COMMON DEFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG COLLEGE FRESHMEN

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NILDA C. JAMIN

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APPROVAL SHEET

This thesis entitled "COMMON DEFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG COLLEGE FRESHMEN," has been prepared and submitted by NILDA C. JAMIN, who having passed the comprehensive examination, is hereby recommended for oral examination.

FLORIDA B. MARCO
Instructor, SSU
Adviser

Approved by the Committee on Oral Examination on January 19, 2009 with a rating of **PASSED**.

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

EUSEBIO T. PACOLOR, Ph. D.
Vice President for Academic Affairs, SSU
Member

JOSE S. LABRO, Ph. D.
Vice President for Administrative Affairs, SSU
Member

GINA U. ESPAÑO
Director, Auxiliary Services, SSU
Member

Accepted and approved in partial fulfillment of the requirements for the Degree, **Master of Arts in Teaching** major in **Mathematics**.

January 19, 2009
Date of Oral Defense

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

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D E D I C A T I O N

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To my brothers and sister,

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ABSTRACT

This study determined the computational skills in Basic Mathematics of freshmen college students in Samar State University, Samar State College of Agriculture and Forestry, and Tiburcio Tancinco Memorial Institute of Science and Technology during the first semester of the school year 2008-2009. The study used the descriptive-correlational method of research aimed at explaining and describing the common deficiencies in computational skills of the first year education and information technology students coming from the SUC's of Samar. The student-respondents have a mean age of 17.90 years old, majority of them were females, single, taking BEED, Roman Catholic, graduated from public high schools, with average final grade in Basic Mathematics of 2.1 or satisfactory performance, with parents who are elementary level for a father and college graduate for a mother, with father a farmer and mother a house keeper, with a mean family income of Php 6,722.81 and a family size of seven members in the family. The student-respondents exhibited a moderately favourable attitude towards mathematics with a grand mean of 3.45. The student-respondents encountered high deficiency in percent, average deficiency in decimals and fairly low deficiency in whole numbers, integers, fractions and ratio and proportion. Mathematics teachers must properly select the appropriate teaching strategies and instructional materials that will best develop the computational skills of the students. There must be a constant evaluation of the students' performance to check the learning competence achieved by the students.

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Chapter 1

THE PROBLEM AND ITS SETTING

Introduction

Mathematics is applied in many facets of life. In facing daily activities, people encounter varied mathematical problems that range from simple to complicated. It is considered as a vital tool in the development of Science and Technology. Success in science and math-related courses require a competitive development in mathematical content, process, and skills. Such development can be achieved by the students through strong foundation in their basic mathematics.

Many students think of mathematics in terms of rules to be learned in order to manipulate symbols or study numbers. Most develop a negative perception on numbers due to the process of instruction.

Many basic mathematical concepts are part of one's daily activities. All students are capable of learning mathematics, and it is imperative that they are included in the inner circle of Basic Mathematics language. The inclusion should lead them to understand the world of Basic Mathematics and empower them to be more productive members of society (Brumbaugh and Rock, 2001: 5).

The computational skills evaluation is a diagnostic power math evaluation which measures a student's competency in computational skills. It is a great tool for teachers and other professionals for measuring students' strengths and weaknesses in computational skills (http://www.bempub.com/14.html).

The enactment by congress of RA6655 known as the "Free Education Act of 1988" is a translation of the Constitutional mandate of democratizing education (Education for All) to make access to free secondary education and the establishment of schools in rural areas. With this Free Secondary Education Act, the youth from the country side and remotest areas have greater opportunities to acquire education beyond the elementary level without having to go to the expensive private schools. According to the Department of Education about 75.00 percent are enrolled in the public schools than in private schools (www.deped.gov.ph). As a result, lack of books, classrooms, facilities, and teachers has become a problem. A ratio of one teacher to 60 students is the situation, which greatly affects the quality of education in public schools.

In private schools, every student is obliged to have their own books; classrooms are well-ventilated and are very much conducive to learning. A good student-teacher ratio makes education in private schools an inch over that in public institutions.

The province of Samar has three SUC's namely; Samar State University, Samar State College of Agriculture and Forestry, and Tiburcio Tancinco Memorial Institute of Science and Technology which acquire enrollees from the nearby public and private high schools. The graduates of these secondary schools are expected to develop the learning competence required in the high school. This level of competence acquired by a learner in their basic education affects their learning in the tertiary education.

Basic Mathematics is one of the core subjects being offered in the first year of the education and information technology students. The fact that mathematics is one of the least liked subjects by most of the students the mathematics teachers feel difficulty in gaining the interest of the students.

Inasmuch as educational decisions are based on the findings of surveys and studies gathered, the researcher feels a need to assess the computational skill of the first year education and information technology students in the SUC's of Samar. Furthermore, there is a necessity to identify specific weaknesses and strengths in this area to facilitate the making of functional instructional materials for effective mathematics instructions.

Statement of the Problem

This study determined the computational skills in Basic Mathematics of freshmen college students in Samar State University, Samar State College of Agriculture and Forestry, and Tiburcio Tancinco Memorial Institute of Science and Technology during the first semester of the school year 2008-2009. Specifically, it sought answers to the following questions:

1. What is the profile of the student-respondents in terms of:

   1.1 age;

   1.2 sex;

1.3 civil status;

1.4 course;

1.5 religion;

1.6 secondary school graduated from;

1.7 final grade in Basic Mathematics;

1.8 parents' educational background;

1.9 parents' occupation;

1.10 family monthly income, and

1.11 family size?

2. What is the student-respondents' attitude towards mathematics?

3. What is the profile of the mathematics teacher-respondents in terms of:

3.1 age;

3.2 sex;

3.3 civil status;

3.4 religion;

3.5 educational background;

3.6 instructional materials used;

3.7 teaching strategies;

3.8 performance rating;

3.9 teaching experience, and

3.10 relevant seminars and trainings attended?

4. As revealed by a diagnostics test, what are the common deficiencies of the student-respondents in computational skills in Basic Mathematics in the following areas:

4.1 whole numbers;

4.2 integers;

4.3 fractions;

4.4 decimals;

4.5 percent, and

4.6 ratio and proportion?

5. Is there a significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and the following:

5.1 student-related factors;

5.2 student-respondents' attitude towards Mathematics, and

5.3 teacher-related factors?

6. What implications can be derived from the findings of the study?

Hypothesis

The following hypothesis was tested in order to answer the problems raised in this study:

1. There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and the following:

   1.1 student-related factors

   1.2 student-respondents' attitude towards Mathematics, and

   1.3 teacher-related factors.

Theoretical Framework

This study is anchored on Gagne's Cumulative Learning Theory which states that "Learning occurs as the individual develops higher level skills that build on succeeding lower skills" (Villamin, et al., 2001: 55-56). This theory is based on a hierarchy of intellectual skills organized according to complexity that can be used to identify prerequisites necessary to facilitate learning at each level. The primary significance of this hierarchy is to provide direction for instructors so that, prerequisites that should be completed at each level be identified. The learning hierarchy also provides bases for sequencing instruction. The nine instructional events and corresponding cognitive processes in the theory of cumulative learning is outlined as follows; gaining attention (reception), informing learners of the objectives (expectancy), stimulating recall of prior learning (retrieval), presenting the stimulus (selective perception), providing learning guidance (semantic encoding), eliciting performance (responding), providing feedback (reinforcement), assessing performance (retrieval), and enhancing retention and transfer (generalization) (Gagne, 1985: 75-82).

In learning mathematics, lower level skills must be developed prior to the next level. The computational skills of the student are affected by their deficiency in prerequisite skills. In short, before the new topic is introduced to the learners, instructors must evaluate the competency of the students in their previous topics.

Ausubel (1962: 243-249) in his theory of meaningful learning which states that "an individual develops higher level skills that build on lower level skills" supports the theory of Gagne. This theory has an implication on curriculum planners. Sense learning accumulates and develops subsequently; presentation of areas in every discipline must be arranged from simple to complicate particularly in the field of mathematics, so that simple skills must be developed by the learners before they are introduced to more complicated one.

