in teaching science.

**The pupils.** The pupils are the final beneficiaries of this study. This would give them more effective learning, better performance to the point of mastery from the competent teachers.

**The school administrators.** The result of this study would provide them the empirical data that would give them additional input in making their administrative and supervisory programs pertinent to the needs of the teachers who are tasked to develop the children's skills in mathematics.

In addition, this study would be useful for them in developing and procuring instructional materials that would respond to the instructional activities that emphasize the development of the different mathematical process skills.

**The parents.** The findings of this investigation would give the parents the information about the kind of teachers that their children have, and the types of teaching techniques they employed. Hence, they could contribute something for the development of their children.

**Future researchers.** Finally, this study would serve as ready reference for future researchers as a source of information about the competencies needed by Mathematics teachers in teaching the subject, the trend of teaching Mathematics and the prevailing problems that beset in the teaching of the same.

### **Scope and Delimitation**

The study focused on the competencies of teachers in teaching Mathematics in the elementary grades in the District of Motiong, Division of Samar. It included the identification of the teachers' personal variates, which are considered important characteristics for the mathematics teachers in the process of discharging their duties and responsibilities. Also included are the assessment of the level of competencies of the Mathematics teachers in teaching the subject from the vantage point of the school administrators and teachers themselves.

This study was limited to the elementary grade teachers who are handling Mathematics classes during the school year. Seventy-six Mathematics teachers and nine administrators were considered respondents in this study taken from the following schools under the District of Motiong, viz: Beri Primary School; Barayon Primary School; Sto. Niño Primary School; San Andres Primary School; Malobago Primary School; Caranas Primary School; Hinica-an Primary School; Sarao Primary School; Malonoy Primary School; Canva-is Primary School; Calapi Elementary School; Angyap Primary School; Mararangsi Primary School; Pamamas-an Primary School; Linunuban Primary School; Caulayanan Primary School; Candomacol Primary School; Bonga Elementary School; Canatu-an Primary School; Inalad Elementary School; New Minarog Elementary School; Maypange Primary School; Calantawan Elementary School; Bayog Elementary School; Bayog Elementary School; Oyandic Primary School, and Motiong Central Elementary School.

The study was conducted during the school year 2011 – 2012.

### **Definition of Terms**

To promote understanding of the terms used in this research report, they are defined operationally.

**Educational preparation.** The term pertains to the mathematics teachers' formal education in preparation to teach the subject. This includes the teachers' pre-service training and their area of specialization.

**Facilitative measures.** The term refers to the course of action systematically structured to help the mathematics teachers in carrying out their daily activities in teaching the subject.

**Income.** This refers to joint income of both the teacher and his/her spouse, earned from salary and other sources of income.

**Practices.** The term is used to mean the teaching strategies, approaches and techniques utilized by the mathematics teachers in conducting their science lessons to develop the children's skills in science processes.

**Problems.** This refers to the obstacles that hamper the teaching-learning situations in Mathematics.

**Proposed training program/design.** The term is used to mean the course of action that will be structured based on the result of this study to enhance the teachers' competencies in teaching Mathematics that would redound to high achievement level of the pupils in the subject area.

## Chapter 2

### REVIEW OF RELATED LITERATURE AND STUDIES

This chapter contains the literature gathered from books, encyclopedia and journals as well as unpublished theses which have bearing on the present day.

#### Related Literature

Based on DECS memorandum issued on October 7, 1999 acknowledging Philippine Commission on Educational Reforms' (PCERS) recommendation for the reform proposals which stated that:

Teacher competencies at the basic level should be strengthened. PCER envisions a quintessential teacher imbued with a passion for academic excellence, highest standards of values and at the same time abreast with the global changes around him. It also recommends the implementation of the Project TEACH or Teacher Empowerment to Achieve Competence of Humanness. With the objective of strengthening competencies of teachers who are already in the field (in-service level) the project aims to develop the teacher as: 1) reading teacher; 2) critical/analytical creative thinker; 3) a values education teacher imbued with the ideals of integrity, honesty and patriotism and the like; a teacher who is adept at using new learning technologies as a means of enhancing the teaching-learning process.

In line with the above citation, Valle (1994:223) averred that teaching has always meant decision-making about curriculum, materials and pedagogy. Good teaching therefore, provides rich environment and learning experiences through instructional materials and devices that challenge the attention of the learners' stimulate their thinking and facilitate their understanding.

Former President Ramos (1995:12) announced in his speech that our system of basic education must provide a strong foundation in Science with a curriculum that is at least comparable to those of other Asian countries. He had given the go signal for a possible transition to an eleven-year basic education program to be implemented in the years to come. Strengthening basic education through the additional years of schooling in the elementary is believed would result to a quality education, and thereby our school children will be globally competitive.

Camarao (1991:364) stressed that for elementary education, it should continue to be strengthened emphasizing on the basics with strong Science and Technology education bias. In addition to the existing components of general technology education, general computer education will become an essential part of the curriculum. The return of the 7<sup>th</sup> grade should be considered to further strengthen basic education. Better classrooms, instructional materials, teachers and other support systems are needed to enhance the achievement of the pupils. Punzal (1997:14) emphasized that pupils' achievement depends on how effective

the teacher manages the instructional system. Teacher effectiveness depends largely on the quality of the curricular and instructional decision that the teacher makes.

The 2002 Curriculum is in compliance with the 1987 Constitution of the Republic of the Philippines. Article XIV, Section 1 of the 1987 Constitution stipulated that it is the responsibility of the state to protect and promote the rights of all citizens to quality education at all level and it shall take appropriate steps to make such education accessible to all. Furthermore, the same Article, Section 3.2, promulgates that all educational institutions shall inculcate patriotism and nationalism; foster love and humanity, respect for human rights, appreciation of the role of national heroes in the historical development of the country; teach the right and duties of citizenship, strengthen ethical and spiritual values, develop moral character and personal discipline, encourage critical thinking, broaden scientific and technological knowledge and promote vocational efficiency.

For the past decade, there have been very strong initiatives in academic circles towards improving and creating effective schools. In recent years, the emphasis on lifelong learning has redirected the aims of education from teacher-dominated learning to teaching with the end goals of equipping learners with skills that will enable them to learn independently. Thus, teaching has shifted its

focus from teaching fact and rote skills to developing thinking skills that will enable learners to “learn on their own” in “thoughtful classrooms.”

Claveria (1992: 392) in her write-up about basic education is that out of 100 children who entered grade one, only 66.62 percent graduate from elementary grades. In the secondary level, only 87.72 complete high school. The appealing problem is the school leaving rate of 33 percent in the elementary. The implications of these situations are: 1) wastage; 2) illiteracy; 3) unemployment; and 4) ineffectiveness of the educational system. These implications may be sweeping exaggerations, according to her, because the educational establishments had produced a mass of Filipinos who have become leaders.

Reyes (200:47-50) in her article pointed out that good health and proper nutrition enable humans to easily acquire skills, learn more and do progressively in a short duration of time. Health and nutrition now stand as the most vital determinant to physical, intellectual, social, emotional and moral development of any individual. All these factors will lead us to our earlier learning process. As the World Health Organization defined, “Health is the complete physical, mental and social being not just the absence of infirmity. Learning is very important in child development. The proper supply of food and nutrients to children will enable them to easily acquire skills and develop and discover their maximum potentials.

She, therefore, concluded that health and nutrition could no longer be detached as primary determinants of the completion rate for any locality or nation as a whole. The degree of the quality of health and nutrition will determine directly the degree and quality of a child's overall mental performance, cognitive development, capacity to acquire skills, ability to absorb learning and also the normal physical growth. Hence, health and nutrition and completion rate had been established as coherent and interdependent with each other and so we are under moral obligation and responsibility to promote and sustain them.

Daug (1998:136) carefully stressed that the home environment including parents' income and educational level is the single most important factor in predicting the child's academic success. The child's work in school and his attitude towards it are greatly influenced by these relationships: wholesome family relations lead to motivation to achieve while unwholesome relationships cause emotional tension which may have a detrimental effect on the child's ability to learn. Finally, he claimed that there is considerable evidence that home environment is related to measured level levels of child intelligence and school environment. The evidence suggests that maternal educational level is the strongest predictor of a child's environment.

Dudalo (2003:180) made clear that to make teaching effective and learning productive, the teacher must know the nature of the child to be

motivated, directed and guided and evaluated. To understand the child, the teacher must: 1) know him as a biological organism with needs, abilities and goals; 2) know the social and psychological environment; and 3) the cultural forces of which he is a part. The behavior of a child at any given moment is the result of biological environmental factors operating simultaneously. The child behaves as he does because he is a human being with needs and motives; and because he is surrounded by environmental and cultural forces which determine his behavior, these needs and motives shall be met. And so, he suggested that teacher have a crucial role to play in the process of producing desired changes in children's behavior.

Abrugar (2001:95) identified some ways of developing pupils' excellence, these include the following: 1) encourage school children to solve their own problem; 2) encourage children to have high expectations; 3) parents should participate actively in school activities; and 4) involve parents and pupils in co-curricular activities.

On this similar aspect, the author believed that there are many ways of developing pupil excellence that teachers, the parents and the community can do, assuming of course, that the classrooms are conducive to learning and well provided with instructional materials. The need for positive attitude and developmental thinking can do wonders in developing pupil excellence.

Ogayon ( 2004:474-475) winning essay write-up lengthily discussed that the new millennium demands a different kind teacher who creates, and not merely dispenses knowledge, and teaches children not just lessons, focuses on the more enduring understanding: the attitudes, skills and knowledge which she wants her pupils to internalize and remember why they leave class at eh end of the school year, and makes sure that all children learn how to learn, helping them acquire the attributes, skills and dispositions of lifelong learners she openly desires her pupils to possess, that she herself religiously demonstrates through her daily deeds and words.

He believed that an effective teacher the new through research and implements and expansive series of teaching assessment strategies that will, among other things, offer all learners opportunities to demonstrate what they have learned in a variety of ways. She practices a good balance of traditional and alternative teaching assessment strategies to enable her to fairly and holistically assess an individual pupils' learning.

If problem solving activities were only a delightful experience, Mathematics would readily become a bridge to delightful achievements (Smith, 1991: 189). It is the teacher's duty to encourage every student to strengthen his Mathematics connections, to love numbers and to follow their paths whatever transformed by the operations. In Mathematics, as well as in any academic discipline, there is a certain amount of information that must be learned for

mastery. Without mastering these basic facts, future work and success in Mathematics will be difficult (Sotto, 1990: 210).

As instructional managers, the teachers should find ways of stimulating the students to love Mathematics. Mathematics must be learned not only for its many practical applications, but also for its recreational aspects (Casareho, 1991, 180). Thus it is the teachers' concern to provide varied enrichment materials for the learners particularly to those who need more guidance and experiences to fully grasp a concept or develop a skill. Children learn faster and get more meaningful ideas better from actual situations and firsthand experiences. They also develop greater skills in thinking, judgment and discovery (Velarde, 1997: 84).

The knowledge of Mathematics is one of the measures of intellectual life. Mathematics ranges from its everyday use in counting to Mathematics taught in school and then to the advanced Mathematics used in researches that are vital to the progress of mankind (Cornelius, 2000, 14).

Mathematics is primarily a creative activity that calls for imagination, geometric intention, experimentation, investigation, practical work, guessing, trial and error and the use of analysis. Organizing into a logical structure is the last act in the development of Mathematics (Cornelius, 1992: 14).

In this age characterized by exponential growth of scientific and technological knowledge, it is but delectable and heartening that educators have

become aware of these spectacular advancements. And to cope with the progress, they have strive hard and exerted their conscientious efforts in conducting seminars, in-service training, conferences, and workshops all over the country to teach mathematics effectively and efficiently in order to turn out graduates who will become skillful in both numerical and computational skills (Battad, 1992: 21).

Moreover, Morger (1988: 159) considers attitude as fundamental to the learning of any subject. He claims that positive attitude is a must to learning. Furthermore, in order for the subject matter to be learned to its maximum, the learner must show interesting order for him to listen and understand the subject.

Crow and Crow (1988:48) assert that the attitudes act as dynamic force in human behavior. They give direction and influence on the mental set of the individual in a particular situation. Attitudes are not necessarily constant. They vary with the intensity of the individual's interest and the persons or situations involved.

The teacher is another factor in the learning of mathematics. In this regards, Copeland (1986:214) avers that the teacher must possess facilitating personality traits. He must have the mastery of the tools of logic and reason and the ability to appeal spontaneously to the learners. A truly inspiring teacher must first of all be grounded in the subject matter, well beyond the level of any

material which is expected to teach, in order that he can inspire confidence and respect of his student.

In so far as the teacher-factor is concerned, the teacher either facilitates or hampers the learning of students in the classroom. Since mathematics is a highly specialized skill, all things shall be considered to facilitate learning in the classroom. In this aspect, Butler (1r subject, happens in a context, in an 980:85) opines that one of the most critical single element in the composite structure of an effective mathematics program in school is the teacher. A poorly prepared mathematics teacher can destroy the effectiveness of any carefully selected and well organized curriculum. However, if the teacher is well prepared, he comes to class equipped with all the classroom paraphernalia, then he becomes effective in the classroom. This situation is not only true to the subject in mathematics, but to all subject as well.

Mathematics is an integral system of ideas. It includes social and computational aspects involving principles and processes as well as social concepts (Cagaanan, 1993:328). As such, learning mathematics, just like any other subject, happens in a context, in an environment made up of the family, the school and the community.

The school is a very important factor in learning and development of the young ones. It is said that good schools can develop students better than poor ones. According to Calderon (1998:20), there are three components that make the

difference between good and poor schools. First, the teachers; if the teachers are efficient in the true sense of the word, the students learn remarkably well than when the teachers are inefficient, in which students suffer a setback. Second, the facilities; if the facilities are adequate and serviceable, the students learn well and progress rapidly, otherwise the pupils are retarded in their learning. Third, the location - the students studying in a school located in a very quiet place find learning conducive. They learn much more than the students exposed to very noisy surroundings like a busy street or a market place.

Soliven, et al (1997:38) concerned about the danger posed by environmental influences like drugs, violence and the like, suggests that proper guidance must be constantly given and schools must offer alternative activities. Parents must help their students make full use of their abilities in school work. Young adults can be guided in their adjustment to the demands of the environment outside the home and school, including the workplace. The school and society must give young adults technical skills and opportunities to experience economic independence.

Family background that includes level of education and value orientation of parents is concerned another determinant of learning. If the parents exhibit ignorance and wrong values, the students likewise suffer the adverse consequences because such parents cannot pay much attention to the proper upbringing of their students. On the other hand, student coming from affluent

families and educated parents with the right values could grow and develop more progressively than students coming from poor families (Calderon, 1998:19).

The kind of community where students find themselves could either facilitate or hinder their learning and success. Students coming from so-called squatter or slum areas and from crime-infested areas have very slim chance of growing progressively because of the bad influence of their neighborhood. The peers or barkada influence is quite strong in these places. In contrast, students coming from middle and affluent families usually live in communities of the same status. They have all the possibilities for optimum growth and development. The existence of such facilities as telephones, television, computer sets and other technology in the homes provide excellent experience for the students. In the community, the presence of libraries, museums, big commercial establishments providing recreational facilities are sources of rich sources of knowledge for the learners.

The foregoing citations established the need to conduct the study. They strengthened the concepts and processes of the study at hand.

### **Related Studies**

Likewise the researcher painstakingly reviewed available unpublished theses and dissertations which were relevant to give substance and strengthen the need for this particular study. Summary of the findings and recommendations are cited in this section.

In 2004, Enderio conducted a study entitled, "Performance of Grade III Pupils in Mathematics: Basis for an Enhancement Program." She suggested the following: 1) mathematics instruction should be reviewed by both administrators and teachers in terms of time allotment, content and strategies. The involvement of pupils and parents in this endeavor is highly recommended; 2) the PTCA meetings could include such agenda as SWOT analysis to identify the problems met by pupils and teachers in mathematics instruction and in the supervision of parents in the studies of their children at home; 3) the district and school heads should provide math teachers with opportunities for further studies as well as in-service trainings; 4) a survey of the community could be initiated to assess the available resources as well as roadblocks to the success of the pupils in school in general as well as in mathematics, and 5) workshops could be conducted in the school and district levels for the production of instructional materials; such could be part of the graduate research activities of the math teachers or of the instructional materials development of the district.