On the other hand, the idea of Vygotsky (1962: 47) on his Social Learning Theory, asserts that "culture is the prime determinant of individual development". Humans are the only species to have created culture, and every human child develops in the context of a culture. Therefore a child's learning development is affected in ways large and small by the culture – including the culture of the family environment- in which he or she is enmeshed. Culture makes two sorts of contributions to a child's intellectual development. First, through culture children acquire much of the content of their thinking that is their knowledge. Second, the surrounding culture provides a child with the processes or means of their thinking. In short, culture teaches children both what to think and how to think. Cognitive development results from a dialectical process, where a child learns through problem solving experiences shared with someone else, usually a parent or teacher but sometimes a sibling or peer. Initially, the person interacting with child assumes most of the responsibility for guiding the problem-solving, but gradually this responsibility transfer to the child. Since much of what a child learns comes from the culture around him and much of the child's problem solving is mediated through an adult's help, it is wrong to focus on a child in isolation. Such focus does not reveal the processes by which children acquire new skills. Interaction with surrounding culture and social agents such as parents, siblings, peers, and teachers contribute significantly to a child's intellectual development.

Since children learn much through interaction, curricula should be designed to emphasize interactions between learners and learning tasks. With appropriate adult help, children can often perform tasks that they are incapable of completing on their own. Adult, particularly the teachers must continually adjust the level of his or her help in response to the child level of performance. It is an effective form of teaching. This instills the skills necessary for independent problem solving in the future.

Conceptual Framework

Figure 1 shows the conceptual framework of the study depicting the research environment, and the processes that were undertaken by the researcher.

At the base is the research environment, which is the State Colleges and Universities of the province of Samar, namely; Tiburcio Tancinco Memorial Institute of Science and Technology (TTMIST), located in Calbayog City, Samar State College of Agriculture and Forestry (SSCAF), located at San Jorge, Samar, Samar State University (SSU), located at Catbalogan City. The respondents were the freshmen college students taking Basic Mathematics and the teachers of the subject for the first semester of the school year 2008–2009.

This study conducted a survey through questionnaire on the student-respondents and teacher-respondents whether there was a significant relationship between the three groups of variates: the student's attitude towards mathematics, student-related factors, and teacher-related factors, on the common deficiencies of the students in computational skills in Basic Mathematics. This is indicated in the second layer of the paradigm.

The results of the study will be used to formulate and implement policies to the research environment as depicted by the feedback frames.

The study envisioned improved computational skills of the students in Basic Mathematics.

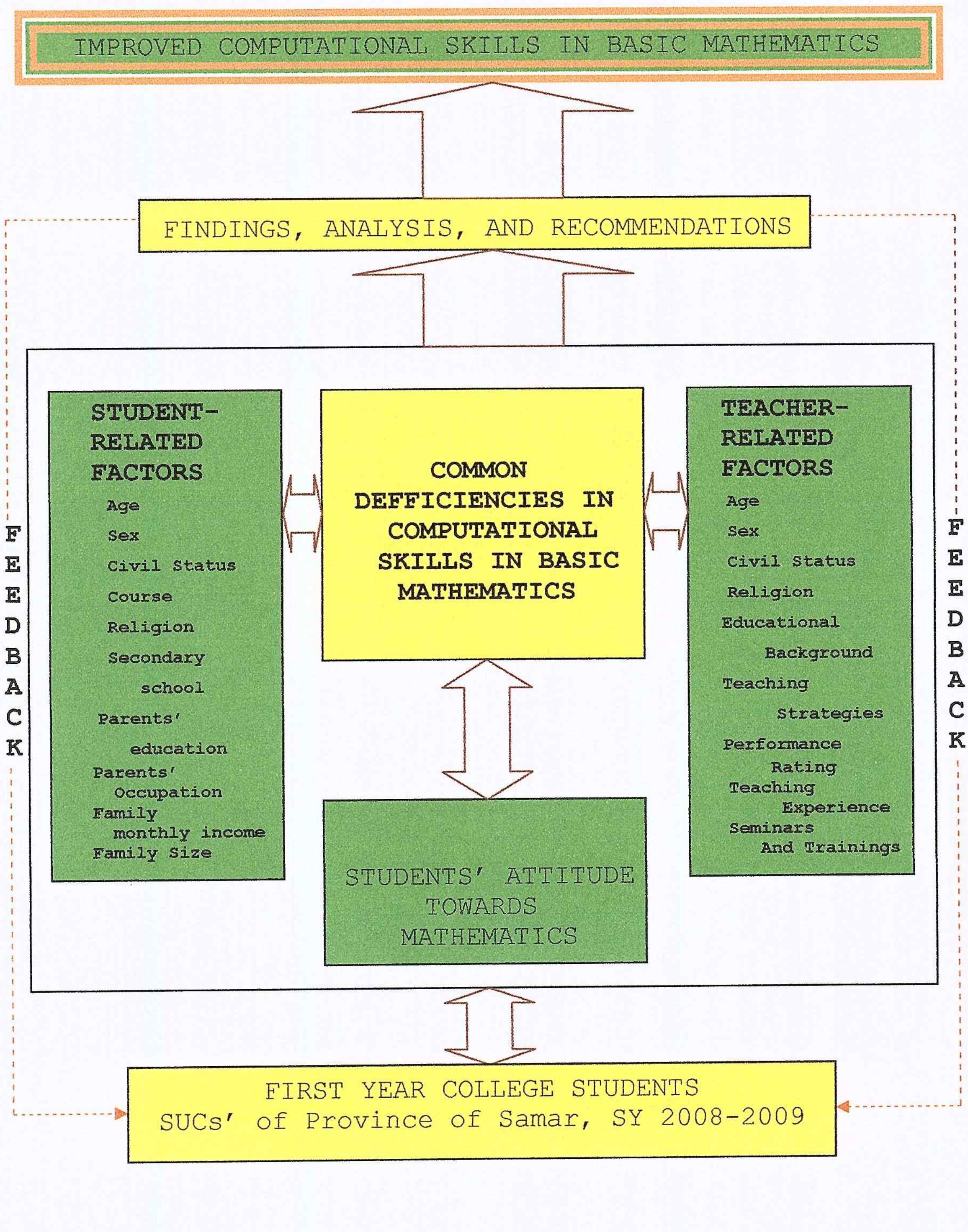

Figure 1. Conceptual Framework of the Study

Significance of the Study

The results of this study would benefit the students, their parents, public and private high school administrators, mathematics teachers, faculty and staff of SUC's of Samar, as well as the future researchers.

To the students. This study would enable the students to gain insights into their competency level as well as their weak points in Basic Mathematics which would lead to better understanding of the subject and realization of its importance in solving daily life mathematical problems. This would encourage them to participate in classroom activities which may facilitate a closer communication with the teacher.

To the mathematics teachers. The result of this study could help the instructors to identify the factors which has affected the computational skills of the students in Basic Mathematics, likewise, this will also aid in the modification of teaching strategies, development of instructional materials in the subject, improvement in the process of evaluation of the students in mathematics, and most of all, awareness of the result of this study, teachers would be able to adjust the instruction according to the ability of the students.

To the parents. This study would provide the parents awareness of the proficiency level in the computational skills in Basic Mathematics of their child. This would motivate parents to take actions to improve the performance of their child through remedial instructions.

To the faculty and staff of SUC's. This study would help the college evaluate and improve the quality of instruction it has extended to the students. This would also help to improve policies, redirect curriculum and programs that would cater to the needs of the students.

To state colleges and universities administrators. The result of this study could provide administrators vital information in terms of the proficiency of students in Basic Mathematics. This would also aid the SUC's administrators in the implementation of the policies and programs that could improve the quality of instruction to the students.

To the future researchers. The result of this study could also serve as a source of literature in conducting follow-up research of similar nature.

Scope and Delimitation

This study centered on the common deficiencies in computational skills in Basic Mathematics particularly on operations with whole numbers, integers, fractions, decimals, percent, and ratio and proportion of the first year Education and Information Technology students in the SUC's of Samar, for the school year 2008-2009. These deficiencies in computational skills of the student-respondents were determined with respect to the different areas in Basic Mathematics.

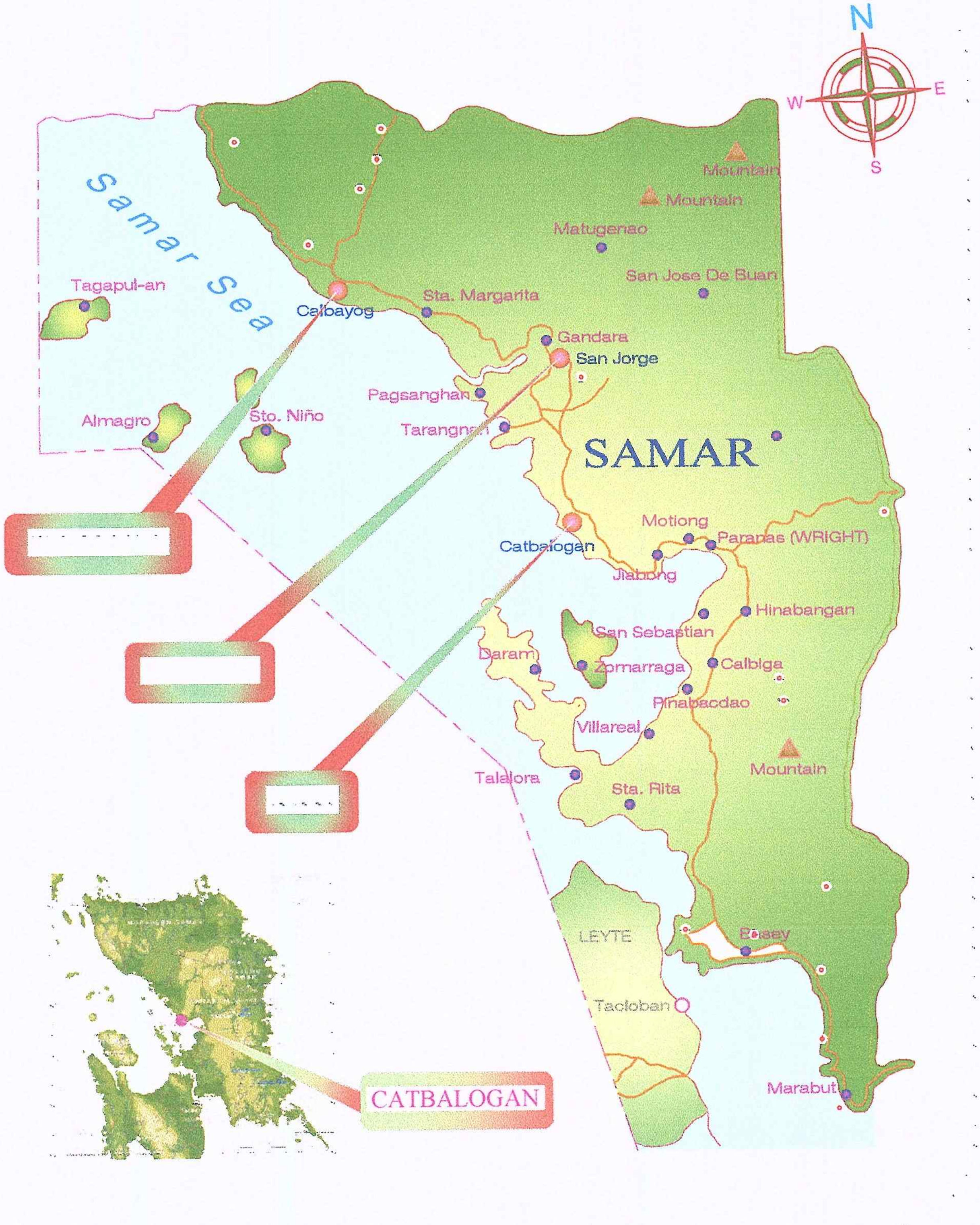

Figure 2. Map of Samar Showing the Respondents' Schools

The respondents of this study were four mathematics teachers handling Basic Mathematics and 285 randomly selected students from the eight classes of first year, particularly students taking Basic Mathematics from the courses Bachelor of Science in Education, Bachelor of Science in Elementary Education, and Bachelor of Science in Information Technology, for the school year 2008-2009 of Samar State University, Catbalogan, Samar, Samar State College of Agriculture and Forestry, San Jorge, Samar, and Tiburcio Tancinco Memorial Institute of Science and Technology, Calbayog City.

The study identified the common deficiencies in the computational skills of the students in Basic Mathematics through comparison of their common errors in the diagnostic test containing the areas of Basic Mathematics such as; whole numbers, integers, fractions, decimals, percent, and ratio and proportion. Moreover, correlational analysis was done on the student's computational skills with their identified personal characteristics, teacher's characteristics and attitude towards mathematics.

Definition of Terms

To provide the common frame of reference, important terms used in this study are herein defined conceptually and operationally.

Age. This term refers to the length of time for which a being or thing has lived or existed (Essential English Dictionary, 2004: 11). In this study, it refers to the chronological age of the respondents ranging 15 to 60 years old.

Attitude towards mathematics. It refers to the learned predisposition to respond in a consistently favorable or unfavorable manner to mathematics either as a teacher or as a learner (Lefton, cited by McLeod, 1992: 596). In this study, it is measured through an attitude scale which consisted of 20 positive statements to determine the feeling a student-respondent has toward mathematics.

Basic mathematics. Is a practical approach to the fundamentals of arithmetic which explains the various mathematical techniques, and provide a wide of word problems and to emphasize applications of mathematics in the real world (Proga, 1984). In this study, it is a subject in the BSEd and BSIT Curriculum that deals with the concepts, processes, and skills in Whole Numbers, Integers, Fractions, Decimals, Percent and Ratio and Proportion.

Common deficiency. This term refers to the quality of being inadequate on something (Online Webster's Dictionary, 2007). In this study, this refers to a particular computational skill in Basic Mathematics where majority of the student-respondents were not able to perform correctly.

Computational skills. This refers to the ability of the student to perform mathematical computations (New Webster Dictionary, 1995: 201). In this study, it refers to the computational skills of the students developed in their previous mathematics subject.

Diagnostic test. This test is a measure which identifies the weaknesses of an individual's achievement in any field which serves as a basis for remedial instruction. (Calmorin, 2005: 21 – 22). In this study, this is 52-item multiple choice test in Basic Mathematics which is used to determine the common deficiencies in the computational skills of the students.

Educational attainment of parents. It is the acquired education of an individual to gain knowledge (Comton's Encyclopedia Vol. 7, 1996: 77). Operationally, this is the highest level of Education obtained by the father and the mother.

Family income. It is the combined income of the father and the mother and other resources such as yield from agriculture lands. Operationally, it is the income of the whole family.

Instructional materials. These are pieces of equipment or mechanism designed for specific purpose or special functions that are used in teaching lessons to involve a desired reaction in the learner (Good, 1985: 117). In this study, these are the visual aids, OHP's, LCD's, worksheets, and other math instruments used by the teacher.

Mathematics teachers. They are the persons who teach mathematics (The New Webster's Dictionary of the English Language, 2004: 616). In this study, they are the teachers teaching Basic Mathematics in BSEd and BSIT students.

Parent's occupation. It is a certain person's usual or principal work in which he earns a living (Random House Webster's Concise College Dictionary, 1999: 265-598). Operationally, it is the job or source of income which the parents of the student-respondents have.

Performance. This refers to the actual accomplishment as distinguished from potential ability (Good, 1973: 375). Operationally, it refers to the grades of the student-respondents in Basic Mathematics.

Sex. It is either of the two major forms of individual that occur in many species and are distinguished as male and female especially on the basis of their reproductive organs and structure (Merriam Webster's Collegiate Dictionary, 2003: 1140). Operationally, it is the distinction of the student-respondents as male and female.

State colleges and universities (SUC's). This term refers to schools for higher education that are funded or subsidized by the government (Higher Education 4th National Congress, 2001). In this study, it refers to Samar State University, Samar State College of Agriculture and Forestry And Tiburcio Tancinco Memorial Institute of Science and Technology.

Student. This refers to the learners enrolled in an institution (Depedrsd@pacific.net.ph). In this study, it refers to the freshmen college students enrolled in education and information technology courses in the SUC's of Samar for the SY 2008-2009.