The present study is similar with the study of Enderio considering that both studies delve on the teaching of mathematics. However, the two studies differ in many ways. The former was conducted in the District of Quinapundan, Division of Eastern Samar focusing on the performance of the grade III pupils while the present study will be conducted in the District of Motiong, Division of Samar focusing on the competencies of the Mathematics teachers.

Alvez (2001) advanced a study on "An Analysis of the Pupils' Skills in Problem-Solving in Mathematics in the Schools District of Villaba South, Division of Leyte: A Proposed Program for Skills Development." From the findings of his study, he concluded that: 1) the pupils lacked the mastery of the basic problem solving skills being manifested by the result of the diagnostic test at the beginning of the school year to measure their strengths and weaknesses; 2) there was still need for the pupils to be drilled on the identification of the proper processes with the situations indicated in the problems so that they would be able to solve verbal problem by translating it into an accurate number sentence correctly prior to the simplification and verification of the exact answers; 3) there apparently was absolute inability on the part of the majority of the pupils to do reflecting thinking, to delve into the whys and wherefores of a problem in order to be able to go into the proper process of solving it correctly; 4) the pupils needed more experiences in problem solving so that they would become more adept at understanding and analyzing the problems and getting the right solutions, and 5) there was no significant degree of similarity in the performance of the grade five pupils and the grade six pupils in problem solving.

The present study is in parallel with the study of Alvez for the reason that both studies are on Mathematics as a subject area. The two studies, however, differ in the process or focus of the study aside from the locale. The previous study focused on the pupils' skills in problem solving involving the grades V

and VI pupils in the District of Villaba South, Division of Leyte while the present study will focus on the competencies of the Mathematics teachers in the District of Motiong, Division of Samar.

Paciencia (2008) conducted a study on the "Correlates of Competencies of Mathematics Teachers of the Philippine Science High School: Inputs for an Intervention Scheme." This educational research focused on identifying the correlates of the competencies of the mathematics teachers of the Philippine Science High Schools, specially the PSHS Visayas and Mindanao Campuses. The study used the descriptive method of research to probe into the problems formulated in this investigation through the use of questionnaires in order to elicit the data needed from the respondents. The respondent of the study were all teachers teaching mathematics in all year levels in the PSHS System Visayas and Mindanao Campuses. There was a one hundred per cent involvement of the teachers teaching mathematics in the schools covered by the study.

The present study has some relevance to the study of Paciencia inasmuch as the subjects of the study are Mathematics teachers. However, they differ in the focus of the study. While the previous study focused on the correlates of the teaching performance of Mathematics teachers, the present study will assess the level of competencies of the Mathematics teachers.

Bieda in 2007, conducted a study entitled, "The Pedagogy of Proving in Middle School Mathematics." In her study she found out that although

justifying and proving have gained a more prominent presence in discussions about school mathematics in all grade levels and across all content areas over the past decade, little research has examined how tasks designed to develop students' competencies in justifying and proving are enacted in the classroom. The literature shows that students, at all grade levels, struggle in developing mathematical arguments that are sufficiently general in nature and that teachers' conceptions and beliefs about proving in school mathematics call into question whether all students, regardless of age or ability, are expected to justify and prove as a part of their everyday mathematical practice. To date, however, there are few, if any, studies that have focused on how tasks designed to elicit justifications are enacted in the classroom. Thus, the central question of this dissertation research is to understand the outcomes of implementing proof-related tasks in the classroom

To answer the central question of this dissertation, a study was conducted in seven 6th, 7th and 8th grade classrooms that utilized the Connected Mathematics Project (CMP) curriculum. Classroom observations took place during implementation of proof-related tasks---tasks that were identified as providing opportunities for students to produce generalizations or conjectures. Findings from this work suggest that middle school students' classroom experiences with justification and proof are insufficient for developing desired conceptions of mathematical proof as well as the skills necessary to produce

appropriate justifications in subsequent mathematics courses. In addition to presenting findings from the classroom study, an integrated summary of research on students' and teachers' conceptions of justification and proof in school mathematics, along with issues related to enacting curriculum and implementing tasks of high cognitive demand, is presented. Finally, a secondary presentation of the results in light of how manipulative and other concrete representations influenced the enactment of proof-related tasks is provided.

The present study is relevant to the study of Bieda in the sense that the two studies involve Mathematics teaching. However, the previous study focused on the pedagogy of proving in Mathematics while the present study will focus on the assessment of the competencies of the Mathematics teachers in the District of Motiong, Division of Samar.

In 2004, Duran conducted a study entitled, "Mathematics Teachers' Competence in Relation to Students Performance in National High Schools of Dapitan City Division, Zamboanga del Norte, Mindanao." The principal purpose of this study was to find out the competence of mathematics teachers and its relation to the performance of students in mathematics in the National High Schools of the Division of Dapitan City, Zamboanga del Norte, Mindanao, Philippines during the school year 2003-2004. This was to ensure the preparedness and competence of these teachers in carrying out the focal goal of the 2002 Basic Education Curriculum (BEC) in the country, which is the

development of functional literacy among the learners. The output of the study was envisioned to become a useful basis in generating an evaluation tool for teachers' competence to supplement the usual appraisal system for teachers' performance.

Based on the findings of the study, the following conclusions are drawn:

1. The mathematics teachers possess high level of competence.
2. The students and the teachers have similar perceptions on the competence of the mathematics teachers.
3. The students perform satisfactorily in mathematics.
4. The competence of mathematics teachers moderately influences the performance of students in mathematics.

After a thorough examination of the findings and conclusions of the study, the researcher emphatically offers the following recommendations:

1. School administrators should encourage the mathematics teachers to get involved not only in professional activities but also in extra-professional activities.
2. DepEd Officials may adopt an evaluation tool for teachers' competence where students are included as one of the raters.
3. Mathematics teachers should find ways to boost the interest of the students in mathematics maximizing students' involvement in class-related activities.

4. Mathematics teachers should seek ways to grow professionally keeping in mind their significant influence on the students.

5. Other researchers may replicate this study in the same place or other places to further verify, amplify or negate the findings of this study.

The foregoing related studies extended the researcher's better understanding of her subject matter and guided her through the proper research process.

## Chapter 3

### METHODOLOGY

This chapter discusses the methods and procedures employed in the conduct of the study. Specifically, the following are included in this chapter: research design; locale of the study; instrumentation; validation of instrument; sampling procedure; data gathering procedure; and statistical treatment of data.

#### Research Design

This study employed the descriptive-developmental research using the researcher-questionnaire as the main instrument. The study was descriptive in nature considering that the personal characteristics of the respondents were identified as well as the competencies of the teachers teaching Mathematics based on the perception of the two groups of respondents, namely: school administrators and teachers themselves; the group perception of the two groups was compared for any significant difference.

The data gathered were tabulated, classified, organized and presented in statistical form. The data processing utilized both descriptive and inferential statistics, which included the following: frequency count, percentage, arithmetic mean, standard deviation, weighted mean, t-test for independent samples, Pearson r and the Fisher's t-test.

## Instrumentation

To capture the pertinent data, the researcher utilized two major instruments: the researcher-made questionnaire and the achievement test for Mathematics teachers supported by other applicable data gathering techniques.

Questionnaire. As mentioned earlier, the questionnaire was a researcher-made instrument intended for the respondents of the study, the elementary grade teachers teaching Mathematics and school administrators. Two sets of questionnaire were prepared.

The questionnaire intended for the elementary grade Teachers teaching Mathematics was composed of five parts, namely: Part I refers to the section that gathered information on the profile of the respondent in terms of age; sex; civil status; educational background; years of service; monthly family income; family size; years in teaching Mathematics; relevant trainings attended; and performance rating; while Part II ascertained the attitude of Mathematics teacher-respondents towards teaching Mathematics subject; Part III captured the perception of the elementary grade Mathematics teachers on their competencies in teaching the subject along: personal, professional and pedagogical competencies; Part IV elicited problems encountered by the Mathematics teachers in teaching the subject; and Part V solicited from the Mathematics teachers recommended solutions to address the problems encountered in teaching Mathematics.

The questionnaire intended for the school administrators was composed of only one part which captured their perception on the level of competencies of Mathematics teacher-respondents which was similar of the Part III of the questionnaire for the Mathematics teachers.

### **Validation of Instrument**

The researcher-made questionnaire underwent validation process.

**Questionnaire.** First, the researcher drafted the questionnaire that included all the indicators or variables cited in this study, particularly on the profile of respondents and the perception of the respondents on the competencies of the elementary grades teachers in teaching Mathematics.

The draft was presented to the researcher's adviser for comments and suggestions to improve its content. Based on the suggestions of the adviser, the questionnaire was revised and was subjected to expert validation through the graduate professors of Samar State University and by the panel members during the pre-oral examination. Comments and suggestions of the experts were considered in the final revision of the questionnaire.

The final draft of the questionnaire was subjected to pilot testing to ascertain its validity and reliability. A test-re-test reliability test was employed to a group of validators. Hence, pilot testing was administered twice to the same validators in an interval of one day. Results of the two pilot tests were tabulated

separately; afterwards, the reliability coefficient was computed using the Spearman rho correlation coefficient formula (Calmorin, 1992:62).

The computed Spearman rho coefficient denoted the reliability coefficient that determined whether the questionnaire was appropriate for fielding; the value was interpreted based on the Table of Reliability suggested by Ebel (1969:262), shown as follows:

Reliability Coefficient	Degree of Reliability
0.95 - 0.99	Very High
0.90 - 0.94	High
0.80 - 0.89	Fairly high, adequate for individual measurements.
0.70 - 0.79	Rather low, adequate for group measurements.
Below 0.70	Low, entirely inadequate for individual measurements although useful for group average and school surveys.

The computed reliability coefficient was pegged at 0.928 which denoted high validity, suggesting that the questionnaire possessed high validity and therefore appropriate for fielding to the respondents of this study.

The validation of the instrument was conducted at the District of Jiabong, Division of Samar involving two groups of respondents, namely: school administrators and elementary grade teachers teaching Mathematics.

### **Sampling Procedure**

This study utilized the total enumeration in choosing the respondents for the school administrators' and Mathematics teachers' group.

This meant that all administrators in the District of Motiong, Division of Samar from the district supervisor to teacher-in-charge were considered respondents and were made to answer the questionnaire intended for the school administrators.

Likewise, all Mathematics teachers in the District of Motiong were listed and were considered respondents of the study.

### **Data Gathering Procedure**

The researcher sought a study permit from the Division Office which was attached to the letter requesting permission from the Schools Division Superintendent of the DepEd Division of Samar to conduct the study in the District of Motiong, Division of Samar among school administrators and Mathematics teachers. The approved request was used by the researcher as reference in seeking permission from the District Supervisor, principals, head teachers and teachers-in-charge to field the instrument among themselves and their respective elementary grade teachers handling Mathematics subject.

Table 1

## Sampling Frame of the Study

Name of School	Administrators	Teachers
District of Motiong	9	
Beri Primary School		1
Barayong Primary School		1
Sto. Niño Primary School		1
San Andres Primary School		1
Malobago Primary School		1
Caranas Elementary School		6
Hinica-an Primary School		1
Sarao Primary School		1
Malonoy Primary School		1
Canva-is Primary School		1
Capaysagan Primary School		1
Calapi Elementary School		13
Angyap Primary School		1
Mararangsi Primary School		1
Pamamas-an Primary School		1
Linunuban Primary School		1
Caulayanan Primary School		1
Candomacol Primary School		2
Bonga Elementary School		6
Canatu-an Primary School		1
Inalad Elementary School		6
New Minarog Elementary School		4
Maypange Primary School		1
Calantawan Elementary School		4
Bayog Elementary School		4
Oyandic Primary School		1
Motiong Central Elementary School		13
<b>Total</b>	<b>9</b>	<b>76</b>

To ensure high percentage of retrieval of the instrument, the researcher personally conducted the fielding of the questionnaire to the respondents, with the assistance of teacher-friends.

Data collection run for about two months starting mid of September to mid of November 2011. After which data processing followed.

This study also browsed and reviewed pertinent documents to validate information as manifested in the questionnaire.

### **Statistical Treatment of Data**

In the data processing, the researcher utilized different statistical tools, both descriptive and inferential. Among the descriptive statistics, the following were utilized: frequency count, percentage, arithmetic mean, standard deviation and weighted mean; while inferential statistics included: t-test for independent samples, Pearson r and the Fisher's t-test.

**Frequency count.** This statistic was used to present the responses of the respondents relative to their perception on the competencies of the Mathematics teachers in the division. This was used also in presenting the profile of the respondents based on the identified variates.

**Weighted mean.** This statistic was used to ascertain the group response of the respondents relative to the foregoing variables using the five-point Likert scale, as follows:

<u>Range</u>	<u>Description</u>	
4.51 - 5.00	Strongly Agree	(SA)
	Extremely Competent	(EC)
	Extremely Felt	(EC)
	Strongly Agree	(SA)
3.51 - 4.50	Agree	(A)
	Highly Competent	(HC)
	Highly Felt	(HF)
	Agree	(A)
2.51 - 3.50	Uncertain	(U)
	Moderately Competent	(MC)
	Moderately Felt	(MF)
	No Comment	(NC)
1.51 - 2.50	Disagree	(D)
	Slightly Competent	(SC)
	Slightly Felt	(SF)
	Disagree	(D)
1.0 - 1.50	Strongly Disagree	(SD)
	Not Competent	(NC)
	Not Felt	(NF)
	Strongly Disagree	(SD)

**T-test for independent samples.** This statistical tool was used to compare the perception of the two groups of respondents as regards their responses in the questionnaire pertaining to the competencies of the elementary grade teachers teaching Mathematics.

The computed value was compared with the critical value. If and when the computed value turned lesser than the critical value, the disparity in the perception between the two perceptions was deemed not significant. On the other hand, if and when the computed value turned equal or greater than the critical value the mean difference in the perceptions between the two groups of respondents was significant.

**Pearson-product-moment coefficient of correlation and Fisher's t-test.** These tools were used to ascertain relationship between the level of competencies of the teachers teaching Mathematics along the identified areas and their personal variates.

Further, for accuracy and precision, the researcher used the computer in the data processing utilizing available licensed application or software.

Finally, the researcher set the alpha level at .05 as the level of significance in all cases of testing the hypotheses and in determining the critical and probability values to decide whether the hypothesis was accepted or rejected.

## Chapter 4

### PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter presents the data based on the findings of the study with the corresponding analysis and interpretation. Included in this chapter are the following: profile of the mathematics teachers in the District of Motiong; mastery level of the teacher-respondents as revealed by an achievement test in Mathematics; relationship between the mastery level of teacher-respondents and their profile; level of competencies of the mathematics teachers as perceived by the two groups of respondents; comparison of the perceptions of the two groups of respondents relative to the level of competencies of Mathematics teachers; relationship between the level of competencies of Mathematics teachers and their profiles; problems encountered by the Mathematics teachers relative to their teaching Mathematics subject; and solutions recommended by the Mathematics teachers to address the problems they encountered relative to their teaching Mathematics subject.

#### **Profile of Mathematics Teacher-Respondents**

Tables 2 to 13 present the data on the profile of the Mathematics teacher-respondents in terms of the following personal characteristics: age and sex; civil status; educational background; years of service; average monthly family income; family size; number of years in teaching mathematics; classification;

relevant in-service trainings attended; performance rating for the last three years; and attitude towards teaching mathematics.

Age and sex. Table 2 presents the age and sex distribution of the Mathematics teacher-respondents. As revealed in the said table, a good number of the Mathematics teacher-respondents were aged between 32-36 years old

**Table 2**

**Age and Sex Distribution of Mathematics Teacher-Respondents**

Age Distribution	Sex		f	%
	Male	Female		
62 - 66	0	1	1	1.32
57 - 61	0	4	4	5.26
52 - 56	4	1	5	6.58
47 - 51	1	3	4	5.26
41 - 46	2	5	7	9.21
37 - 41	2	5	7	9.21
32 - 36	0	12	12	15.79
27 - 31	3	8	11	14.47
22 - 26	1	9	10	13.16
Not Stated	5	10	15	19.74
<b>Total</b>	<b>18</b>	<b>58</b>	<b>76</b>	<b>100.00</b>
<b>%</b>	<b>23.68</b>	<b>76.32</b>	<b>100.00</b>	
<b>Mean</b>	<b>37.85 years old</b>			
<b>SD</b>	<b>11.11 years</b>			

accounting for 12 or 15.79 percent. Eleven of them or 14.47 percent were aged between 27-31 years old while ten or 13.16 percent were aged between 22-26

years old; seven each or 9.21 percent each were aged between 42-46 years old and 37-41 years old; five or 6.58 percent were aged between 52-56 years old; four each or 5.26 percent each were aged between 57-61 years old and between 47-51 years old; and only one or 1.32 percent was aged between 62-66 years old. Noteworthy were the 15 Mathematics teacher-respondents or 19.74 percent who never disclosed their age for unknown reason.