Student-related factors. Any of the facts or circumstances which taken together constitute a result or situation (The New Webster's Dictionary of the English Language, 2004: 338). In this study, the term refers to the personal characteristics of the student-respondents such as; age, sex, civil status, parents' educational attainment, family size, and family income.

Teachers. As defined, they are persons employed in an official capacity to the purpose of guiding and directing the learning experiences of students in an educational institution (deped-rsd@pacific.net.ph). Operationally, they are persons who guide and direct learning experiences in Mathematics of students in Samar State College of Agriculture and Forestry (SSCAF), who will be the respondents of this study.

Teacher-related. It is anything which is connected or in relation with the teacher (Merriam Webster's Collegiate Dictionary, 2003: 1050). Operationally, it is the teacher factor in connection with the respondents' performance in mathematics.

Teacher-related factors. The term refers to the personal characteristics of the teacher-respondents, including their age, sex, civil status, highest educational attainment, relevant trainings/seminars attended, and latest performance rating.

Teaching strategies. This refers to a series of related and progressive acts performed by the teacher to accomplish the general and specific aims of the lesson (Gregorio, 1976: 245). In this study, it refers to the methods of teaching applied by the instructors in teaching Basic Mathematics.

Variates. This term is synonymous with the word variable, which refers to the characteristics or attributes of persons or objects which assume different values or labels (Faith, et al., 2003: 8). In this study, they are the student-related factors and teacher-related factors which were considered.

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter reviews and presents information taken from books, magazines, journals and recent studies and researches that are relevant to the present study. These pieces of information aim to shed light on the problem presented.

Related Literature

Involving a wide scope of subject matter, mathematics is everywhere. Although it is characterized as an abstract or theoretical knowledge, its beginning is the real world, if concretized, Mathematics can be interesting, yet many dislike it.

According to Garret (1998), math learning difficulties are common, significant and worthy of serious instructional attention in both regular and special education classes. Students may respond to repeated failure with withdrawal of effort, lowered self-esteem, and avoidance behaviors. In addition, significant math deficits can have serious consequences on the management of everyday life as well as job prospects and promotions. Math learning problems range from mild to severe and manifest themselves in a variety of ways. Most common are difficulties with efficient recall of basic arithmetic facts and reliability in written computations. When these problems are accompanied by conceptual grasp of mathematical and spatial relations, it is important not to bog the student down by focusing only on remediating computations.

Ardilla and Rosille (2002: 12, 179-231) cited that mathematics learning disabilities is a cognitive disorder impairing the typical acquisition of arithmetic skills.

According of American Psychiatric Association (2002), this mathematical learning disability is diagnosed when a child's' mathematical ability, as measured by standardized tests, is substantially below what is expected based on their intelligence and education.

Mabbot and Binanz (2003: 30-58) cited that the difficulties of children with mathematics learning disability in their study usually resulted from the difficulties in processing numerical information. Older students that display deficits in computational and procedural skills are more likely to result in poor performance on standardized achievement test. Difficulties in computational skills and working memory exhibited by older children have important consequences for more advanced mathematics attainment.

Ginsburg, et al. (1998) cited that the development of mathematical cognition in children reflects the coordination of numerous cognitive processes including computational procedures, conceptual knowledge, and working memory. Consequently, impaired acquisition of mathematics skills and knowledge is likely best understood in terms of the relations between different cognitive processes and the impact that a deficit in one area has on the other areas and in mathematics achievement.

The result of the Third International Mathematics and Science Study (1998) on the study of improving mathematics in the middle school suggested that: 1) there needs to have a serious national commitment to improve mathematics learning by all students due to the students' mathematical achievement of below average internationally: 2) the mathematics curriculum and instructional practices utilized in the middle class needs to be enhanced because the curriculum content is unfocused, excessively repetitive and not sufficiently demanding, and 3) a substantial investment needs to be made in teacher professional development in order to support a more ambitious curriculum, and a more intellectually challenging instruction which will in turn lead to better instruction and greater achievement because it was found that the teachers lack structured and sustained opportunities to improve their practice.

Reynolds and Walberg (1998: 306-328) cited that prior achievement and home environment influenced subsequent achievement more powerfully; motivation, exposure to extramural reading media, peer achievement, and instructional exposure also had significant influences on achievement. Previous attitude had the most powerful influence on subsequent attitudes, although the direct effects of instructional quality and the indirect effects of motivation and home environment were also notable. Appropriate teachers' use of instructional time, thorough textbook coverage, and daily introduction of new materials, although educationally alterable, are themselves influenced by previous student achievement. Similarly, instructional practices are significant alterable influences on mathematics attitudes, but such practices are themselves influenced by student's initial attitudes.

According to Grouws and Cebulla (2000: 12), teachers must ensure that students are given the opportunity to learn important skills and content. If the students are to compete effectively in global, technologically oriented society, they must be taught the mathematical concepts needed to do so.

Greenberg, et al. (2003: 470) cited that majority of the influences on learning involved social-emotional influences such as; classroom management, parental support, student-teacher interactions, social behavioral attributes, motivational- effective attributes, the peer group, school culture, and classroom climate.

According to Ivie, et al. (1998: 35), developing thinking skills in students requires specific instruction and practice rather than application. Teachers should address analysis, evaluation and synthesis using advance organizers that encourage students to operate at higher levels of abstraction. Strengthening cognitive structures helps students retain information longer, and subsumptions provide students with basic structures on which to build new concepts.

Zins, et al. (2004: 470) demonstrated the importance of the domains of motivational orientations, self-regulated learning strategies, and social/interpersonal abilities in facilitating academic performance. Students who become more self-aware and confident regarding their learning abilities, who were more motivated, who set learning goals, and who were organized in their approach to work, performed better in school.

Related Studies

The researcher reviewed both foreign and local studies to provide materials for this study.

From the study of Delmonte (2003) on the "Factors Affecting Students Performance in Science and Technology"' she revealed that all the home related variates such as; the educational materials at home, parents educational attainment, family income and family size of the students are related to have influenced their level of performance in Science and Technology. It further revealed that the home and the school truly affect each other. A student or pupil maybe in a generally good school with good teachers, classmates, and conducive-to-learning atmosphere, but if the students home present another kind of environment, the things that are supposed to augment his progress in school are not available in the home, or when his parents at home are hostile and do not fully support his normal activities, then his change for a wholesome intellectual growth could be deferred, if not distracted.

The study of Delmonte has similarity with the present study considering that both studies are aimed at improving the mathematics performance of a child. However, they differed on the focus of study, since the former focused on the factors affecting the students' performance in science and technology while the present study focused on the common deficiencies in computational skills of the students in basic mathematics.

Delabajan (2001) undertook a critical analysis on the "Mathematical Performance of Grade Six Pupils in Solving Word Problems". Findings showed that the achievement profile of the grade six pupils in solving word problems particularly in the diagnostic test along the five skills is "above average" only in reading cognition but "below average" in the other four skills – comprehension, transformation, process and encoding. The identified pupils of this study committed errors along comprehension, transformation, process and encoding in the diagnostic test. These errors are confirmed in the diagnostic interview. As a whole, the ranking of mathematical errors in both diagnostic test and diagnostic interview were; process, encoding, transformation, and the last are comprehension.

The study of Delabajan had some similarity to the present study in the sense that both studies determined the difficulties of the students in mathematics analysis and computation. However, they differed on the scope sense the previous study had its focus on mathematical performance of grade six while the present study focused on Basic Mathematics in college.

The study of Amante (1999) was done to determine the "Common Deficiencies in College Algebra Among Engineering Students". The findings of the study revealed that the proficiency of the students in college algebra can be predicted by: 1) attitude towards mathematics, 2) mathematical background, 3) performance in entrance examination, and 4) language proficiency.

The study of Amante is related to the present study in terms of assessing students' performance in mathematics but they differed in setting and content area.

From the study of Ramos (1999) on the factors associated with student achievement in Advanced Algebra, she found out that performance of the student is significantly related to the study habits. From the result of her study, it showed that the study habits of the senior high school students have greatly affected the performance in Advanced Algebra in college.

The study of Ramos is significantly related to the present study in the sense that computational skills are developed through proper study habit. However, they differ on the focus and procedure.

Bejar (2001) conducted a study on the "Correlates of Achievement in College Algebra" of the college students in SSCAF San Jorge, Samar. From the findings of her study, the following conclusions were drawn: 1) most of the students were from a family of income bracket interpreted as low income, 2) there is a need to develop the computational and problem solving skills of college freshmen in college algebra, 3) students who graduated from urban schools were much better in computational skills than those who graduated from rural schools due to their exposure to better facilities, varied learning activities closely supervised because they are accessible, and 4) students who have better computational and problem solving skills in college algebra are those who have good study habits and higher grades in high school mathematics. Furthermore, she recommended that 1) prerequisite skills in computations and problem solving be mastered first in the early stage of their mathematics, 2) development of the students' comprehension and problem solving skills be given greater emphasis, 3) development of better study habits and positive attitudes towards mathematics be emphasized in all levels of the mathematics education of the child, and 4) remedial instruction should be done to improve students' performance in college algebra.

The present study is closely related to the study of Bejar in the sense that their focus is much on the development of the computational skills of the child. However, they differed on the content area.

From the study of Verunque (1999) focusing on the computation and problem solving aspects, it was noted that the overall mean scores of both the tests for computation and problem solving were below average. The findings of the study indicate the need for follow up and close supervision by the school heads, considering that most of the teachers have teaching experience ranging from one to five years. The result that concerns the attitude of parents toward schooling was favorable. This highlights the importance of a good relationship between school authorities and parents. However, the findings of this study revealed more student variables as significant predictors of their computational and problem solving skills than the teacher and parent variables. This suggests that the major focus of the development should be the student himself.

The present study considers relevance with the study of Verunque considering that both studies recognize the role of parents in the academic development of the child. Although both studies deal with computational skills, the present study is more specific in terms of area of content.

Petilos (2002), conducted a study of "Constructivist Model for Teaching Problem - Solving: Effects on Students' Problem Solving and Critical Thinking Skills", has arrived at the following findings: 1) the students were not familiar with the different problem-solving strategies: looking for patterns, illustrating a diagram, working backwards, and guess and check, 2) in the pre-test, the students both in the experimental and control groups were only good at conjecture making and to some extent hypothesis formulation. The students were weak in deductive reasoning, logical discrimination, quantitative analysis, inconsistent recognition, pattern recognition, generalization formulation, and inductive reasoning. It is in this items were at most only 20.00 percent of the students were able to present correct answers. In the post test, still about 80.00 percent of the students in both groups failed to solve completely the items which were not solved in the pre-test.

A close look at the responses of the students revealed that they were able to present correct answers on items that did not require much conceptual knowledge of mathematics such as divisibility, prime numbers, percent and procedural knowledge in math such as computing for a certain percentage and translating mathematical statements to algebraic expressions, 3) pre-test scores in the level of performance both in problem solving and critical thinking were found to be weak as indicated by the mean scores of 1.8 in problem solving and 6.1 in the critical thinking. Problem solving test correspond to an MPS of 9.00 percent only and critical thinking test correspond to an MPS of 24.40 percent. The overall performance of the students in both the experimental and control group are low. However, the experimental group posted higher MPS scores on both the problem solving and critical thinking test than the control group; 4) the students exposed to constructivist model of teaching problem solving strategies, posted significantly higher mean scores on the measures of critical thinking traditional model, and 5) the students exposed to the constructivist model of teaching problem solving strategies posted significantly higher mean scores on measures of critical thinking than the students exposed to traditional model. However, there was no significant interaction between students' ability level and the treatment conditions. This indicates that the effect of using the two models of teaching problem solving strategies on the critical thinking skills is parallel across the two ability levels. From the implication of the study of Petilos, he generalized that the second year BEED students in LNU specializing mathematics are weak in terms of problem solving and critical thinking. This weak performance an inaccurate thinking process are probably the product of years of exposure to a mathematics culture where students just listen, watch, and mimic things that the teacher and textbooks tell them to show. In this culture, there is a little emphasis on problem solving and critical thinking but too much emphasis on rote learning and drill.

The study of Petilos and the present study are related in terms of subject area. Both are focused on performance of the students. However, the previous study is broader in content and of focused on problem solving, while the present study is merely on the computational deficiencies common to the students in a specific area.

The results of the study of Bacaricas (2004) on "Manifestations of Number Sense As Gleaned from Students Solutions on Non-Routine Mathematical Problems", it was showed that only 9.00 percent of the 285 responses were considered as realistic reaction (RR). Their solution strategies as revealed in the Non-Routine Word Problems (NRWP) written test and interview were in the form of successful solution (SS) model as defined by Silver, Sharpiro and Deuthsch (1993). Majority of the students knew the appropriate operations to solve the problems and were able to perform the operation accurately. However, they did not modify the answers to suit to real-world considerations (as depicted in the problems). The students simply focused on the numbers given in the problems and the operations that can be used to solve the problems. As a result, the student's responses in the NRWP test were considered mostly as negative non-realistic reaction (NRA). Majority of the students were weak in asking quantitative judgment and inference. Their knowledge about numbers and mathematical rules (e. g. rounding off) were in flexible. The interview revealed that even if students were aware that their answers were unrealistic based on real-world situations; they still preferred the unrealistic answers because those were consistent to mathematical rules. For the Number Magnitude Test (NMT), it was revealed that; 1) judging which of the given two fractions is closer to a third one was more difficult than by comparing two fractions only, 2) ordering fractions was more difficult than ordering decimals, 3) majority of the students were not aware of the existence of a fraction between 2/7 and 3/7 and decimals between 0.74 and 0.75, 4) and the task on finding a fraction between two fractions was the most difficult NMT item for the test. For the Flexible Numerical Computation (FNC), very few solution strategies were considered flexible. However, the flexible solution strategies have higher accuracy. Most of the flexible solution strategies were non standard without reformulation and they were mostly used in multiplication and division tasks. No nonstandard with reformulation solution strategy was observed.

From the study of Novilla (2006) focusing on the "Mathematics Achievement And Licensure Examination Performance of Engineering Graduates", he found out that the level of mathematics achievement of the engineering graduates who passed the engineering licensure examination was significantly related to his/her general weighted average in college. It was also revealed that those who had higher general weighted average had better performance in mathematics than those who obtained lower general weighted average. From the same study, it was found out that the secondary school where the student graduated from was not significantly related to the level of mathematics achievement of the engineering graduates who passed the licensure examination.

The present study bears similarity with the study of Novilla in the sense that both studies focus on assessing the mathematical ability and performance of the learner. However, the previous study differs with the present study in terms of scope.

Dequito (2006) study entitled, "Attitude towards Mathematics among the Fourth Year High School Students: Its Influence on their Achievement in Mathematics IV" is a correlational study aimed at determining the attitude towards mathematics among fourth year high school students, its influence on their achievement in Mathematics IV in the Fourth Congressional District of Iloilo for the school year 2005-2006. The statistical tools used were the frequency count, percentage, mean, t-test, Pearson-r, analysis of variance (ANOVA) and chi-square. All inferential statistics were tested at level of significance set at 0.05.

The findings revealed that the fourth year high school students have favorable attitude towards mathematics. Fourth year high school students have satisfactory achievement in Mathematics IV. Significant differences were noted in the achievement in Mathematics IV of the fourth year high school students when classified according to the variable, parents' employment.

The study of Dequito bears similarity with the present study in terms of subject studied, Mathematics. The two studies also are similar as to the research design used, which is correlational research design. The two studies differ since attitude towards mathematics in the present study is one of the factors considered which will predict mathematics achievement or performance while in the study of Dequito it is one of the major variables of the study and the present study is focused on the computational skills in mathematics and the study subjects are college students.