The mean age of this group of respondents was calculated at 37.85 years old with a standard deviation (SD) of 11.11 years. The data suggested that the Mathematics teacher-respondents were on their late 30s, relatively young and at the prime of their career as teachers.

Moreover, majority of the Mathematics teacher-respondents were females accounting for 58 or 76.32 percent. The male counterparts comprised the minority accounting for 18 or 23.68 percent.

The data denoted that female dominance existed among the Mathematics teachers in the District of Motiong. This is expected considering that more female students graduated from the teaching degree and therefore landed in a teaching profession.

Civil status. Table 3 shows the profile of the Mathematics teacher-respondents in terms of their civil status.

Table 3

## Civil Status of Mathematics Teacher-Respondents

Civil Status	f	%
Single	14	18.42
Married	58	76.32
Widowed	2	2.63
Separated/ Annulled	2	2.63
<b>Total</b>	<b>76</b>	<b>100.00</b>

As gleaned from Table 3, majority of the Mathematics teacher-respondents were married accounting for 58 or 76.32 percent while 14 or 18.42 percent were singles; and two each or 2.63 percent each were widowed and separated/annulled.

The foregoing data suggested that the Mathematics teacher-respondents had families of which they are responsible of taking care of.

**Educational background.** Table 4 reveals the educational background of the Mathematics teacher-respondents.

From the Table, it can be noted that most of the teacher-respondents are MA/MS unit earners in addition to their baccalaureate degree courses, that is, 38 or 50.00 percent. Thirty-three or 43.42 percent of them were baccalaureate degree holders. The remaining five respondents or 6.58 percent did not disclose their educational background for purposes of anonymity, probably.

**Table 4**  
**Educational Background of Mathematics Teacher-Respondents**

Educational Background	f	%
With MA/MS Units	38	50.00
Baccalaureate	33	43.42
Not Stated	5	6.58
<b>Total</b>	<b>76</b>	<b>100.00</b>

The foregoing data signified that the Mathematics teacher-respondents recognized the importance of continuing education. This was manifested by the fact that half of them had enrolled in advance education thereby earning MA/MS units.

Further, Table 5 shows the field of specialization this group of respondents graduated with in their baccalaureate degrees.

The Table shows that majority of the teacher-respondents teaching Mathematics in the District of Motiong were majors in General Education, accounting for 20 or 26.32 percent, while eight of them or 10.53 percent were majors in English; four each or 5.26 percent each were majors in Mathematics and Industrial Education; three or 3.95 percent majored Social Studies; two each or 2.63 percent each majored in Science, Aralin Panlipunan, HE and Secondary Education, and only one or 1.32 percent majored PE. The remaining 28 teacher-

**Table 6**  
**Years of Service of Mathematics Teacher-Respondents**

Years of Service	f	%
34 - 36	1	1.32
31 - 33	1	1.32
28 - 30	1	1.32
25 - 27	4	5.26
22 - 24	4	5.26
19 - 21	1	1.32
16 - 18	3	3.95
13 - 15	3	3.95
10 - 12	9	11.84
7 - 9	11	14.47
4 - 6	15	19.73
1 - 3	15	19.73
Not Stated	8	10.53
<b>Total</b>	<b>76</b>	<b>100.00</b>
<b>Mean</b>	<b>10.37 years</b>	
<b>S. D.</b>	<b>8.47 years</b>	

The Table discloses that the teacher-respondents had been in the service from one year to 36 years. Fifteen each of the total respondents or 19.73 percent each had been in the service between 4-6 years and between 1-3 years while 11 or 14.47 percent had been in the service for 7-9 years; nine or 11.84 percent had been in the teaching profession for 10-12 years; four each or 6.26 percent each for 25-27 and 22-24 years; three each or 3.95 percent each for 16-18 and 13-15 years of service; and one each or 1.32 percent each for 34-36, 31-33, 28-30, and 19-21 years

in the service as teachers. Eight or 10.53 percent did not disclose the number of years they had been in the service for personal reason.

The mean number of years of service of this group of respondent was pegged at 10.37 years with a SD of 8.47 years.

The data suggested that the teacher-respondents had been in the service for quite a number of years denoting that they had already considered such profession as the source of their bread and butter.

**Average monthly income.** Table 7 presents the average monthly income raised by the teacher-respondents.

Table 7 presents that nine each of the total respondents or 11.84 percent each earned a monthly income between 19,000-20,449 and between 10,000-11,499 while seven of them or 9.21 percent earned between 11,500-12,949; five or 6.58 percent earned between 16,000-17,449; three each or 3.95 percent each earned between the following income brackets 17,500-18,949 and 13,000-14,449; two each or 2.63 percent each earned income between 8,500-9,949 and 5,500-6,949; and one each or 1.32 percent earned between 29,500-30,949, 25,000-26,449, 22,000-23,449, 20,500-21,949. Eighteen or 23.67 percent of the total respondents did not signify their average monthly income for anonymity.

The mean monthly income earned by this group of respondents was calculated at Php14,081.72 with a SD of Php5,270.75.

Table 7

## Average Monthly Income of Mathematics Teacher-Respondents

Income Bracket	f	%
29,500 - 30, 949	1	1.32
28,000 - 29,449	0	0.00
26,500 - 27,949	0	0.00
25,000 - 26,449	1	1.32
23,500 - 24,949	0	0.00
22,000 - 23,449	1	1.32
20,500 - 21,949	1	1.32
19,000 - 20,449	9	11.84
17,500 - 18,949	3	3.95
16,000 - 17,449	5	6.58
14,500 - 15,949	9	11.84
13,000 - 14,449	3	3.95
11,500 - 12,949	7	9.21
10,000 - 11,449	9	11.84
8,500 - 9,949	2	2.63
7,000 - 8,449	1	1.32
5,500 - 6,949	2	2.63
4,000 - 5,449	4	5.26
Not Stated	18	23.67
<b>Total</b>	<b>76</b>	<b>100.00</b>
<b>Mean</b>	<b>Php 14,081.72</b>	
<b>S. D.</b>	<b>Php 5,270.75</b>	

The data showed that the Mathematics teacher-respondents had regular income earned which they used to defray family expenses, both basic and educational needs of the members of the family.

**Family size.** Table 8 reveals the family size of the Mathematics teacher-respondents.

From the table, it can be gleaned that ten each of the respondents or 13.16 percent each had five and three members in the family, while nine of them or 11.84 percent signified to have six members; four each or 5.26 percent each had eight and seven members; three or 3.95 had two members, and one each or 1.32 percent each had 10, nine and one member in the family. Twenty-four of the

**Table 8**

**Family Size of Mathematics Teacher-Respondents**

Family Size	f	%
10	1	1.32
9	1	1.32
8	4	5.26
7	4	5.26
6	9	11.84
5	10	13.16
4	9	11.84
3	10	13.16
2	3	3.95
1	1	1.32
Not Stated	24	31.57
<b>Total</b>	<b>76</b>	<b>100.00</b>
<b>Mean</b>	<b>5 members</b>	
<b>S. D.</b>	<b>2 members</b>	

respondents or 31.57 percent did not reveal the size of their family for unknown reason.

The mean family size of this group of respondents was calculated at five members with a SD of two members.

The data suggested that this group of respondents had a quite bigger number of family members, that is higher than the expected number of siblings to be raised in the family, which is four only.

**Number of years in teaching Mathematics subject.** Table 9 shows the profile of the Mathematics teacher-respondents in terms of the number of years of teaching Mathematics subject.

The Table shows that of the 76 teacher-respondents, 18 or 23.68 percent signified to have been teaching the subject for 4-6 years; while 14 or 18.42 percent disclosed to teach the subject for 1-3 years only; nine or 11.85 percent had been teaching Mathematics for 7-9 years; eight or 10.53 percent for 10-12 years; four or 5.26 percent for 13-15 years; three or 3.95 percent for 25-27 years; and two each or 2.63 percent each for 22-24, 19-21 and 16-18 years. Still 14 or 18.42 percent did not reveal the number of years they had been teaching Mathematics subject.

The mean number of years of teaching Mathematics among teacher-respondents was calculated at 8.72 years with a SD of 6.86 years.

The data manifested that the teacher-respondents were just new in teaching Mathematics as a subject.

Table 9

**Number of Years of Teaching Mathematics of Teacher-Respondents**

<b>Years in Teaching</b>	<b>f</b>	<b>%</b>
25 - 27	3	3.95
22 - 24	2	2.63
19 - 21	2	2.63
16 - 18	2	2.63
13 - 15	4	5.26
10 - 12	8	10.53
7 - 9	9	11.85
4 - 6	18	23.68
1 - 3	14	18.42
Not Stated	14	18.42
<b>Total</b>	<b>76</b>	<b>100.00</b>
<b>Mean</b>	<b>8.72 years</b>	
<b>S. D.</b>	<b>6.86 years</b>	

**Classification.** Table 10 presents the classification of classes handled by the Mathematics teacher-respondents.

The Table presents that out of the 76 teacher-respondents, 44 of them or 57.89 percent handled monograde classes while the remaining 32 or 42.11 percent handled multigrade classes.

The foregoing data indicated that in the District of Motiong nearly half of the classes in the elementary are combination classes of two or more grades being handled by only one teacher. Probably, this could be attributed to the lack

4-6 trainings; two or 2.63 percent attended 10-12 trainings in the division, and only one or 1.32 percent signified to attend 7-9 relevant trainings in the division. The remaining 45 or 59.21 percent did not disclose whether they attended relevant trainings in the division or not.

Consequently, the mean number of relevant trainings attended by this group of respondent was 2.74 trainings with a SD of 2.41 trainings.

Also, Table 11 reveals the number of relevant trainings attended by the teacher-respondents teaching Mathematics subject in the district level. As revealed in the table, 24 or 31.58 percent of the respondents attended 1-3 relevant trainings in this level while four or 5.26 percent attended 4-6 trainings and three or 3.95 percent attended 10-12 trainings. Still, more than half, that is, 45 or 59.21 percent never revealed if they attended any relevant trainings in this level or not without any reason given for justification.

At any rate, the mean number of trainings attended by the Mathematics teacher-respondents was set at 2.90 trainings with a SD of 2.86 trainings.

The foregoing data indicated that only few of the teacher-respondents were given the opportunity to attend relevant trainings in Mathematics. Most of the trainings they attended were mostly re-echoed trainings in the division or district levels. Probably, due to sans funds and lack of material time, only few were given the chance to attend national and even regional trainings.

Performance ratings for the past three years. Table 12 presents the data on the performance rating of the Mathematics teacher-respondents for the last three years.

The Table shows that in the school year 2008-2009, 25 teacher-respondents or 32.89 percent signified to earned performance rating of 8.00-8.49 while three or 3.95 percent earned 7.50-7.99; two or 2.63 percent, 8.50-8.99, and one each or 1.32 percent each earned numerical performance ratings of 7.00-7.49, 6.00-6.49, and 5.50-5.99. However, more than half of the total respondents, that is, 43 or 56.57 percent did not disclose the numerical performance rating they earned for the school year 2008-2009.

**Table 12**

**Performance Rating of Mathematics Teacher-Respondents for the Last Three Years**

Rating	S. Y. 2008 - 2009		S.Y. 2009 - 2010		S. Y. 2010 - 2011	
	f	%	f	%	f	%
8.50 - 8.99	2	2.63	2	2.63	2	2.63
8.00 - 8.49	25	32.89	25	32.89	28	36.84
7.50 - 7.99	3	3.95	4	5.26	3	3.95
7.00 - 7.49	1	1.32	1	1.32	1	1.32
6.50 - 6.99	0	0.00	0	0.00	0	0.00
6.00 - 6.49	1	1.32	0	0.00	0	0.00
5.50 - 5.99	1	1.32	1	1.32	0	0.00
Not Stated	43	56.57	43	56.58	42	55.26
<b>Total</b>	<b>76</b>	<b>100.00</b>	<b>76</b>	<b>100.00</b>	<b>76</b>	<b>100.00</b>
<b>Mean</b>	<b>8.05</b>		<b>8.11</b>		<b>8.23</b>	
<b>S. D.</b>	<b>0.60</b>		<b>0.51</b>		<b>0.29</b>	

The mean numerical performance rating of the Mathematics teacher-respondents for the school year 2008-2009 was pegged at 8.05 with a SD of 0.60 which can be equated to a descriptive rating of “very satisfactory.”

For the school year 2009-2010, Table 12 shows that of the 76 teacher-respondents, 25 or 32.89 percent obtained a numerical performance rating of 8.00-8.49 while four or 5.26 percent garnered 7.50-7.99 performance rating; two or 2.63 percent got 8.50-8.99, and one each or 1.32 percent each obtained a numerical performance rating of 7.00-7.49 and 5.50-5.99. But still, more than half of the respondents, that is, 43 or 56.58 percent did not disclose their obtained numerical performance rating for the school year for an undisclosed reason.

The mean numerical performance rating of the Mathematics teacher-respondents for the school year 2009-2010 was calculated at 8.11 with a SD of 0.51 which can be equated to a descriptive rating of “very satisfactory.”

Too, Table 12 presents the numerical performance rating obtained by the teacher-respondents for the school year 2010-2011. From the table, it can be gleaned that 28 or 36.84 percent obtained a numerical performance rating of 8.00-8.49 while three or 3.95 percent garnered 7.50-7.99 performance rating; two or 2.63 percent got 8.50-8.99, and one or 1.32 percent obtained a numerical performance rating of 7.00-7.49. However, there were still more than half of the respondents, that is, 42 or 55.26 percent did not reveal the numerical

performance rating they earned for the school year 2010-2011 for personal reason.

The mean numerical performance rating of the Mathematics teacher-respondents for the school year 2010-2011 was set at 8.23 with a SD of 0.29 which can be equated to a descriptive rating of "very satisfactory."

The foregoing data denoted that despite the constraints presented previously, the Mathematics teacher-respondents manifested very satisfactory performance in the discharge of their functions as Mathematics subject teachers.

**Attitude towards teaching Mathematics.** Table 13 presents the profile of the Mathematics teacher-respondents in terms of their attitude towards teaching the subject. There were 40 attitude statements identified in this particular study.

As presented in the said table, this group of respondents "strongly agreed" on only two attitude statements. These statements corresponded to the following: number 1, "I express appreciation to pupils who give correct answers;" and number 3, "I give examples and illustrate explanation about the topic," with weighted means of 4.74 and 4.51, respectively.