Cavagdan (2001) study entitled, "Affective Attributes as Factors of Achievement in Mathematics" has the following conclusions: 1) The students have low level of achievement in mathematics, average level of mathematics self-concept; average to high level of achievement motivation, and average level of mathematics anxiety. 2) There is a significant positive correlation between achievement in mathematics and mathematics self-concept and achievement motivation. Achievement in mathematics and mathematics anxiety has negative significant relationship. 3) The students do not vary in mathematics self-concept and mathematics anxiety as to sex. There is no variance in the students' mathematics self-concept, achievement motivation, and mathematics anxiety as to year level. 4) There is a significant correlation between mathematics self-concept and achievement motivation. It has a negative significant relationship with mathematics anxiety. Achievement motivation has a significant negative correlation with mathematics anxiety. There is a significant multiple correlations between achievement grade in mathematics and the variables, mathematics self-concept, achievement motivation, and mathematics anxiety.

The study of Cavagdan bears similarity with the present study since both studies tried to determine relationship of some factors/attributes with mathematics achievement/performance. The two studies differ since the study of Cavagdan is focus on affective attributes, namely: self-concept, achievement motivation and mathematics anxiety in relation to mathematics achievement while the present study is focus on certain characteristics of the respondents as possible predictors of their mathematics performance. Also, the study of Cavagdan was focus on high school students of Salinas High School, Bambang, Nueva Vizcaya while the present study is focused on the education students of state colleges and universities in Samar.

Lukman (2005) study entitled, "Ability Grouping: Its Effects on the Mathematics Achievement Among Grade V Pupils of Sangali Elementary School, Zamboaga City", determine the effectiveness of ability grouping scheme in teaching Elementary Mathematics V.

The result of the study revealed the following findings: The pupils of Sangali Elementary School had a fair achievement level in Mathematics. Both the ability grouping and the none-ability grouping schemes were found to be effective in teaching mathematics, however, the ability grouping schemes were found to be more effective. Male and female pupils had the same achievement level in mathematics. Parents' educational attainment and family income had significant effects on the performance of pupils in mathematics.

The study of Lukman bears similarity with the present study since both studies were on achievement in mathematics. The two studies differ since the study of Lukman used experimental design while the present study used the descriptive correlational research design and the present study used college students while the study of Lukman used elementary students. Also, the present study is focus on Basic Mathematics while that of Lukman in Grade V mathematics. The two studies differ in the research locale, in research focus since the study of Lukman is on ability grouping while the present study is on mathematics difficulties and although the study of Lukman consider sex, parents' educational attainment and income in relation to mathematics achievement, the present research have these variables attributes and others.

Tacardon (2002) study entitled, "Evaluation of Usmicet as Predictor of College Students' Academic Performance at the University of Southern Mindanao", this study evaluated the predictive value of the USM College Entrance Test (USMICET) on college academic performance of student respondents as against the fourth year High School Grade Point Average (HSGPA) and the Type of High School where the student graduated (THS). Specifically, the study sought to determine whether: (1) there were significant differences on USMICET performance of the student respondents who graduated from different high schools (THS); (2) there was significant relationship between the HSGPA and USMICET performance; (3) the institutional variables significantly predicted CGPA and the GPA2; (4) each USMICET area score significantly predicted CGPA or GPA2; (5) USMICET GSA significantly predicted the CGPA or GPA2; (6) the demographic factors (viz: age, gender, sibling number, household size, and mothers'/fathers' educational attainment) were associated with CGPA and GPA2; and, to (7) compare which among the independent variables was the better predictor of CGPA and GPA2. Stratified sampling by 70.00 percent proportionate allocation guided the sampling process. It availed of the University Registrar's list of (baccalaureate) graduating students of 2001 and the college list classified entering fifth year students of the Colleges of Engineering and Veterinary Medicine as of end of school year 2000. With population frame of 958 prospective respondents, 667 students (69.62 percent) were drawn to constitute the sample of the frame. A Personal Information Questionnaire elicited demographic data from them. The correlation survey method and stepwise multiple regression analysis were used to empirically determine the correlates and the better predictors of college performance in terms of CGPA and by GPA2 as the same were modified by the demographic factors.

Findings: 1) THS showed significant difference on USMICET GSA performance. 2) All fourth year subjects in high school were significantly correlated with USMICET GSA, while three significantly predicted USMICET GSA. 3) No THS showed any significant difference on CGPA and GPA2.

4) All fourth year high school subjects were correlated with GPA2 and CGPA, except PEHM that was found unrelated to CGPA. English, Filipino with Mathematics as an alternate of Filipino, emerged as significant predictors of CGPA, while English solely predicted GPA2. 5) USMICET score in English predicted the GPA2 while USMICET GSA, English and Science scores predicted CGPA. 6) Three demographic attributes of the student respondents were found to have significant association with the CGPA at 1.00 percent significant level and two with GPA2 at 5.00 percent level of significance. 7) Although USMICET and 4th year High School Grades were both found significant predictors of CGPA and the GPA2 of the student respondents, the fourth year HSGPA emerged as the better predictor because its contribution to college performance is 26.60 percent while USMICET's contribution to college performance is only 3.40 percent.

Conclusion: While USMICET and the 4th year high school grades were both found to be significant predictors of college academic performance, the latter emerged as a much better predictor. Thus, 4th year high school grades can solely be relied on to screen student applicants for admission to the University of Southern Mindanao.

The study of Tacardon bears similarity with the present study since both studies were on determining predictors of academic performance, college performance and mathematics performance. The study of Tacardon used the USMICET to predict academic performance in college and 4th year high school grades of students, the present study used pupils, teachers, home-variables as predictors of mathematics performance of college students and the two studies differ as to research locale.

Cleofas (2000) study entitled, "Academic Performance in Mathematics of Grade One Pupils in Midsayap District, Cotabato" aimed to assess the academic performance in mathematics of grade one pupils in selected public elementary school in the four districts of Midsayap, Cotabato Division in school year 1999-2000. The findings revealed: 1) Pupils sex is not significantly related to their performance in content areas as shown by the t-values with their corresponding probability values. 2) School location is significantly related with pupils' performance in whole numbers, geometry, measurement and total scores in favor to the town schools, but significantly related to pupils' performance on rational numbers as shown by the t-values with their corresponding probability values. 3) Employment status of parents is significantly related to pupils' performance in whole numbers, geometry, measurement, total scores in favor of pupils with employed parent; but significantly related to pupils' performance in rational numbers as shown by the t-values and corresponding probability values. 4) There are statistically significant differences in the pupil performance in each content area and in total score in favor of the pupils with employed parents as shown by their t-values and corresponding probability values. Likewise, there is significant difference in the total scores of the two groups in favor of pupils with employed parents as revealed by the t-values and the probability value.

The study of Cleofas bears similarity with the present study since both studies were concerned with mathematics performance. The two studies differ in the level of mathematics studied; the present study is college mathematics while that of Cleofas is grade school mathematics. Also, the study of Cleofas tried to assess the performance in mathematics of the grade one pupils the present study will determine mathematics difficulties of college students. Some of the variables considered to be related to mathematics performance which were considered in Cleofas study were variables of the present study also, but the present study has considered a lot more variables compared to Cleofas.

Mati (2007) study entitled, "An Evaluation of Mathematical Achievement of Students of Tarlac State University Laboratory School: Implication to Mathematics Teaching and Evaluation of Outcomes" determine the achievement in Mathematics of 104 fourth year high school students of which 40 were from the Math-Science (MS) curriculum and 64 belonged to the Basic Education Curriculum (BEC) of Tarlac State University Laboratory School during the school year 2006-2007. A teacher –made diagnostic test in mathematics consisting of 30 items for each test area: Mathematics I, Algebra, Geometry and Trigonometry constructed and administered by Mariano (2005) in her study were used to gather the data.

The following were the conclusions: 1) Majority of the students from the MS group belonged to the average level while most students from the BEC group belonged to the low average level in all four areas. The highest performance of the MS group was in Mathematics I while the lowest subject performed was in Trigonometry. The highest performance of the BEC group was in Geometry while the lowest subject performed was in Trigonometry. For the MS group, performance was almost similar in Algebra and Geometry. For the BEC, performance was similar in Mathematics I and Algebra. 2) The MS students showed better performance in topics such as numeration and number system, properties of whole numbers, factor, multiples, GCF and LCM, integers, algebraic expressions, special products and factoring, exponents and radicals, quadratic equations, and congruent triangles. The BEC students showed better performance in topics involving the numeration and number system, factor, multiples, GCF and LCM, quadratic equations, and congruent triangles. Both groups of students experienced the greatest difficulty on the following topics: perimeter, areas & volumes, ratio and proportion, rational expressions, linear equations, system of linear equations and inequalities, angles and perpendicular lines, quadrilaterals, areas and volumes, special angles, trigonometric functions, solution of right triangles, laws of sine and cosine, and proving identities. 3) The results of the study showed that the achievements of both MS and BEC students in their mathematics subjects were behind the passing rate, thus, it could be concluded that the students' retention skills on these mathematics areas were quite low.