Table 13

**Attitude of Mathematics Teacher-Respondents Towards  
Teaching Mathematics**

Attitude Statements	Weighted Mean	Interpretation
1. I express appreciation to pupils who give correct answers	4.74	SA
2. I display systematically arranged teaching aids to facilitate learning	4.26	A
3. I give examples and illustrate explanation about the topic	4.51	SA
4. I show the relationship of the present lesson to past topics	4.33	A
5. I show the relationship of the lesson to the realities in life or to conditions outside the classroom	4.30	A
6. I present a short summary of the lesson at the end of the class	4.25	A
7. I present a clear objective for the lesson observed, analyzed or measured	4.32	A
8. I emphasize important points or aspects of the lesson by underlining them or giving them more time than those which are less important	4.36	A
9. I ask questions about the finished lesson or encourage students to ask questions about the lessons in an effort to discover if the students have learned something	4.39	A
10. I check worthy and relevant jokes	3.79	A
11. I criticize students who give wrong answers	2.22	D
12. I always remind the students about their undesirable character traits	3.49	U
13. I do not use a variety of pitch and voice quality	2.89	U
14. I show undesirable habits inside the classroom	2.05	D
15. I reveal to class secrets of other people	1.88	D
16. I humiliate and insult students	1.67	D
17. I answer very intelligently questions asked by the students	3.95	A
18. I explain the lessons very well	4.41	A
19. I read explanation from the book	3.87	A
20. I fluently and clearly present the subject matter/ lesson	4.17	A
21. I speak clearly	4.29	A
22. I easily adjust to the necessary changes in the classroom	4.07	A
23. I carry myself well, and has self confidence	4.30	A
24. I fulfill promises made to the students and keeps individual or group agreements	4.12	A

*Table 13 continued*

<b>Attitude Statements</b>	<b>Weighted Mean</b>	<b>Interpretation</b>
25. I acknowledge students by smiling at nodding, greeting them, etc. when I meet them outside the classroom	4.22	A
26. I am always ready to help students in need	4.39	A
27. I give students challenging activities, problems or assignments	4.30	A
28. I clearly explain how I rate or give grades	4.21	A
29. I make clear how the highest point of learning is achieved or gained	4.17	A
30. I strengthen desired academic practices through assignments, class discussions, and others	4.20	A
<b>Grand Weighted Mean</b>	<b>3.87</b>	<b>A (Highly Favorable)</b>

**Legend:**

<u>Scale</u>	<u>Description</u>	<u>Interpretation</u>
4.51 - 5.00	Strongly Agree (SA)	Extremely Favorable
3.51 - 4.50	Agree (A)	Highly Favorable
2.51 - 3.50	Undecided (U)	Moderately Favorable
1.51 - 2.50	Disagree (D)	Slightly Favorable
1.00 - 1.51	Strongly Disagree (SD)	Not Favorable

Thirty attitude statements were "agreed" by the teacher-respondents corresponding to numbers 1, 4-12, 20-24, and 26-40 with weighted means ranging from 3.79 to 4.46. The top five indicators that obtained the highest weighted means corresponded to the following: number 8, "I suite the method of teaching to the abilities of the students;" number 21, "I explain the lessons very well;" number 10, "I ask questions about the finished lesson or encourage students to ask questions about the lessons in an effort to discover if the students have

learned something;" number 33, "I am always ready to help students in need;" and number 9, "I emphasize important points or aspects of the lesson by underlining them or giving them more time than those which are less important," with weighted means of 4.46, 4.41, 4.39, 4.39 and 4.36, respectively.

In the three attitude statements, the teacher-respondents were "undecided" which corresponded to the following: number 14, "I always remind the students about their undesirable character traits;" number 25, "I clearly present things which are not related/ irrelevant to the subject matter;" and number 15, "I do not use a variety of pitch and voice quality," with weighted means of 3.49, 2.96 and 2.89, respectively.

Further, five attitude statements were "disagreed" by the teacher-respondents. The statements corresponded to the following: number 13, "I criticize students who give wrong answers;" number 16, "I show undesirable habits inside the classroom;" number 17, "I lack/lose self-control demonstrated by shouting and throwing tools/things away;" number 18, "I reveal to class secrets of other people;" and number 19, "I humiliate and insult students," with weighted means of 2.22, 2.05, 2.01, 1.88 and 1.67, respectively.

Taken as a whole, the Mathematics teacher-respondents "agreed" on the attitude statements identified in this study towards teaching Mathematics subject. This was manifested by the grand weighted mean of 3.87 which

indicated that the teacher-respondents showed “highly favorable” attitude towards teaching Mathematics.

**Mastery Level of the Teacher-Respondents as Revealed by an Achievement Test in Mathematics**

Table 14 reveals the mastery level of the teacher-respondents based on the result of an achievement test in Mathematics administered to them covering the different skills in Mathematics for the primary and intermediate grades.

It can be gleaned from the table that the result of the achievement test ranged from 56 to 100 points. Majority of the teacher-respondents obtained rating between 96-100 accounting for 35 or 46.05 percent while 11 or 14.47 percent of them got a rating between 91-95; eight or 10.52 percent garnered ratings between 86-90; five each or 6.58 percent each got 81-85, 76-80 and 66-80 ratings; three or 3.95 percent got 61-65 ratings, and only one or 1.32 percent obtained 56-60 rating in the achievement test in Mathematics.

The mean rating obtained by the Mathematics teacher-respondents was pegged at 89.32 with a SD of 11.83.

Table 14

**Mastery Level of Mathematics of Teacher-Respondents as  
Revealed by an Achievement Test in  
Mathematics**

<b>Achievement Level</b>	<b>f</b>	<b>%</b>
96 - 100	35	46.05
91 - 95	11	14.47
86 - 90	8	10.52
81 - 85	5	6.58
76 - 80	5	6.58
71 - 75	3	3.95
66 - 70	5	6.58
61 - 65	3	3.95
56 - 60	1	1.32
<b>Total</b>	<b>76</b>	<b>100.00</b>
<b>Mean</b>	<b>89.32</b>	
<b>S. D.</b>	<b>11.83</b>	

The data presented signified that the Mathematics teacher-respondents had a remarkable mastery level in the subject they were teaching. This showed that despite most of them were non-mathematics majors, they were able to internalize the concepts and mastered the different skills they are teaching.

### Relationship Between the Mastery Level of the Teacher-Respondents in Mathematics and Their Profile

Table 15 reveals the result of the correlation analysis employed by the researcher in associating the mastery level of the teacher-respondents based on the achievement test in Mathematics and their personal profile in terms of age and sex; civil status, educational background; specialization; years in service; average monthly income; family size; years in teaching Mathematics; classification; in-service training attended; performance rating, and attitude towards teaching Mathematics subject.

Age and sex. Table 15 reveals that in associating the mastery level of the teacher-respondents and their age and sex, the  $r_{xy}$  value was pegged at 0.023 and 0.060, respectively with Fisher's t-values of 0.198 and 0.517 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. These signified that the correlation between the mastery level of the teacher-respondents and their age and sex was not significant. Therefore, the corresponding null hypotheses to these effects were accepted, denoting that age and sex had nothing to do with the mastery level in the achievement test in Mathematics of the teacher-respondents.

Table 15

**The Correlation Table in Associating the Mastery Level of the  
Mathematics Teacher-Respondents and Their  
Profile**

<b>Profile</b>	<b><math>r_{xy}</math></b>	<b>Fisher's t value</b>	<b>t Tabular Value</b>	<b>Evaluation at <math>\alpha = .05</math></b>
Age	0.023	0.198	1.980	NS
Sex	0.060	0.517	1.980	NS
Civil Status	-0.108	0.935	1.980	NS
Educational Background	0.000	0.000	1.980	NS
Specialization	-0.226	1.996	1.980	S
Years in Service	-0.022	0.189	1.980	NS
Average Monthly Income	-0.022	0.189	1.980	NS
Family Size	0.055	0.474	1.980	NS
Years in Teaching	-0.194	1.701	1.980	NS
Math Classification	0.102	0.882	1.980	NS
INSET	-0.194	1.701	1.980	NS
Performance Rating	0.097	0.838	1.980	NS
Attitude Towards Teaching Math	-0.119	1.31	1.980	NS

*S = Significant*

*NS = Not Significant*

**Civil status.** In associating the mastery level of the teacher-respondents as revealed by the achievement test in Mathematics and their civil status, yielded a  $r_{xy}$  value of -0.108 with a Fisher's t-value of 0.935 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This indicated that the correlation existing between the aforesaid variables was not significant. Hence, the corresponding null hypothesis to this effect was accepted signifying that civil status of the teacher-respondents had nothing to do with their mastery level in Mathematics.

**Educational background.** In associating the mastery level of the teacher-respondents in Mathematics and their educational background, the  $r_{xy}$  value was calculated at 0.000 with a Fisher's t-value of 0.000 which was obviously lesser than the t-tabular value of 1.980 at .05 level of significance. This suggested that the correlation existing between the two variables was not significant which led to the acceptance of the corresponding null hypothesis to this effect. This meant that educational background of the teacher-respondents had nothing to do with their mastery level in Mathematics.

However, in associating their field of specialization and their mastery level in Mathematics, the  $r_{xy}$  value was -0.226 with a Fisher's t-value of 1.996 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This denoted that the major field of the teacher-respondents posed significant relationship to their mastery level in an achievement test in Mathematics. The

correlation suggested that those who majored in Mathematics as their field of specialization in their baccalaureate degree, obtained higher mastery level than those who were non-mathematics major.

Years in service. In associating the mastery level of the teacher-respondents in Mathematics and their years of service, the  $r_{xy}$  value was set at -0.022 with a Fisher's t-value of 0.189 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that number of years in the service had nothing to do with the mastery level obtained by the teacher-respondents in Mathematics.

Average monthly income. In associating the mastery level of the teacher-respondents in Mathematics and their average monthly income, the  $r_{xy}$  value was set at -0.022 with a Fisher's t-value of 0.189 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that monthly income earned by the teacher-respondents had nothing to do with the mastery level obtained by them in Mathematics.

Family size. In associating the mastery level of the teacher-respondents in Mathematics and their family size, the  $r_{xy}$  value was set at 0.055 with a Fisher's t-

value of 0.474 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that family size had nothing to do with the mastery level obtained by the teacher-respondents in Mathematics.

**Years in teaching Mathematics.** In associating the mastery level of the teacher-respondents in Mathematics and their years of service, the  $r_{xy}$  value was set at -0.022 with a Fisher's t-value of 1.701 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that years in teaching Mathematics had nothing to do with the mastery level obtained by the teacher-respondents in Mathematics.

**Classification.** In associating the mastery level of the teacher-respondents in Mathematics and classification of classes they handled, the  $r_{xy}$  value was set at 0.102 with a Fisher's t-value of 0.882 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This led the researcher to accept the corresponding null hypothesis to this effect suggesting that years

classification of classes handled by the teacher-respondents had nothing to do with their mastery level obtained in an achievement test in Mathematics.

**In-service trainings attended.** In associating the mastery level of the teacher-respondents in Mathematics and their relevant in-service trainings attended, the  $r_{xy}$  value was pegged at -0.194 with a Fisher's t-value of 1.701 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that relevant in-service trainings attended by the teacher-respondents had nothing to do with the mastery level obtained by them in Mathematics.

**Performance rating.** In associating the mastery level of the teacher-respondents in Mathematics and their performance rating for the last three years, the  $r_{xy}$  value was set at 0.097 with a Fisher's t-value of 0.838 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that performance rating for the last three years obtained by the teacher-respondents had nothing to do with the mastery level obtained by them in Mathematics.

**Attitude towards teaching Mathematics.** In associating the mastery level of the teacher-respondents in Mathematics and their attitude towards teaching Mathematics subject, the  $r_{xy}$  value was set at -0.119 with a Fisher's t-value of 1.031 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that the attitude of the teacher-respondents towards teaching Mathematics subject had nothing to do with the mastery level obtained by them in Mathematics.

#### **Level of Competencies of the Mathematics Teachers as Perceived by the Two Groups of Respondents**

Tables 16 to 18 reveal the level of competencies of the Mathematics teachers as perceived by the school administrators and Mathematics teachers themselves along personal competence; professional competence, and pedagogical competence.

**Personal competence.** Table 16 reveals the perception of the two groups of respondents, namely: school administrators and Mathematics teachers, on the level of competence of the teacher-respondents along personal competence. There were nine indicators considered in this study.

It can be gleaned from Table 16 that from the point of view of the school administrators, they considered Mathematics teacher-respondents as "highly

competent" in all the indicators considered in this study with weighted means ranging from 4.11 to 4.44. Indicator numbers 1 and 8 equally obtained the highest weighted mean corresponding to the statements stating: "Coming to school daily in proper uniform;" and "Striving for professional growth by subscribing professional magazines and joining Mathematics society." On the other hand, indicator numbers 5 and 9 equally obtained the least weighted mean corresponding to the statements stating: "Extending help to pupils who have personal problems;" and "Upgrading one's educational qualification by enrolling in advance studies in the masters and doctorate courses."

Table 16

**Level of Competencies of Mathematics Teachers as Perceived  
by the Two Groups of Respondents along  
Personal Competence**

Indicators	Sch. Admin		Teachers		Combined	
	WM	Int	WM	Int	WM	Int
1. Coming to school daily in proper uniform	4.44	HC	4.38	HC	4.39	HC
2. Observing punctuality in coming and going-out the school	4.33	HC	4.11	HC	4.13	HC
3. Observing classroom discipline	4.13	HC	4.28	HC	4.26	HC
4. Showing patience to unbecoming behavior of pupils inside the class	4.22	HC	4.01	HC	4.03	HC
5. Extending help to pupils who have personal problems	4.11	HC	4.07	HC	4.07	HC
6. Observing personal hygiene and proper grooming	4.33	HC	4.49	HC	4.47	HC
7. Upgrading oneself by attending Mathematics-related seminars and training at his own initiative and finances	4.33	HC	3.38	MC	3.48	MC
8. Striving for professional growth by subscribing professional magazines and joining Mathematics society	4.44	HC	3.38	MC	3.49	MC

*Table 16 continued*

Indicators	Sch. Admin		Teachers		Combined	
	WM	Int	WM	Int	WM	Int
9. Upgrading one's educational qualification by enrolling in advance studies in the masters and doctorate courses	4.11	HC	3.50	MC	3.56	HC
<b>Grand Weighted Mean</b>	<b>4.27</b>	<b>HC</b>	<b>3.96</b>	<b>HC</b>	<b>3.99</b>	<b>HC</b>

**Legend:**

4.51 - 5.00	Extremely Competent	(EC)
3.51 - 4.50	Highly Competent	(HC)
2.51 - 3.50	Moderately Competent	(MC)
1.51 - 2.50	Slightly Competent	(SC)
1.00 - 1.50	Not Competent	(NC)

Taken as a whole, the school administrators considered the Mathematics teacher-respondents as “highly competent” along personal competence. This was shown by the grand weighted mean of 4.27.

Table 16, also reveals the perception of the level of competence of the Mathematics teacher-respondents as assessed by themselves. In their assessment, they considered themselves “highly competent” on indicator number 1 to 6 with weighted means ranging from 4.01 to 4.49. Indicator numbers 4 and 6 obtained the highest and least weighted means, respectively, corresponding to the statements stating: “Showing patience to unbecoming behavior of pupils inside the class;” and “Observing personal hygiene and proper grooming.”

In the remaining three indicators, numbers 7 to 9, this group of respondents considered themselves “moderately competent” corresponding to the following statements: number 9, “Upgrading one’s educational qualification by enrolling in advance studies in the masters and doctorate courses;” number 7, “Upgrading oneself by attending Mathematics-related seminars and training at his own initiative and finances;” and number 8, “Striving for professional growth by subscribing professional magazines and joining Mathematics society,” with weighted means of 3.50, 3.38 and 3.38, respectively.

Taken as a whole, the teacher-respondents still considered themselves as “highly competent” along personal competence being shown by the grand weighted mean of 3.96.

From the combined perception of the two groups of respondents, Table 16 showed that they considered the teacher-respondents as “highly competent” along seven indicators, numbers 1 to 6 and 9 with weighted means ranging 3.56 to 4.47. Indicator numbers 6 and 9 obtained the highest and least weighted means, respectively, corresponding to statements stating: “Observing personal hygiene and proper grooming;” and “Upgrading one’s educational qualification by enrolling in advance studies in the masters and doctorate courses.”

In the remaining two indicators, the respondents considered the Mathematics teacher-respondents as “moderately competent” corresponding to the statements stating: number 8, “Striving for professional growth by subscribing professional magazines and joining Mathematics society;” and number 7, “Upgrading oneself by attending Mathematics-related seminars and training at his own initiative and finances,” with weighted mean of 3.49 and 3.48, respectively.

Taken as a whole, the respondents, regardless of their groupings, considered the Mathematics teacher-respondents as “highly competent” also. This was manifested by the grand weighted mean of 3.99.

**Professional competence.** Table 17 reveals the perception of the two groups of respondents, namely: school administrators and Mathematics teachers, on the level of competence of the teacher-respondents along professional competence. There were nine indicators considered in this study.

It can be gleaned from Table 17 that from the point of view of the school administrators, they considered Mathematics teacher-respondents as “extremely competent” in only one indicator corresponding to number 3 with a statement stating, “Ability to manage the class and impose classroom discipline,” with a weighted mean of 4.56 while they considered the teacher-respondents as “highly competent” in the remaining indicators corresponding to numbers 1 to 2 and 4 to 9 with weighted means ranging from 4.22 to 4.44. Indicator numbers 1, 2 and 4 equally obtained the highest weighted mean corresponding to the following statements stating: “Ability to get support from the administration in relation to the teaching the subject;” “Ability to devise resources and materials to be effective in teaching the subject;” and “Ability to unlock all difficult words in the lesson.” On the other hand, indicator numbers 5 to 9 equally obtained the least weighted mean corresponding to the statements stating: “Ability to give meaning of words either by sentence clue or from the dictionary;” “Ability to discuss thoroughly the lesson;” “Ability to ask questions to develop critical thinking;” “Ability to utilize the art of questioning by using the high order thinking skill (HOTS) levels;” and “Ability to allow teacher to pupil, pupil to pupil, and pupil to instructional material interactions.”

Table 17

**Level of Competencies of Mathematics Teachers as Perceived  
by the Two Groups of Respondents along  
Professional Competence**

Indicators	Sch. Admin		Teachers		Combined	
	WM	Int	WM	Int	WM	Int
1. Ability to get support from the administration in relation to the teaching the subject	4.44	HC	3.76	HC	3.83	HC
2. Ability to devise resources and materials to be effective in teaching the subject	4.44	HC	3.84	HC	3.90	HC
3. Ability to manage the class and impose classroom discipline	4.56	EC	4.30	HC	4.33	HC
4. Ability to unlock all difficult words in the lesson	4.44	HC	4.11	HC	4.14	HC
5. Ability to give meaning of words either by sentence clue or from the dictionary	4.22	HC	4.12	HC	4.13	HC
6. Ability to discuss thoroughly the lesson	4.22	HC	4.32	HC	4.31	HC
7. Ability to ask questions to develop critical thinking	4.22	HC	4.09	HC	4.10	HC
8. Ability to utilize the art of questioning by using the high order thinking skill (HOTS) levels	4.22	HC	3.86	HC	3.90	HC
9. Ability to allow teacher to pupil, pupil to pupil, and pupil to instructional material interactions	4.22	HC	3.99	HC	4.01	HC
<b>Grand Weighted Mean</b>	<b>4.33</b>	<b>HC</b>	<b>4.04</b>	<b>HC</b>	<b>4.07</b>	<b>HC</b>

<b>Legend:</b>	4.51 - 5.00	Extremely Competent	(EC)
	3.51 - 4.50	Highly Competent	(HC)
	2.51 - 3.50	Moderately Competent	(MC)
	1.51 - 2.50	Slightly Competent	(SC)
	1.00 - 1.50	Not Competent	(NC)

Taken as a whole, the school administrators considered the Mathematics teacher-respondents as “highly competent” being supported by the grand weighted mean of 4.33.

From the point of view of the Mathematics teacher-respondents, they considered themselves as “highly competent” in all indicators depicting their professional competence with weighted ranging 3.76 to 4.32. Indicator number 6 and 1 obtained the highest and the least weighted means, respectively corresponding to the statements stating: “Ability to discuss thoroughly the lesson;” and “Ability to get support from the administration in relation to the teaching the subject.”

Taken as a whole, this group of respondent considered themselves as “highly competent” along professional competence. This was indicated by the grand weighted mean of 4.04.

Based on the combined perception of the respondents, regardless of their groupings, Table 17 discloses that they considered the teacher-respondents as “highly competent” in all indicators considered along this area in this particular study with weighted means ranging from 3.83 to 4.33. Indicator numbers 3 and 1 were considered by the respondents with the highest and least weighted means, respectively corresponding to the statements stating, “Ability to manage the class and impose classroom discipline;” and “Ability to get support from the administration in relation to the teaching the subject.”

Taken as a whole, the respondents considered the Mathematics teacher-respondents as “highly competent” being shown by the grand weighted mean of 4.07.

Pedagogical competence. Table 18 presents the perception of the two groups of respondents, namely: school administrators and Mathematics teachers, on the level of competence of the teacher-respondents along pedagogical competence. There were eleven indicators considered in this study.

It can be gleaned from Table 18 that from the point of view of the school administrators, they considered Mathematics teacher-respondents as “extremely competent” in two indicators out of 11 indicators considered in this study corresponding to the following: number 1, “Ability to use the interactive strategies;” and number 7, “Ability to use the process approach,” with weighted means of 4.63 and 4.56, respectively.

In the remaining indicators (numbers 2 to 6 and 8 to 11), this group of respondents considered the teacher-respondents as “highly competent” with weighted means ranging from 4.00 to 4.33. Indicator numbers 6 and 8 equally obtained the highest weighted mean corresponding to the statements stating: “Ability to shift from one strategy to the other as deemed appropriate and effective;” and “Ability to use the discovery approach.” On the other hand, indicator numbers 3, 4 and 10 equally obtained the least weighted mean corresponding to the statements stating: “Ability to use evaluative measures;”

“Ability to transfer technology to the pupils and to cause learning;”and “Ability to use the thematic teaching.”

Taken as a whole, the school administrators considered the teacher-respondents as “highly competent” along pedagogical competence. This was supported by the grand weighted mean of 4.26.

Table 18

**Level of Competencies of Mathematics Teachers as Perceived  
by the Two Groups of Respondents along  
Pedagogical Competence**

Indicators	Sch. Admin		Teachers		Combined	
	WM	Int	WM	Int	WM	Int
1. Ability to use different methods and strategies in teaching Mathematics	4.22	HC	3.91	HC	3.94	HC
2. Ability to use instructional media	4.00	HC	3.24	MC	3.32	MC
3. Ability to use evaluative measures	4.11	HC	3.57	HC	3.63	HC
4. Ability to transfer technology to the pupils and to cause learning	4.11	HC	3.32	MC	3.40	MC
5. Ability to introduce new pedagogies in teaching Mathematics	4.22	HC	3.26	MC	3.36	MC
6. Ability to shift from one strategy to the other as deemed appropriate and effective	4.33	HC	3.50	MC	3.59	HC
7. Ability to use the process approach	4.56	EC	3.64	HC	3.74	HC
8. Ability to use the discovery approach	4.33	HC	3.73	HC	3.79	HC
9. Ability to use the experimental approach	4.22	HC	3.56	HC	3.63	HC
10. Ability to use the thematic teaching	4.11	HC	3.51	HC	3.57	HC
11. Ability to use the interactive strategies	4.63	EC	3.80	HC	3.89	HC
<b>Grand Weighted Mean</b>	<b>4.26</b>	<b>HC</b>	<b>3.55</b>	<b>HC</b>	<b>3.62</b>	<b>HC</b>

<b>Legend:</b>	4.51 – 5.00	Extremely Competent	(EC)
	3.51 – 4.50	Highly Competent	(HC)
	2.51 – 3.50	Moderately Competent	(MC)
	1.51 – 2.50	Slightly Competent	(SC)
	1.00 – 1.50	Not Competent	(NC)

Likewise, Table 18 presents the perception of the Mathematics teacher-respondents on their level of competence along pedagogical competence. As gleaned from the table, they considered themselves “highly competent” on seven indicators (numbers 1, 3 and 7 to 11) with weighted means ranging from 3.51 to 3.91. Indicator numbers 1 and 10 obtained the highest and least weighted means, respectively, corresponding to the following statements: “Ability to use different methods and strategies in teaching Mathematics;” and “Ability to use the thematic teaching.”

Taken as a whole, the Mathematics teacher-respondents considered themselves as “highly competent” along pedagogical competence being shown by the grand weighted mean of 3.55.

Too, Table 18 discloses the combined perception of the respondents, regardless of their groupings, as regards the level of competence of Mathematics teacher-respondents along pedagogical competence.

As revealed in the table, the respondents of the study considered the teacher-respondents as “highly competent” in eight indicators (numbers 1, 3, and 6 to 11) with weighted means ranging from 3.57 to 3.94. Indicator numbers 1 and 10 obtained the highest and the least weighted means, respectively, corresponding to the statements stating: “Ability to use different methods and strategies in teaching Mathematics;” and “Ability to use the thematic teaching.” In the remaining indicators (numbers 2, 4 and 5), the respondents considered the

teacher-respondents as “moderately competent” corresponding to the following indicators: number 4, “Ability to transfer technology to the pupils and to cause learning;” number 5, “Ability to introduce new pedagogies in teaching Mathematics;” and number 2, “Ability to use instructional media,” with weighted means of 3.46, 3.36 and 3.32, respectively.

Taken as a whole, the respondents considered the Mathematics teacher-respondents as “highly competent” along their pedagogical competence. This was shown by the grand weighted mean of 3.62.

#### **Comparison of the Perception of the Two Groups of Respondents Relative to the Level of Competencies of Mathematics Teacher-Respondents**

Tables 19 to 21 present the result of the comparative analysis in comparing the perceptions of the two groups of respondents relative to the level of competencies of the teacher-respondents along personal, professional and pedagogical competencies utilizing the t-test for independent means.

**Personal competence.** It may be recalled that the assessment of the two groups of respondents on the level of competence of the Mathematics teacher-respondents along personal competence, arrived at the following grand weighted means: school administrators, 4.27 (highly competent) and teacher-respondents, 3.96 (highly competent). Although the adjectival ratings between the two means were similar, obviously, a numerical disparity of 0.31 existed between the two means.

To ascertain whether the observed numerical difference was significant, the t-test for independent means was employed. Table 19 presents the result of the comparative analysis.

**Table 19**

**The t-Table in Comparing the Level of Competencies of Mathematics Teacher-Respondents as Perceived by the Two Groups of Respondents along Personal Competence**

	School Administrators	Teachers
Mean	4.27 (HC)	3.96 (HC)
Variance	0.0177361	0.18512778
Observations	9	9
Pooled Variance	0.101431944	
Hypothesized Difference	0	
Mean Deifference	0.31	
df	16	
t-Statistics	2.102	
p-value	0.0259	
t-Critical	1.746	
Evaluation at $\alpha = .05$	Significant	

From the Table, it can be gleaned that the computed t-value was calculated at 2.102 with a p-value of 0.0259. By comparison with the t-tabular value and the alpha level of significance, it can be noted that the computed t-value turned greater than the t-tabular value of 1.746 with  $df = 16$  and the p-value turned lesser than the alpha level of significance of .05. This indicated that the disparity existing between the two means was significant. Therefore, the

corresponding null hypothesis to this effect was rejected signifying that the perception of the two groups of respondents as regards the level of personal competence of the Mathematics teacher-respondents was essentially dissimilar.

Based on the means, it can be noted that the school administrators gave higher evaluation than the teacher-respondents. The disparity could be attributed to the fact that the two groups of respondents differed in their basis in the assessment. The former based on their observed performance of the teacher-respondents while the latter modestly assessed their personal competence based on what they felt as appropriate.

**Professional competence.** It may be recalled that the assessment of the two groups of respondents on the level of competence of the Mathematics teacher-respondents along professional competence, arrived at the following grand weighted means: school administrators, 4.33 (highly competent) and teacher-respondents, 4.04 (highly competent). Although the adjectival ratings between the two means were similar, obviously, a numerical disparity of 0.29 existed between the two means.

To ascertain whether the observed numerical difference was significant, the t-test for independent means was employed. Table 20 presents the result of the comparative analysis.

Table 20

**The t-Table in Comparing the Level of Competencies of Mathematics  
Teacher-Respondents as Perceived by the Two Groups of  
Respondents along Professional Competence**

	School Administrators	Teachers
Mean	4.33 (HC)	4.04 (HC)
Variance	0.018711	0.039125
Observations	9	9
Pooled Variance	0.028918	
Hypothesized Difference	0	
Mean Deifference	0.29	
df	16	
t-Statistics	3.590	
p-value	0.00123	
t-Critical	1.746	
Evaluation at $\alpha = .05$	Significant	

From the Table, it can be gleaned that the computed t-value was calculated at 3.590 with a p-value of 0.00123. By comparison with the t-tabular value and the alpha level of significance, it can be noted that the computed t-value turned greater than the t-tabular value of 1.746 with  $df = 16$  and the p-value turned lesser than the alpha level of significance of .05. This indicated that the disparity existing between the two means was significant. Therefore, the corresponding null hypothesis to this effect was rejected signifying that the perception of the two groups of respondents as regards the level of professional competence of the Mathematics teacher-respondents was essentially dissimilar.

Based on the means, it can be noted that the school administrators gave higher evaluation than the teacher-respondents. The disparity could be attributed to the fact that the two groups of respondents differed in their basis in the assessment. The former based on their observed performance of the teacher-respondents while the latter modestly assessed their professional competence based on what they felt as appropriate.

**Pedagogical competence.** It may be recalled that the assessment of the two groups of respondents on the level of competence of the Mathematics teacher-respondents along pedagogical competence, arrived at the following grand weighted means: school administrators, 4.26 (highly competent) and teacher-respondents, 3.55 (highly competent). Although the adjectival ratings between the two means were similar, obviously, a numerical disparity of 0.71 existed between the two means.

To ascertain whether the observed numerical difference was significant, the t-test for independent means was employed. Table 21 presents the result of the comparative analysis.

Table 21

**The t-Table in Comparing the Level of Competencies of Mathematics Teacher-Respondents as Perceived by the Two Groups of Respondents along Pedagogical Competence**

	School Administrators	Teachers
Mean	4.26 (HC)	3.55 (HC)
Variance	0.037656	0.047029
Observations	11	11
Pooled Variance	0.042343	
Hypothesized Difference	0	
Mean Deifference	0.71	
df	20	
t-Statistics	8.082	
p-value	4.98E-08	
t-Critical	1.725	
Evaluation at $\alpha = .05$	Significant	

From the Table, it can be gleaned that the computed t-value was calculated at 8.082 with a p-value of 4.98E-08. By comparison with the t-tabular value and the alpha level of significance, it can be noted that the computed t-value turned greater than the t-tabular value of 1.725 with  $df = 20$  and the p-value turned lesser than the alpha level of significance of .05. This indicated that the disparity existing between the two means was significant. Therefore, the corresponding null hypothesis to this effect was rejected signifying that the perception of the two groups of respondents as regards the level of pedagogical competence of the Mathematics teacher-respondents was essentially dissimilar.

Based on the means, it can be noted that the school administrators gave higher evaluation than the teacher-respondents. The disparity could be attributed to the fact that the two groups of respondents differed in their basis in the assessment. The former based on their observed performance of the teacher-respondents while the latter modestly assessed their pedagogical competence based on what they felt as appropriate.

#### **Relationship Between the Level of Competencies of Mathematics Teacher-Respondents and Their Personal Profile**

Tables 22-24 reveal the correlation analysis employed by the researcher in associating the level of competencies of the Mathematics teacher-respondents along personal, professional and pedagogical competencies and their personal profile, such as: age and sex; civil status; educational background and specialization; years in service; average monthly income; family size; years in teaching Mathematics; classification; relevant in-service trainings attended; performance rating for the last three years, and attitude towards teaching Mathematics.

Table 22

**The Correlation Table in Associating the Level of Competence of the  
Mathematics Teacher-Respondents and Their  
Profile along Personal Competence**

<b>Profile</b>	<b><math>r_{xy}</math></b>	<b>Fisher's t value</b>	<b>t Tabular Value</b>	<b>Evaluation at <math>\alpha = .05</math></b>
Age	0.101	0.873	1.980	NS
Sex	0.237	2.099	1.980	S
Civil Status	-0.036	0.310	1.980	NS
Educational Background	-0.367	3.394	1.980	S
Specialization	0.005	0.043	1.980	NS
Years in Service	-0.026	0.022	1.980	NS
Average Monthly Income	-0.113	0.978	1.980	NS
Family Size	-0.062	0.534	1.980	NS
Years in Teaching Math Classification	-0.105	0.908	1.980	NS
INSET	-0.176	1.538	1.980	NS
Performance Rating	0.261	2.326	1.980	S
Attitude Towards Teaching Math	0.190	1.665	1.980	NS
	0.398	3.732	1.980	S

*S = Significant*

*NS = Not Significant*

**Personal competence.** Table 22 reveals the correlation analysis employed by the researcher in associating the personal competence of the Mathematics teacher-respondents and their personal profile along: age and sex; civil status; educational background and specialization; years in service; average monthly income; family size; years in teaching Mathematics; classification; relevant in-service trainings attended; performance rating for the last three years, and attitude towards teaching Mathematics.