The study of Mati bears similarity with the present study since both studies were on the subject mathematics. The two studies differ in the education level of respondents involved, in the research locale in the research focus, and in Mathematics topics concerned in the study.

The studies reviewed provided the researcher impetus to go on with the study.

Chapter 3

METHODOLOGY

This chapter contains the discussion of the research design, instrumentation, validation of the instrument, sampling procedure, data gathering procedure and statistical treatment of data.

Research Design

The study used the descriptive correlational method of research aimed at explaining and describing the common deficiencies in computational skills of the first year education and information technology students coming from the SUC's of Samar. The study had focused on the student's profile, teacher's profile, and the attitude scale test which are factors affecting the computational skills of the respondents in Basic Mathematics.

The main instruments used to gather information from the respondents were the teachers' made diagnostic test and the questionnaire. Specific guidelines in constructing test questions were followed for the validity and reliability of the test, with the integration of the suggestions of the experts in the field of mathematics. The Microsoft excel for data analysis was utilized.

The statistical tools used include the frequency count, mean, percentage, Pearson r, Fisher's t-test, and Point Bi-serial.

Instrumentation

The two main instruments used in the collection of data were questionnaire and teacher-made diagnostic test.

Questionnaire. There were two sets of questionnaires. One questionnaire was for the student-respondents and the other set was for the teacher-respondents.

The questionnaire for the student-respondents consisted of two parts. Part I was for personal profile of student-respondents. This part was intended to survey the personal profile of the student-respondents. It contained items pertaining to age, sex, civil status, course, religion, secondary school where graduated from, final grade in Basic Mathematics, parents' educational background, parents' occupation, family monthly income, and family size. Part II is the attitude towards mathematics of the student-respondents. Part II of the questionnaire is responded by using a scale. The attitude scale test expresses the feeling a particular person has towards mathematics. The attitude scale test consisted of 20 positive statements. The responses on the statements were given the following point assignments: Strongly agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly disagree (1).

The questionnaire for the teacher-respondents elicited personal profile of the teacher-respondents and others and contained items pertaining to age, sex, civil status, religion, educational background, instructional materials used, teaching strategies, latest performance rating, teaching experience, and relevant seminars and trainings attended.

Diagnostic test. The researcher used a teacher-made diagnostic test as one of the main instruments. This test was used to determine the computational skills of the respondents and to determine the concepts in Basic Mathematics where most of the respondents find difficult to solve. The content area of the test covered the common topics from the course syllabi in Basic Mathematics from the three respondent SUC's. The researcher prepared 52 test items distributed among the content areas namely: whole numbers, integers, fractions, decimals, percent, and ratio and proportion.

Validation of the Instrument

A table of specifications was constructed based on the specific objectives of the course syllabi to ensure content validity of the test. The constructed test items were of the objective type using multiple choice items with four choices to facilitate administration, scoring and interpretation of results.

The computational abilities of the student-respondents were considered in the preparation of the test items. It consisted of 52 items divided by the content area specified on the course syllabi of Basic Mathematics. The trial run of the diagnostic test was conducted on February 4, 2009 to a sample of second year education students in Samar State University. These students were not the respondents of the study for the SY 2008-2009.

On the trial run, the researcher personally administered the examination. The set of test questions with instruction on the first page was given to each of the examinees. The examinees were not allowed to use calculator in answering the test. One hour was the allotted time to finish the test. The purpose was to determine the indices of difficulty and discrimination.

The test papers were corrected by the researcher herself. One point was given to each of the correct answers and no point for a wrong answer. After the administration of the retest, the effectiveness of each test item was evaluated. The index of difficulty was considered in analyzing the responses to each test items. This expressed the percentage of students who got the correct responses of the alternative.

The scored test papers were arranged from the highest score down to the lowest score. The test papers were separated into three groups- the upper group, the middle group, and the lower group. The top 27.00 percent and the lower twenty-seven percent of the total number of test papers were separated from the pile to constitute the upper and the lower group respectively.

The item index of difficulty was computed by adding the number of correct responses made on every item of the test on the upper group and in the lower group divided by the total number of students comprising both groups.

Each test item was analyzed according to its difficulty by the following index suggested by Ebel (1965: 234).

Value of Index of Difficulty		Interpretation
0.91 - above	-	Very Easy/Reject the Item
0.76 - 0.90	-	Easy/Retain the Item
0.26 – 0.75	-	Fairly Difficulty/Retain the Item
0.11 - 0.25	-	Difficult/Retain the Item
0.10 – below	-	Very Difficult/Reject the item

Items with very low and very high index of difficulty were rejected and items whose index of difficulty lie between 0.11 to 0.90 were considered for inclusion in the final form of the test.

Another factor used in analyzing the individual test items was the index of discrimination. It gives the indication of how well an item sort the good students from the poor ones. The index of discrimination for each item was computed by subtracting the number of correct responses in the upper group by the number of correct responses in the lower group and dividing the difference by the number of students comprising the two groups.

Items with negative discrimination index were discarded. Items with discrimination index of 0.20 and above were included in the final form of the test. Some items which fall beyond the acceptable indices of discrimination, such as, between 0.10 to 0.19 were included in the final form of the test if such test item contributes to the overall pattern of the examination result but with certain modifications. The indices of discrimination were interpreted using the guidelines given by Ebel (1965: 374).

Value of Index of Discrimination		Acceptability of Item
0.40 and above	-	High Satisfactory/Retain the Item
0.20 to 0.39	-	Fairly Satisfactory/Retain the Item
0.00 to 0.19	-	Very Low Satisfactory/Reject the Item
Negative values	-	Reject the Item

Distracter analysis was also conducted for the choices of each item. Distracter wherein more from the lower group selected it as answer was retained and distracter wherein more from the upper group selected it as answer were replaced. The researcher sees to it that the correct answer was a good distracter.

The internal consistency reliability of the test was computed using the Kuder Richardson Formula 20 and interpreted based on the interpretation given by Ebel (1965) as shown below:

Interpretation of the Coefficient of Reliability

Reliability	**Degree of Reliability**
0.95 – 0.99	Very High, rarely found among teachers' made tests.
0.90 – 0.94	Highly equaled by few tests.
0.80 – 0.89	Fairly high, adequate for individual measurement.
0.70 – 0.79	Rather low, adequate for group measurement but not very satisfactory for individual measurement.
Below 0.70	Low, entirely adequate for individual measurement although useful for group average and school survey.

The test items were revised based on the analysis made of the try out results. The original pool of 65 items was reduced to 52 in the final form. This happened because in the conduct of item analysis some items were either rejected or accepted. And some were retained but improved.

The final form of the diagnostic test was the result of revision made based on the analysis that was conducted.

The attitude scale test designed to measure the students' likes or dislikes of mathematics were reflected in twenty statements. The students were given five alternatives indicating their reaction to each statement in the scale. The following points assignments to five different types of response were used: Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), Strongly Disagree (1).

The questionnaire for the attitude scale test was presented to six mathematics teachers for comments and content validity. Upon their suggestions, they were revised and final forms were prepared. The researcher tried out the final form to thirty second year college students of Samar State College of Agriculture and Forestry, who were not part of the respondents of the study. The retest was conducted after one week from the first administration of the test. The researcher computed the reliability of the prepared questionnaire from the responses of the students. The coefficient of reliability and concurrent validity were determined using the Pearson – Product Moment Formula.

Sampling Procedure

The researcher utilized the total enumeration as sampling technique for the teacher-respondents using the instructors in Basic Mathematics from the three SUC's of Samar for the SY 2008 – 2009.