Table 22 reveals that in associating the personal competence of the teacher-respondents and their age, the  $r_{xy}$  value was pegged at 0.101 with Fisher's t-value of 0.873, which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation between the personal competence of the teacher-respondents and their age was not significant. Therefore, the corresponding null hypothesis to this effect was accepted, denoting that age had nothing to do with the level of personal competence of the teacher-respondents. Further, in associating the personal competence of the teacher-respondents and their sex, the  $r_{xy}$  value was pegged at 0.237 with Fisher's t-value of 2.099, which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation between the personal competence of the teacher-respondents and their sex was significant. Therefore, the corresponding null hypothesis to this effect was rejecting, denoting that sex had something to do with the level of personal competence of the teacher-

respondents. The correlation being positive denoted a direct proportional correlation, meaning, female teacher-respondents posted higher personal competence than their male counterparts.

In associating the level of personal competence of the teacher-respondents and their civil status, the correlation yielded a  $r_{xy}$  value of -0.036 with a Fisher's  $t$ -value of 0.310 which turned lesser than the  $t$ -tabular value of 1.980 at .05 level of significance. This indicated that the correlation existing between the aforesaid variables was not significant. Hence, the corresponding null hypothesis to this effect was accepted signifying that civil status of the teacher-respondents had nothing to do with their level of personal competence.

In associating the level of personal competence of the teacher-respondents and their educational background, the  $r_{xy}$  value was calculated at -0.367 with a Fisher's  $t$ -value of 3.394 which was obviously greater than the  $t$ -tabular value of 1.980 at .05 level of significance. This suggested that the correlation existing between the two variables was significant which led to the rejection of the corresponding null hypothesis to this effect. This meant that educational background of the teacher-respondents had some influence to their level of personal competence. The correlation being negative suggested an inverse correlation. This meant that the higher the educational background of the teacher-respondents the lower was their level of personal competence. Along specialization, the  $r_{xy}$  value was 0.005 with a Fisher's  $t$ -value of 0.043 which

turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that their field of specialization during their baccalaureate degree posed no significant influence to their level of personal competence.

In associating the level of personal competence of the teacher-respondents in Mathematics and their years of service, the  $r_{xy}$  value was set at -0.026 with a Fisher's t-value of 0.022 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that number of years in the service had nothing to do with the level of personal competence manifested by the teacher-respondents.

In associating the level of personal competence of the teacher-respondents and their average monthly income, the  $r_{xy}$  value was set at -0.113 with a Fisher's t-value of 0.978 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that monthly income earned by the teacher-respondents had nothing to do with the level of personal competence manifested by them as Mathematics teachers.

In associating the level of personal competence of the teacher-respondents and their family size, the  $r_{xy}$  value was set at -0.062 with a Fisher's t-value of 0.534

which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that family size had nothing to do with the level of personal competence of the teacher-respondents.

In associating the level of personal competence of the teacher-respondents teaching Mathematics and their years of service, the  $r_{xy}$  value was set at -0.105 with a Fisher's t-value of 0.908 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that years in teaching Mathematics had nothing to do with the level of personal competence assumed by the teacher-respondents.

In associating the level of personal competence of the teacher-respondents and classification of classes they handled, the  $r_{xy}$  value was set at -0.176 with a Fisher's t-value of 1.538 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This led the researcher to accept the corresponding null hypothesis to this effect suggesting that classification of classes handled by the teacher-respondents had nothing to do with their level of personal competence.

In associating the level of personal competence of the teacher-respondents and their relevant in-service trainings attended, the  $r_{xy}$  value was pegged at -0.261 with a Fisher's t-value of 2.326 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. This gave the researcher the confidence to reject the corresponding null hypothesis to this effect suggesting that relevant in-service trainings attended by the teacher-respondents had a significant influence to level of personal competence assumed by the Mathematics teacher-respondents. The correlation being positive suggested a direct proportional correlation. That is, the more the number of relevant in-service trainings attended by the teacher-respondents, the higher was the level of personal competence they manifested in teaching the subject.

In associating the level of personal competence of the teacher-respondents and their performance rating for the last three years, the  $r_{xy}$  value was set at 0.190 with a Fisher's t-value of 1.665 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that performance rating for the last three years obtained by the teacher-respondents had nothing to do with the level of personal competence of the Mathematics teacher-respondents.

In associating the level of personal competence of the teacher-respondents and their attitude towards teaching Mathematics subject, the  $r_{xy}$  value was set at -0.398 with a Fisher's t-value of 3.732 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. This gave the researcher the confidence to reject the corresponding null hypothesis to this effect suggesting that the attitude of the teacher-respondents towards teaching Mathematics subject had something to do with the level of personal competence manifested by the Mathematics teacher-respondents. The correlation being positive denoted a direct proportional correlation, meaning, the more favorable was the attitude of the teacher-respondents in teaching Mathematics, the higher was the level of their personal competence also.

**Professional competence.** Table 23 reveals the correlation analysis employed by the researcher in associating the professional competence of the Mathematics teacher-respondents and their personal profile along: age and sex; civil status; educational background and specialization; years in service; average monthly income; family size; years in teaching Mathematics; classification; relevant in-service trainings attended; performance rating for the last three years, and attitude towards teaching Mathematics.

Table 23

**The Correlation Table in Associating the Level of Competence of the  
Mathematics Teacher-Respondents and Their  
Profile along Profession Competence**

<b>Profile</b>	<b><math>r_{xy}</math></b>	<b>Fisher's t value</b>	<b>t Tabular Value</b>	<b>Evaluation at <math>\alpha = .05</math></b>
Age	-0.093	0.803	1.980	NS
Sex	0.117	1.013	1.980	NS
Civil Status	-0.078	0.673	1.980	NS
Educational Background	-0.278	2.490	1.980	S
Specialization	0.303	2.735	1.980	S
Years in Service	-0.276	2.470	1.980	S
Average Monthly Income	0.087	0.750	1.980	NS
Family Size	-0.296	2.666	1.980	S
Years in Teaching Math	-0.304	2.745	1.980	S
Classification	0.107	0.926	1.980	NS
INSET	-0.060	0.517	1.980	NS
Performance Rating	0.015	0.129	1.980	NS
Attitude Towards Teaching Math	0.574	6.030	1.980	S

*S = Significant*

*NS = Not Significant*

Table 23 reveals that in associating the professional competence of the teacher-respondents and their age and sex, the  $r_{xy}$  values were pegged at -0.099 and 0.117, respectively, with Fisher's t-values of 0.803 and 1.013, which, both, turned lesser than the t-tabular value of 1.980 at .05 level of significance. These signified that the correlation between the professional competence of the teacher-respondents and their age and sex was not significant. Therefore, the corresponding null hypotheses to these effects were accepted, denoting that age and sex had nothing to do with the level of professional competence of the teacher-respondents.

In associating the level of professional competence of the teacher-respondents and their civil status, the correlation yielded a  $r_{xy}$  value of -0.078 with a Fisher's t-value of 0.673 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This indicated that the correlation existing between the aforesaid variables was not significant. Hence, the corresponding null hypothesis to this effect was accepted signifying that civil status of the teacher-respondents had nothing to do with their level of professional competence.

In associating the level of professional competence of the teacher-respondents and their educational background, the  $r_{xy}$  value was calculated at -0.278 with a Fisher's t-value of 2.490 which was obviously greater than the t-tabular value of 1.980 at .05 level of significance. This suggested that the

correlation existing between the two variables was significant which led to the rejection of the corresponding null hypothesis to this effect. This meant that educational background of the teacher-respondents had some influence to their level of professional competence. The correlation being negative suggested an inverse correlation. This meant that the higher the educational background of the teacher-respondents the lower was their level of professional competence. Along specialization, the  $r_{xy}$  value was 0.303 with a Fisher's t-value of 2.735 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that their field of specialization during their baccalaureate degree posed a significant influence to their level of professional competence. The correlation being positive denoted a direct proportional correlation signifying that the specialized in Mathematics the teacher-respondents are, the higher was their level of professional competence.

In associating the level of professional competence of the teacher-respondents in Mathematics and their years of service, the  $r_{xy}$  value was set at -0.276 with a Fisher's t-value of 2.470 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. This gave the researcher the confidence, therefore, to reject the corresponding null hypothesis to this effect suggesting that number of years in the service had something to do with the level of professional competence manifested by the teacher-respondents.

The correlation being negative suggested an inverse correlation. This meant that the longer the teacher-respondents had been in the service with the DepEd, the lower the professional competence they manifested.

In associating the level of professional competence of the teacher-respondents and their average monthly income, the  $r_{xy}$  value was set at -0.087 with a Fisher's t-value of 0.750 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that monthly income earned by the teacher-respondents had nothing to do with the level of professional competence manifested by them as Mathematics teachers.

In associating the level of personal competence of the teacher-respondents and their family size, the  $r_{xy}$  value was set at -0.296 with a Fisher's t-value of 2.666 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. Hence, this gave the researcher the confidence to reject the corresponding null hypothesis to this effect suggesting that family size had something to do with the level of professional competence of the teacher-respondents. The correlation being negative suggested an inverse correlation,

meaning, the lesser the family size of the teacher-respondents, the higher was their level of professional competence.

In associating the level of professional competence of the teacher-respondents teaching Mathematics and their years of service, the  $r_{xy}$  value was set at -0.304 with a Fisher's t-value of 2.745 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. Thus, this gave the researcher the confidence to reject the corresponding null hypothesis to this effect suggesting that years in teaching Mathematics had a significant influence to the level of professional competence assumed by the teacher-respondents. The correlation being negative implied an inverse correlation, that is, the longer the teacher-respondents had been teaching Mathematics subject, the lower was their level of professional competence.

In associating the level of personal competence of the teacher-respondents and classification of classes they handled, the  $r_{xy}$  value was set at 0.107 with a Fisher's t-value of 0.926 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This led the researcher to accept the corresponding null hypothesis to this effect suggesting that classification of classes handled by the teacher-respondents had nothing to do with their level of professional competence.

In associating the level of personal competence of the teacher-respondents and their relevant in-service trainings attended, the  $r_{xy}$  value was pegged at -0.060 with a Fisher's t-value of 0.517 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that relevant in-service trainings attended by the teacher-respondents had no significant influence to level of professional competence assumed by the Mathematics teacher-respondents.

In associating the level of professional competence of the teacher-respondents and their performance rating for the last three years, the  $r_{xy}$  value was set at 0.015 with a Fisher's t-value of 0.129 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that performance rating for the last three years obtained by the teacher-respondents had nothing to do with the level of professional competence of the Mathematics teacher-respondents.

In associating the level of professional competence of the teacher-respondents and their attitude towards teaching Mathematics subject, the  $r_{xy}$  value was set at 0.574 with a Fisher's t-value of 6.030 which turned greater than

the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. This gave the researcher the confidence to reject the corresponding null hypothesis to this effect suggesting that the attitude of the teacher-respondents towards teaching Mathematics subject had something to do with the level of professional competence manifested by the Mathematics teacher-respondents. The correlation being positive denoted a direct proportional correlation, meaning, the more favorable was the attitude of the teacher-respondents in teaching Mathematics, the higher was the level of their professional competence also.

**Pedagogical competence.** Table 24 reveals the correlation analysis employed by the researcher in associating the pedagogical competence of the Mathematics teacher-respondents and their personal profile along: age and sex; civil status; educational background and specialization; years in service; average monthly income; family size; years in teaching Mathematics; classification; relevant in-service trainings attended; performance rating for the last three years, and attitude towards teaching Mathematics.

Table 24

**The Correlation Table in Associating the Level of Competence of the  
Mathematics Teacher-Respondents and Their  
Profile along Pedagogical Competence**

Profile	$r_{xy}$	Fisher's t value	t Tabular Value	Evaluation at $\alpha = .05$
Age	-0.118	1.022	1.980	NS
Sex	0.001	0.009	1.980	NS
Civil Status	-0.209	1.838	1.980	NS
Educational Background	-0.281	2.519	1.980	S
Specialization	0.398	3.732	1.980	S
Years in Service	-0.343	3.141	1.980	S
Average Monthly Income	-0.056	0.482	1.980	NS
Family Size	-0.137	1.190	1.980	NS
Years in Teaching	-0.286	2.568	1.980	S
Math Classification	-0.025	0.215	1.980	NS
INSET	0.000	0.000	1.980	NS
Performance Rating	-0.188	1.647	1.980	NS
Attitude Towards Teaching Math	0.469	4.568	1.980	S

*S = Significant*

*NS = Not Significant*

Table 24 reveals that in associating the pedagogical competence of the teacher-respondents and their age and sex, the  $r_{xy}$  values were pegged at -0.188 and 0.001, respectively, with Fisher's t-values of 1.022 and 0.009, which, both, turned lesser than the t-tabular value of 1.980 at .05 level of significance. These signified that the correlation between the pedagogical competence of the teacher-respondents and their age and sex was not significant. Therefore, the corresponding null hypotheses to these effects were accepted, denoting that age and sex had nothing to do with the level of pedagogical competence of the teacher-respondents.

In associating the level of pedagogical competence of the teacher-respondents and their civil status, the correlation yielded a  $r_{xy}$  value of -0.209 with a Fisher's t-value of 1.838 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This indicated that the correlation existing between the aforesaid variables was not significant. Hence, the corresponding null hypothesis to this effect was accepted signifying that civil status of the teacher-respondents had nothing to do with their level of pedagogical competence.

In associating the level of pedagogical competence of the teacher-respondents and their educational background, the  $r_{xy}$  value was calculated at -0.281 with a Fisher's t-value of 2.519 which was obviously greater than the t-tabular value of 1.980 at .05 level of significance. This suggested that the correlation existing between the two variables was significant which led to the

rejection of the corresponding null hypothesis to this effect. This meant that educational background of the teacher-respondents had some influence to their level of pedagogical competence. The correlation being negative suggested an inverse correlation. This meant that the higher the educational background of the teacher-respondents the lower was their level of pedagogical competence. Along specialization, the  $r_{xy}$  value was 0.398 with a Fisher's t-value of 3.732 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that their field of specialization during their baccalaureate degree posed a significant influence to their level of pedagogical competence. The correlation being positive denoted a direct proportional correlation signifying that the specialized in Mathematics the teacher-respondents are, the higher was their level of pedagogical competence.

In associating the level of pedagogical competence of the teacher-respondents in Mathematics and their years of service, the  $r_{xy}$  value was set at -0.343 with a Fisher's t-value of 3.141 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. This gave the researcher the confidence, therefore, to reject the corresponding null hypothesis to this effect suggesting that number of years in the service had something to do with the level of pedagogical competence manifested by the teacher-respondents. The correlation being negative suggested an inverse correlation. This meant that

the longer the teacher-respondents had been in the service with the DepEd, the lower the pedagogical competence they manifested.

In associating the level of pedagogical competence of the teacher-respondents and their average monthly income, the  $r_{xy}$  value was set at -0.056 with a Fisher's t-value of 0.482 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that monthly income earned by the teacher-respondents had nothing to do with the level of pedagogical competence manifested by them as Mathematics teachers.

In associating the level of pedagogical competence of the teacher-respondents and their family size, the  $r_{xy}$  value was set at -0.137 with a Fisher's t-value of 1.190 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. Hence, this gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that family size had nothing to do with the level of pedagogical competence of the teacher-respondents.

In associating the level of pedagogical competence of the teacher-respondents teaching Mathematics and their years of service, the  $r_{xy}$  value was

set at -0.286 with a Fisher's t-value of 2.568 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. Thus, this gave the researcher the confidence to reject the corresponding null hypothesis to this effect suggesting that years in teaching Mathematics had a significant influence to the level of pedagogical competence assumed by the teacher-respondents. The correlation being negative implied an inverse correlation, that is, the longer the teacher-respondents had been teaching Mathematics subject, the lower was their level of pedagogical competence.

In associating the level of pedagogical competence of the teacher-respondents and classification of classes they handled, the  $r_{xy}$  value was set at -0.025 with a Fisher's t-value of 0.215 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This led the researcher to accept the corresponding null hypothesis to this effect suggesting that classification of classes handled by the teacher-respondents had nothing to do with their level of pedagogical competence.

In associating the level of pedagogical competence of the teacher-respondents and their relevant in-service trainings attended, the  $r_{xy}$  value was pegged at 0.000 with a Fisher's t-value of 0.000 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the

correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that relevant in-service trainings attended by the teacher-respondents had no significant influence to level of pedagogical competence assumed by the Mathematics teacher-respondents.

In associating the level of pedagogical competence of the teacher-respondents and their performance rating for the last three years, the  $r_{xy}$  value was set at -0.188 with a Fisher's t-value of 1.647 which turned lesser than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was not significant. This gave the researcher the confidence to accept the corresponding null hypothesis to this effect suggesting that performance rating for the last three years obtained by the teacher-respondents had nothing to do with the level of pedagogical competence of the Mathematics teacher-respondents.

In associating the level of pedagogical competence of the teacher-respondents and their attitude towards teaching Mathematics subject, the  $r_{xy}$  value was set at 0.469 with a Fisher's t-value of 4.568 which turned greater than the t-tabular value of 1.980 at .05 level of significance. This signified that the correlation existing between the two aforesaid variables was significant. This gave the researcher the confidence to reject the corresponding null hypothesis to this effect suggesting that the attitude of the teacher-respondents towards

teaching Mathematics subject had something to do with the level of pedagogical competence manifested by the Mathematics teacher-respondents. The correlation being positive denoted a direct proportional correlation, meaning, the more favorable was the attitude of the teacher-respondents in teaching Mathematics, the higher was the level of their pedagogical competence also.

#### **Problems Encountered by Mathematics Teacher-Respondents in Teaching the Subject**

Table 25 presents the problems encountered by the teacher-respondents in teaching Mathematics subject. Nine problems had been identified in this study.

The Table presents that of the nine problems considered in this study, six were “highly felt” by this group of respondents corresponding to problem numbers 1 to 5 and 8 to 9 with weighted means ranging from 3.54 to 4.21. Problem numbers 1 and 2 was rated as the highest and least weighted means, respectively, with the statements stating: “Lack of textbooks and other references in Mathematics;” and “Lack of well-prepared instructional materials.”

Table 25

**Problems Encountered by the Mathematics Teachers Relative to Teaching Mathematics Subject**

Problems Encountered	Weighted Mean	Interpretation
1. Lack of textbooks and other references in Mathematics	4.21	HF
2. Lack of well-prepared instructional materials	3.54	HF
3. No trainings / seminars / workshops made available for Mathematics teachers to update their pedagogies in teaching	3.87	HF
4. Lack of sufficient income among Mathematics teachers to subscribe professional magazines and in enrolling advance studies	3.75	HF
5. Students/pupils manifest disinterest in the subject	3.67	HF
6. Mathematics teachers experience hardship in teaching the subject	2.82	MF
7. Overloading of assignments which caused the teacher to be in the classroom unprepared	2.88	MF
8. Several intervening activities attended to by teachers and students that shorten the days allotted for learning the lessons	3.11	MF
9. Students' family income is meager that constraint them from providing themselves with books and materials used in learning Math lessons	3.59	HF
<b>Grand Weighted Mean</b>	<b>3.49</b>	<b>MF</b>

<b>Legend:</b>	4.51 – 5.00	Extremely Felt	(EF)
	3.51 – 4.50	Highly Felt	(HF)
	2.51 – 3.50	Moderately Felt	(MF)
	1.51 – 2.50	Slightly Felt	(SF)
	1.00 – 1.50	Not Felt	(NF)

The remaining problems encountered by the Mathematics teacher-respondents were considered by them as “moderately felt,” corresponding to the following: number 8, “Several intervening activities attended to by teachers and students that shorten the days allotted for learning the lessons;” number 7, “Overloading of assignments which caused the teacher to be in the classroom unprepared;” and number 6, “Mathematics teachers experience hardship in teaching the subject,” with weighted means of 3.11, 2.88 and 2.82, respectively.

Taken as a whole, this group of respondents considered the identified problems encountered by them in teaching Mathematics subject as “moderately felt,” being indicated by the grand weighted mean of 3.49.

### **Suggested Solutions to Address the Problems Encountered in Teaching Mathematics**

Table 26 discloses the suggested solutions given by the Mathematics teacher-respondents to address the problems they encountered in teaching Mathematics subject. There were eight solutions suggested in this study.

It can be gleaned from Table 26 that this group of respondents “strongly agreed” solution numbers 3 and 5 corresponding to the statements stating: “Administrators should show support to their Math teachers by nominating them and sending to seminar/workshop in Math to update their pedagogies in teaching the subject;” and “Encourage teachers to use different motivational

techniques to arouse interest of the students to love and learn Math," with weighted means of 4.61 and 4.56.

The remaining six solutions (numbers 1 to 2, 4 and 6 to 8) were "agreed by the teacher-respondents with weighted means ranging from 4.19 to 4.48. Solution number 8 and 4 obtained the highest and the lowest weighted means, respectively, corresponding to the statements stating: "Too, parents should be encourage to embrace the spirit of cooperativism to augment their income;" and "Encourage teachers to join cooperatives or to cooperate themselves to augment their income so that they could subscribe professional magazines and join professional organizations."

Table 26

**Solutions Suggested by the Mathematics Teachers to Address  
Problems Encountered Relative to Teaching  
Mathematics Subject**

Solutions Suggested	Weighted Mean	Interpre- tation
1. Encourage the students to provide themselves with books and reference materials in Mathematics	4.34	A
2. Encourage Math teachers to devise instructional materials particularly the indigenous one	4.47	A
3. Administrators should show support to their Math teachers by nominating them and sending to seminar/workshop in Math to update their pedagogies in teaching the subject	4.61	SA
4. Encourage teachers to join cooperatives or to cooperate themselves to augment their income so that they could subscribe professional magazines and join professional organizations	4.19	A
5. Encourage teachers to use different motivational techniques to arouse interest of the students to love and learn Math	4.56	SA
6. Administrators should consider giving enough loads to teachers giving them chance to prepare their lessons well	4.21	A
7. Intervening activities should be minimized to let both students and teachers focus on the teaching and learning Math lessons as planned and scheduled	4.32	A
8. Too, parents should be encourage to embrace the spirit of cooperativism to augment their income	4.48	A
<b>Grand Weighted Mean</b>	<b>4.40</b>	<b>A</b>

<b>Legend:</b>	4.51 – 5.00	Strongly Agree	(SA)
	3.51 – 4.50	Agree	(A)
	2.51 – 3.50	No Comment	(NC)
	1.51 – 2.50	Disagree	(D)
	1.00 – 1.50	Strongly Disagree	(SD)

Taken as a whole, the Mathematics teacher-respondents “agreed” on the solutions suggested by them to address the problems they encountered in teaching the subject. This was indicated by the grand weighted mean of 4.40.

## Chapter 5

### SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of findings with the corresponding conclusions based on the findings of the study and the recommendations based on the conclusions drawn from the findings of the study.

#### Summary of Findings

The following are the salient findings of the study:

1. The mean age of this group of respondents was calculated at 37.85 years old with a standard deviation (SD) of 11.11 years. Moreover, majority of the Mathematics teacher-respondents were females accounting for 58 or 76.32 percent. The male counterparts comprised the minority accounting for 18 or 23.68 percent.
2. Majority of the Mathematics teacher-respondents were married accounting for 58 or 76.32 percent while 14 or 18.42 percent were singles; and two each or 2.63 percent each were widowed and separated/annulled.
3. Most of the teacher-respondents are MA/MS unit earners in addition to their baccalaureate degree courses, that is, 38 or 50.00 percent. Thirty-three or 43.42 percent of them were baccalaureate degree holders. Probably, the remaining five respondents or 6.58 percent did not disclose their educational background for purposes of anonymity.

4. Majority of the teacher-respondents teaching Mathematics in the District of Motiong were majors in General Education, accounting for 20 or 26.32 percent, while eight of them or 10.53 percent were majors in English; four each or 5.26 percent each were majors in Mathematics and Industrial Education; three or 3.95 percent majored Social Studies; two each or 2.63 percent each majored in Science, Aralin Panlipunan, HE and Secondary Education, and only one or 1.32 percent majored PE. The remaining 28 teacher-respondents or 36.84 percent did not disclose their major field in their baccalaureate degrees.

5. The mean number of years of service of this group of respondent was pegged at 10.37 years with a SD of 8.47 years.

6. The mean monthly income earned by this group of respondents was calculated at Php14,081.72 with a SD of Php5,270.75.

7. The mean family size of this group of respondents was calculated at five members with a SD of two members.

8. The mean number of years of teaching Mathematics among teacher-respondents was calculated at 8.72 years with a SD of 6.86 years.

9. Out of the 76 teacher-respondents, 44 of them or 57.89 percent handled monograde classes while the remaining 32 or 42.11 percent handled multigrade classes.

10. The mean number of national trainings, therefore, attended by this group of respondents was calculated at 1.22 trainings with a SD of 0.44 trainings

while the mean number of relevant trainings attended by the Mathematics teacher-respondents in the regional level was pegged at 1.20 trainings with a SD of 0.41 training; mean number of relevant trainings attended by this group of respondent in the division level was 2.74 trainings with a SD of 2.41 trainings, and the mean number of trainings attended by the Mathematics teacher-respondents in the district level was set at 2.90 trainings with a SD of 2.86 trainings.

11. The mean numerical performance rating of the Mathematics teacher-respondents for the school year 2008-2009 was pegged at 8.05 with a SD of 0.60 which can be equated to a descriptive rating of "very satisfactory," while the mean numerical performance rating of the Mathematics teacher-respondents for the school year 2009-2010 was calculated at 8.11 with a SD of 0.51 which can be equated to a descriptive rating of "very satisfactory," and the mean numerical performance rating of the Mathematics teacher-respondents for the school year 2010-2011 was set at 8.23 with a SD of 0.29 which can be equated to a descriptive rating of "very satisfactory."

12. The Mathematics teacher-respondents "agreed" on the attitude statements identified in this study towards teaching Mathematics subject. This was manifested by the grand weighted mean of 3.87.

13. The mean rating obtained by the Mathematics teacher-respondents was pegged at 89.32 with a SD of 11.83.

14. In associating the mastery level of the Mathematics teacher-respondents based on the achievement test and their personal profile, the following coefficient and Fisher's t-values were arrived at: age, 0.023 and 0.198 (not significant); sex, 0.060 and 0.517 (not significant); civil status, -0.108 and 0.935 (not significant); educational background, 0.000 and 0.000 (not significant); specialization, -0.226 and 1.996 (significant); years in service, -0.022 and 0.189 (not significant); average monthly income, -0.022 and 0.189 (not significant); family size, 0.055 and 0.474 (not significant); years in teaching the subject, -0.194 and 1.701 (not significant) classification, 0.102 and 0.882 (not significant); relevant service trainings attended, -0.194 and 1.701 (not significant); performance rating, 0.097 and 0.838 (not significant); and attitude towards teaching Mathematics, -0.119 and 1.031 (not significant).

15. Taken as a whole, the school administrators considered the Mathematics teacher-respondents as "highly competent" along personal competence being shown by the grand weighted mean of 4.27 while the teacher-respondents still considered themselves as "highly competent" being shown by the grand weighted mean of 3.96.

16. Taken as a whole, the school administrators considered the Mathematics teacher-respondents as "highly competent" being supported by the grand weighted mean of 4.33 while the teacher-respondents considered

themselves as “highly competent” being indicated by the grand weighted mean of 4.04.

17. Taken as a whole, the school administrators considered the teacher-respondents as “highly competent” along pedagogical competence being supported by the grand weighted mean of 4.26 while Mathematics teacher-respondents considered themselves as “highly competent” being shown by the grand weighted mean of 3.55.

18. In associating the personal competence of the Mathematics teacher-respondents and their personal profile, the following coefficient and Fisher’s t-values were arrived at: age, 0.101 and 0.873 (not significant); sex, 0.237 and 2.099 (significant); civil status, -0.036 and 0.310 (not significant); educational background, -0.367 and 3.394 (significant); specialization, 0.005 and 0.043 (not significant); years in service, -0.026 and 0.022 (not significant); average monthly income, -0.113 and 0.978 (not significant); family size, -0.062 and 0.534 (not significant); years in teaching the subject, -0.105 and 0.908 (not significant) classification, -0.176 and 1.538 (not significant); relevant service trainings attended, 0.261 and 2.326 (significant); performance rating, 0.190 and 1.665 (not significant); and attitude towards teaching Mathematics, 0.398 and 3.732 (significant).

## Conclusions

From the aforecited summary of findings, the following conclusions were drawn:

1. The Mathematics teacher-respondents were on their late 30s, relatively young and at the prime of their career as teachers. Further, female dominance existed among the Mathematics teachers in the District of Motiong. This is expected considering that more female students graduated from the teaching degree and therefore landed in a teaching profession.

2. The Mathematics teacher-respondents are responsible being manifested by the families of which they took care of.

3. The Mathematics teacher-respondents recognized the importance of continuing education. This was manifested by the fact that half of them had enrolled in advance education thereby earning MA/MS units.

4. Most of the teachers handling Mathematics subject are not majors in Mathematics, only few of them. They were mostly generalists teaching the subject because of the exigency of the service.

5. The teacher-respondents had been in the service for quite a number of years denoting that they had already considered such profession as the source of their bread and butter.

6. The Mathematics teacher-respondents had regular income earned which they used to defray family expenses, both basic and educational needs of the members of the family.

7. The Mathematics teacher-respondents had a quite bigger number of family members, that is higher than the expected number of siblings to be raised in the family, which is four only.

8. The teacher-respondents were just new in teaching Mathematics as a subject.

9. In the District of Motiong nearly half of the classes in the elementary are combination classes of two or more grades being handled by only one teacher. Probably, this could be attributed to the lack of teachers and the lack of classroom encountered by the schools or could be attributed to lack of enrollees for a certain school year. This is the reason why teachers who are non-mathematics majors handled the subject in the exigency of the service.

10. Only few of the teacher-respondents were given the opportunity to attend relevant trainings in Mathematics. Most of the trainings they attended were mostly re-echoed trainings in the division or district levels. Probably, due to sans funds and lack of material time, only few were given the chance to attend national and even regional trainings.

11. Despite the constraints presented previously, the Mathematics teacher-respondents manifested very satisfactory performance in the discharge of their functions as Mathematics subject teachers.

12. The Mathematics teacher-respondents manifested a highly favorable attitude towards teaching Mathematics subject.

13. The Mathematics teacher-respondents had a remarkable mastery level in the subject they were teaching. This showed that despite most of them were non-mathematics majors, they were able to internalize the concepts and mastered the different skills they are teaching.

14. Major field of the teacher-respondents only posed significant relationship to their mastery level in an achievement test in Mathematics. The correlation suggested that those who majored in Mathematics as their field of specialization in their baccalaureate degree, obtained higher mastery level than those who were non-mathematics major. While age, sex, civil status, educational background, years in service, average monthly income, family size, years in teaching the subject, classification, relevant trainings attended, performance rating and attitude towards teaching Mathematics had nothing to do with the mastery level of the teacher-respondents.

15. The Mathematics teacher-respondents manifested high level of teaching competence in the subject along the three areas, namely: personal, professional and pedagogical competencies.

16. The perceptions of the two groups of respondents differed significantly along the three areas. Based on the means, it can be noted that the school administrators gave higher evaluation than the teacher-respondents. The disparity could be attributed to the fact that the two groups of respondents differed in their basis in the assessment. The former based on their observed performance of the teacher-respondents while the latter modestly assessed their competencies based on what they felt as appropriate.

17. Of the personal variates of the Mathematics teacher-respondents, only sex, relevant trainings attended and attitude towards teaching Mathematics subject posed significant correlation to their personal competence while the other variates considered in this study did not show any influence to the latter.

18. Of the personal variates of the Mathematics teacher-respondents, only education, specialization, years in teaching, family size, years in teaching Mathematics subject and attitude towards teaching the subject posed significant correlation to their professional competence while the other variates considered in this study did not show any influence to the latter.

19. Of the personal variates of the Mathematics teacher-respondents, only education, specialization, years in teaching, years in teaching Mathematics subject and attitude towards teaching the subject posed significant correlation to their pedagogical competence while the other variates considered in this study did not show any influence to the latter.

20. There are problems that the teacher-respondents encountered however, they moderately felt them and they had solutions to address such problems.

### Recommendations

From the conclusions drawn based on the findings of the study, the researcher strongly recommends the following:

1. An enhancement materials or a training design for that matter should be implemented among the teachers handling Mathematics subject considering that most of them are non-mathematics majors and it should be implemented in the district for enhancement purposes among Mathematics teachers.
2. Teachers teaching Mathematics subject should be encourage to earn units in Mathematics or pursue advance education in the graduate level with majors at least in teaching Mathematics.
3. When opportunities come, teachers teaching Mathematics subject should be sent to attend relevant trainings in all levels.
4. Another study be conducted to validate the findings of the study, be it divisionwide or in other districts within the division.
5. A sequel study be conducted focusing on the evaluation of the enhancement program proposed in this study.

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# A N N E X E S

Republic of the Philippines  
SAMAR STATE UNIVERSITY  
College of Graduate Studies  
Catbalogan City

**THELMA C. QUITALEG, Ph.D., CESO VI**  
Schools Division Superintendent  
Division of Samar  
Catbalogan City

Sir:

Good day.

The undersigned is requesting from your good office that he be given permission to pilot test the Questionnaire for Teachers Respondents.

The undersigned is a MAED Mathematics student of Samar State University, Catbalogan City and is currently conducting a research entitled "COMPETNECIES OF ELEMENTARY GRADE TEACHERS IN MATHEMATICS: BASIS FOR A TEACHERS' TRAINING PROGRAM/DESIGN".

In this regard he would like to ask permission from your good office that he be allowed to conduct the pilot testing of the survey questionnaire for validation to the Mathematics Teachers in the elementary schools in Motiong Central Elementary School. The data from the validation test will be the basis in the crafting of the final research instrument.

Hoping for your favorable approval and accommodation on this request.

Respectfully yours,

**(Sgd) ALEJANDRO A. MALUTO**  
Researcher

Noted:

**(Sgd) MANUEL Z. ISANAN, Ph.D.**  
Adviser

**(Sgd) MARILYN D. CARDOSO, Ph.D.**  
Dean, College of Graduate Studies

Approved:

**(Sgd) ALFREDO D. DACURO, Ph.D., CESO VI**  
Schools Division Superintendent  
Division of Samar  
Catbalogan City

COLLEGE OF GRADUATE STUDIES  
Samar State University  
Catbalogan City

QUESTIONNAIRE FOR TEACHER-RESPONDENTS

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Dear Respondents,

Good day.

The undersigned is currently conducting a research entitled "COMPETNECIES OF ELEMENTARY GRADE TEACHERS IN MATHEMATICS: BASIS FOR A TEACHERS' TRAINING PROGRAM/DESIGN".

Please answer the items in the questionnaire - the Profile, the Attitude Towards Teaching Mathematics, Competencies In Teaching Mathematics, Problems Encountered And Solutions Suggested. Answer Completely And Honestly

Rest assured that all your inputs and responses as well as your identity will be undisclosed and utilized for research purposes only.

Thank you very much for sharing, your valuable time and for being a part of this research study.

Very truly yours,

(Sgd) ALEJANDRO A. MALUTO  
Researcher

**QUESTIONNAIRE**  
(For Mathematics Teacher-Respondents)

**PART I. PROFILE OF RESPONDENT**

**Direction:** Kindly supply information asked for in each item by writing in the space provided or by checking appropriate box.

1. Name (Optional): \_\_\_\_\_ 2. Age: \_\_\_\_\_ 3. Sex:  Male

Female

5. Civil Status       Single                                       Separated/Annulled  
 Married     Others, specify: \_\_\_\_\_  
 Widowed

6. Educational Qualification:       Ph. D./Ed. D.  
 With Doctoral Units  
 M. A./M. S.  
 With MA/MS Units  
 Baccalaureate Degree  
 Others, specify: \_\_\_\_\_

7. Field of Specialization: Baccalaureate Degree: \_\_\_\_\_  
M.A./M.S.: \_\_\_\_\_  
Ph. D./Ed. D.: \_\_\_\_\_

8. Years of Service: \_\_\_\_\_

9. Classification of Class:       Monograde                                       Multigrade

9. Average Monthly Family Income: \_\_\_\_\_

10. Family Size: \_\_\_\_\_

11. Number of Years in Teaching Mathematics: \_\_\_\_\_

12. In-Service Trainings Attended (past 5 years):

Level	Trainings Attended	
	No. of Times	No. of Hours
International		
National		
Regional		
Division		
District		

13. Performance Rating (for the last three years):

S.Y. 2008 - 2009		S.Y. 2009 - 2010		S.Y. 2010 - 2011	
Numerical Rating	Adjectival Rating	Numerical Rating	Adjectival Rating	Numerical Rating	Adjectival Rating

## PART II. ATTITUDE TOWARDS TEACHING MATHEMATICS

**Direction:** Below are some of the identified attitude of teachers towards students and teaching Mathematics. Kindly assess yourself in each of the following statements and signify your agreement or disagreement by checking appropriate column using the five-point scale as follows:

- 5 - Strongly Agree (SA)
- 4 - Agree (A)
- 3 - No Comment (NC)
- 2 - Disagree (D)
- 1 - Strongly Disagree (SD)

Attitude Statements	Responses				
	SA (5)	A (4)	NC (3)	D (2)	SD (1)
1. I express appreciation to pupils who give correct answers					
2. I display systematically arranged teaching aids to facilitate learning					
3. I give examples and illustrate explanation about the topic					
4. I show the relationship of the present lesson to past topics					
5. I show the relationship of the lesson to the realities in life or to conditions outside the classroom					
6. I present a short summary of the lesson at the end of the class					
7. I present a clear objective for the lesson observed, analyzed or measured					
8. I suite the method of teaching to the abilities of the students					
9. I emphasize important points or aspects of the lesson by underlining them or giving them more time than those which are less important					
10. I ask questions about the finished lesson or encourage students to ask questions about the lessons in an effort to discover if the students have learned something					
11. I use activating or convincing methods of teaching					
12. I check worthy and relevant jokes					
13. I criticize students who give wrong answers					
14. I always remind the students about their undesirable character traits					
15. I do not use a variety of pitch and voice quality					
16. I show undesirable habits inside the classroom					
17. I lack/lose self-control demonstrated by shouting and throwing tools/things away					
18. I reveal to class secrets of other people					

### PART III. COMPETENCIES IN TEACHING MATHEMATICS

**Direction:** The following are statements that reflect your competencies towards teaching Mathematics. Kindly assess yourself and express your level of competencies by checking appropriate column using the following scale:

- 5 - Extremely Competent (EC)  
 4 - Highly Competent (HC)  
 3 - Moderately Competent (MC)  
 2 - Slightly Competent (SC)  
 1 - Not Competent (NC)

Indicators	Responses				
	EC (5)	HC (4)	MC (3)	SC (2)	NC (1)
<b>A. Personal Competence</b>					
1. Coming to school daily in proper uniform					
2. Observing punctuality in coming and going-out the school					
3. Observing classroom discipline					
4. Showing patience to unbecoming behavior of pupils inside the class					
5. Extending help to pupils who have personal problems					
6. Observing personal hygiene and proper grooming					
7. Upgrading oneself by attending Mathematics-related seminars and training at his own initiative and finances					
8. Striving for professional growth by subscribing professional magazines and joining Mathematics society					
9. Upgrading one's educational qualification by enrolling in advance studies in the masters and doctorate courses					
10. Others, specify: _____					

<b>B. Professional Competence</b>					
1. Ability to get support from the administration in relation to the teaching the subject					
2. Ability to devise resources and materials to be effective in teaching the subject					
3. Ability to manage the class and impose classroom discipline					
4. Ability to unlock all difficult words in the lesson					
5. Ability to give meaning of words either by sentence clue or from the dictionary					
6. Ability to discuss thoroughly the lesson					
7. Ability to ask questions to develop critical thinking					
8. Ability to utilize the art of questioning by using the high order thinking skill (HOTS) levels					
9. Ability to allow teacher to pupil, pupil to pupil, and pupil to instructional material interactions					
10. Others, specify: _____					
<b>C. Pedagogical Competence</b>					
1. Ability to use different methods and strategies in teaching Mathematics					
2. Ability to use instructional media					
3. Ability to use evaluative measures					
4. Ability to transfer technology to the pupils and to cause learning					
5. Ability to introduce new pedagogies in teaching Mathematics					
6. Ability to shift from one strategy to the other as deemed appropriate and effective					

6. Mathematics teachers experience hardship in teaching the subject					
7. Overloading of assignments which caused the teacher to be in the classroom unprepared					
8. Several intervening activities attended to by teachers and students that shorten the days allotted for learning the lessons					
9. Students' family income is meager that constraint them from providing themselves with books and materials used in learning Math lessons					
10. Others, specify: _____					

#### PART V. SOLUTIONS SUGGESTED

**Direction:** Below are some of the identified solutions to address the problems encountered by teachers in teaching Mathematics. Kindly assess each solution and signify your agreement or disagreement by checking appropriate column using the following five-point scale:

- 5 - Strongly Agree (SA)  
 4 - Agree (A)  
 3 - No Comment (NC)  
 2 - Disagree (D)  
 1 - Strongly Disagree (SD)

Suggested Solutions	Responses				
	SA (5)	A (4)	NC (3)	D (2)	SD (1)
1. Encourage the students to provide themselves with books and reference materials in Mathematics					
2. Encourage Math teachers to devise instructional materials particularly the indigenous one					

3. Administrators should show support to their Math teachers by nominating them and sending to seminar/workshop in Math to update their pedagogies in teaching the subject					
4. Encourage teachers to join cooperatives or to cooperate themselves to augment their income so that they could subscribe professional magazines and join professional organizations					
5. Encourage teachers to use different motivational techniques to arouse interest of the students to love and learn Math					
6. Administrators should consider giving enough loads to teachers giving them chance to prepare their lessons well					
7. Intervening activities should be minimized to let both students and teachers focus on the teaching and learning Math lessons as planned and scheduled					
8. Too, parents should be encourage to embrace the spirit of cooperativism to augment their income					
9. Others, specify: _____					

**QUESTIONNAIRE**  
(For School Administrators)

Name (optional): \_\_\_\_\_

**PART I. COMPETENCIES IN TEACHING MATHEMATICS**

**Direction:** The following are statements that reflect your competencies towards teaching Mathematics. Kindly assess your Math teachers and express their level of competencies by checking appropriate column using the following scale:

- |                          |      |
|--------------------------|------|
| 5 - Extremely Competent  | (EC) |
| 4 - Highly Competent     | (HC) |
| 3 - Moderately Competent | (MC) |
| 2 - Slightly Competent   | (SC) |
| 1 - Not Competent        | (NC) |

Indicators	Responses				
	EC (5)	HC (4)	MC (3)	SC (2)	NC (1)
<b>A. Personal Competence</b>					
1. Coming to school daily in proper uniform					
2. Observing punctuality in coming and going-out the school					
3. Observing classroom discipline					
4. Showing patience to unbecoming behavior of pupils inside the class					
5. Extending help to pupils who have personal problems					
6. Observing personal hygiene and proper grooming					
7. Upgrading oneself by attending Mathematics-related seminars and training at his own initiative and finances					
8. Striving for professional growth by subscribing professional magazines and joining Mathematics society					

9. Upgrading one's educational qualification by enrolling in advance studies in the masters and doctorate courses					
10. Others, specify: _____					
<b>B. Professional Competence</b>					
1. Ability to get support from the administration in relation to the teaching the subject					
2. Ability to devise resources and materials to be effective in teaching the subject					
3. Ability to manage the class and impose classroom discipline					
4. Ability to unlock all difficult words in the lesson					
5. Ability to give meaning of words either by sentence clue or from the dictionary					
6. Ability to discuss thoroughly the lesson					
7. Ability to ask questions to develop critical thinking					
8. Ability to utilize the art of questioning by using the high order thinking skill (HOTS) levels					
9. Ability to allow teacher to pupil, pupil to pupil, and pupil to instructional material interactions					
10. Others, specify: _____					
<b>C. Pedagogical Competence</b>					
1. Ability to use different methods and strategies in teaching Mathematics					
2. Ability to use instructional media					
3. Ability to use evaluative measures					
4. Ability to transfer technology to the pupils and to cause learning					

5. Ability to introduce new pedagogies in teaching Mathematics					
6. Ability to shift from one strategy to the other as deemed appropriate and effective					
7. Ability to use the process approach					
8. Ability to use the discovery approach					
9. Ability to use the experimental approach					
10. Ability to use the thematic teaching					
11. Ability to use the interactive strategies					
12. Others, specify: _____					

# CURRICULUM VITAE



**Elementary** : **PARASAN ELEMENTARY SCHOOL**  
Parasan Daram, Samar  
March 1987

### **ELIGIBILITIES**

**LICENSURE EXAMINATION FOR TEACHERS (LET)**

August 2001

### **WORK EXPERIENCE**

#### **Teacher-in-Charge**

Caranas Elementary School

Motiong, Samar

2017 - Present

#### **Teacher-in-Charge**

Pusongan Elementary School

Motiong, Samar

2014 - 2016

#### **Elementary Grade School Teacher**

Calapi Elementary School

Motiong District, Motiong, Samar

2007 - 2014

**Elementary Grade School Teacher/  
High School and College Instructor**  
St Marys' College (Formerly Sacred Heart College)  
Catbalogan City  
2000 - 2006

**IN SERVICE TRAININGS/SEMINARS/  
WORKSHOP/CONFERENCE ATTENDED**

Title	Date	Level
"Unified District Echo Seminar in Strategies in Teaching Vocabulary and Reading Comprehension and Spelling Patterns, MSEP and Test Construction"	October 2 -24, 2014	District
"District Unified Echo Seminar in Adoption of Modified School Forms, Action Research, ICT, Solid Waste Management Kongress sa Wika	June 10-13, 2014	District
"Regional Division-Based Training of Coaches on School Sports(Batch 2)"	October 18-20, 2014	Regional
"Regional Seminar-Workshop on Oral English Communication and Public Speaking for Teaching and Non-Teaching Personnel	December 3-4, 2011 and December 10-11, 2011	Regional
"3-Day School-Based Teachers' Training on Computer Literacy"	September 9-11, 2011	Division

*Continued*

Title	Date	Level
"Regional Seminar on Public Accountability and Integrity Forum, CSC Updates and Fiscal/Financial Management"	May 31 - June 2, 2011	Regional
"National Seminar for Math Teachers: Designing and Evaluating Impact of Instruction on Acquisition, Meaning-Making and Transfer of Knowledge in Mathematics"	February 25, 27, 2011	National

## LIST OF TABLES

## LIST OF TABLES

<b>Table</b>	<b>Page</b>
1 Sampling Frame of the Study .....	41
2 Age and Sex Distribution of Mathematics Teacher-Respondents .....	46
3 Civil status of Mathematics Teacher-Respondents .....	48
4 Educational Background of Mathematics Teacher-Respondents .....	49
5 Specialization of Mathematics Teacher-Respondents .....	50
6 Years of Service of Mathematics Teacher-Respondents .....	51
7 Average Monthly Income of Mathematics Teacher-Respondents .....	53
8 Family Size of Mathematics Teacher-Respondents .....	54
9 Number of Years in Teaching Mathematics Teacher-Respondents .....	56
10 Classification of Classes Handled by Mathematics Teacher-Respondents .....	57
11 Relevant In-Service Training Attended by Mathematics Teacher-Respondents .....	58
12 Performance Rating of Mathematics Teacher-Respondents for the Last Three Years .....	60

<b>Table</b>	<b>Page</b>
13 Attitude of mathematics Teacher-Respondents Towards Teaching Mathematics .....	63
14 Mastery Level of mathematics of Teacher-Respondents as Revealed by an Achievement Test in Mathematics .....	67
15 The Correlation Table in Associating the Mastery Teacher-Respondents and their Profile .....	69
16 Level of Competencies of Mathematics Teacher as Perceived by the Two Groups of Respondents Along Personal Competence .....	76
17 Level of Competencies of Mathematics Teacher as Perceived by the Two Groups of Respondents Along Professional Competence .....	80
18 Level of Competencies of Mathematics Teacher as Perceived by the Two Groups of Respondents Along Pedagogical Competence .....	84
19 The t-Table in Comparing the Level of Competence of Mathematics Teacher-Respondents as Perceived by the Two Groups of Respondents Along Personal Competence .....	87
20 The t-Table in Comparing the Level of Competence of Mathematics Teacher-Respondents as Perceived by the Two Groups of Respondents Along Professional Competence .....	89

## LIST OF FIGURES

## LIST OF FIGURES

Figure	Page
1 The Conceptual Framework of the Study .....	12