Stratified random sampling technique was used for the student-respondents. There were eight classes in Basic Mathematics from three SUC's of Samar during the first semester of SY 2008 -2009. From these eight classes, three classes were from Samar State University, two classes were from Samar State College of Agriculture and Forestry, and three classes were from Tiburcio Tancinco Memorial Institute of Science and Technology, having a total of Three Hundred Eighty-Two students. Using the Sloven's formula, the researcher has arrived at 285 respondents.

Data Gathering Procedure

Before the conduct of the study, the researcher had secured approval from the presidents of the three SUCs of Samar to administer the diagnostic test and questionnaires. Since the respondents were found on different schools from different municipalities, the researcher made a schedule for the test administration. On the last two weeks of February 2009, the researcher started in the collection of data. She started from the Samar State University, then to Samar State College of Agriculture and Forestry, and then the last was in Tiburcio Tancinco Memorial Institute of Science and Technology. During the administration of the test, the diagnostic test questions were given to the student-respondents together with a separate answer sheet with the instruction on the front page. It was followed by the questionnaire on personal profile, and then the attitude scale test. The test was personally administered and checked by the researcher to ensure uniformity in administration and accuracy in result.

Another letter was made by the researcher seeking approval to have access on the grade sheets of the student-respondents on their final grades in Basic Mathematics to countercheck their final grades indicated on the questionnaire for personal profile. The collected data were tallied and in a manner that would facilitate in the analysis and interpretation of data.

School documents. The following documents were obtained for this study: Grading Sheets in Basic Mathematics to have accurate data on final grades of the student-respondents in Basic mathematics for the first semester of SY 2008 – 2009, Course Syllabus in Basic Mathematics for the commonalities of the topics in Basic Mathematics from the three SUC's of Samar.

Statistical Treatment of Data

The data gathered were recorded and tallied using a master sheet. The statistical tools used in the data analysis include the frequency count, mean, percentage, standard deviation, Pearson r, Fisher's t-test, and point Bi-serial correlation.

<u>**Frequency count**</u>. This statistical tool were resorted to determine the number of respondents who are of the same age, sex, civil status, course, religion, secondary school where graduated from, final grade in Basic Mathematics, Educational background of parents, occupational of parents, family monthly income, family size, instructional materials used, teaching strategies used, length of service, performance rating, relevant seminars and trainings attended.

<u>**Mean**</u>. This statistical measure was used to determine the quantitative characteristics or profile of the respondents like age, final grade in Basic Mathematics, family monthly income, family size, and teaching experience.

<u>**Weighted mean**</u>. The mean weighted point scores were used to analyze the student's attitude toward mathematics. The range of mean weighted point score of student's responses to their attitude was interpreted as follows:

Mean weighted Point Score	Interpretation
4.51 – 5.00	Highly Positive/Very Much favorable
3.51 – 4.50	Positive/Much Favorable
2.51 – 3.50	Neutral/moderately Favorable
1.51 – 2.50	Negative/Less Favorable
1.00 – 1.50	Highly Negative Not Favorable

Percentage. This tool were used in the analysis and interpretation of data on age, sex, civil status, course, religion, secondary school were graduated from, final grades in Basic Mathematics, Educational background of parents, occupation of parents, family monthly income, family size, instructional materials used, teaching strategies used, length of service, performance rating, relevant seminars and trainings attended.

The following were the levels of deficiency set by the researcher in evaluating student's computational skills in Basic Mathematic

No. of Wrong Responses in Percent	Interpretation
88% and above	Very High Deficiency
67% - 87%	High Deficiency
50% - 66%	Average Deficiency
31% - 49%	Fairly Low Deficiency
30% and Below	Very Low Deficiency

Standard deviation. This statistical tool was used to determine the variation or dispersion of quantitative data.

Pearson Product Moment Coefficient of Correlation. This statistical tool was used to determine the relationship between the common deficiencies in the computational skills of the student-respondents with age, sex, civil status, course, religion, secondary school graduated from, final grade in Basic Mathematics, Educational background of parents, occupation of parents, family monthly income, family size, instructional materials used, teaching strategies used, length of service, performance rating, relevant seminars and trainings attended, and attitude toward mathematics.

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

Where:

r = the computed statistical value

x = the independent variable (factors)

y = the predicted variable

N = number of cases

$\sum$ = the summation notation

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

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

Point-Biserial correlation. This formula was used in computing the correlation of common deficiencies in computational skills in Basic Mathematics of male and female students. The following formula was used (Downie and Heath, 1983: 117 – 120).

rpb – (N₁(t) [Σ[illegible]f₁p Y] – N₁p [Σ[illegible]fY][illegible])/√(N₁p N₁w [Nt(Σ[illegible]fY²) – [illegible](Σ[illegible]fY)[illegible]² [illegible])

The obtained r was interpreted using the following scale (Sevilla, et. al. 1992: 280):

r-value	Interpretation
0.80 or above	Very High r (VH)
0.60 – 0.79	Strong r (S)
0.40 – 0.59	Moderate r (Mo)
0.20 – 0.39	Low r (L)
0.20 and below	Very low r (VL)

The degree of relationships was determined by the size of the obtained r. Interpretations of the obtained r are as follows (Ebel, 1965: 202):

r from ±.01 to ±.19 : negligible correlation

r from ±.02 to ±.39 : low correlation

r from ±.40 to ±.59 : moderate correlation

r from ±.60 to ±.79 : moderately higher correlation

r from ±.80 to ±1.0 : high correlation

Moreover, the null hypothesis was tested at level of significance set at 0.05 using two tailed test.

Chapter 4

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter consists of the presentation of the data gathered through the questionnaires, diagnostic test, and school documents. The data include the profile of the student and teacher respondents, attitude towards Mathematics of the student-respondents, common deficiencies in computational skills in Basic Mathematics and results of the test of hypotheses.

Profile of the Student-Respondents

This portion presents the profile of the student-respondents in terms of age, sex, civil status, course, religion, school where secondary education was completed, final grade in Basic Mathematics, parents' educational background, parents' occupation, family monthly income, and family size.

Age. Table 1 presents the age of the student-respondents. As seen in the table, the youngest respondents are 15 years old and the oldest is 29 years old. The table shows that the majority of the respondents are 16, 17 and 18 years old. This must be because these respondents are first year college students and the ages of first year college students are in this range. Some respondents are older such as having ages 19, 20, 21 and even 29 years old and 2 respondents are young for their year level since they are 15 years old.

Table 1

Distribution of the Student-Respondents as to Age

Age	Frequency	Percent
15	2	0.70
16	64	22.46
17	96	33.68
18	61	21.40
19	18	6.32
20	14	4.91
21	9	3.16
22	6	2.11
23	4	1.40
24	4	1.40
25	1	0.35
26	3	1.05
27	1	0.35
28	1	0.35
29	1	0.35
Total	**285**	**100**
Mean	**17.90 yrs.**	-
SD	**2.22 yrs**	-

The mean age is 17.90 years old and the SD is 2.22 years which shows that there is a slight variation of the ages of the respondents from the mean age.

Sex. Table 2 presents the distribution of the respondents as to sex or gender. As seen in the table, majority of them, 221 respondents or 77.54 percent are female while 64 respondents or 22.46 percent of them are male. The data shows that majority of the respondents are female. This implies that majority of the education students are female.

Table 2

Distribution of the Student-Respondents as to Sex

Sex	Frequency	Percent
Male	64	22.46
Female	221	77.54
Total	**285**	**100.00**

Civil status. As to civil status, the majority of the respondents are single (281 respondents or 98.60 percent). The remaining respondents which comprise four respondents or 1.40 percent are married. The data shows that majority of the respondents are single. This must be because majority of them depends on their family for support, thus the single status for majority of them.

Table 3

Distribution of the Student-Respondents as to Civil Status

Civil Status	Frequency	Percentage
Single	281	98.60
Married	4	1.40
Total	**16**	**100.00**

<u>Course.</u> As to course, Table 4 reveals that the courses in the state colleges and universities in Samar with Basic Mathematics as a subject in the curriculum are the Bachelor of Elementary Education (BEED), Bachelor of Secondary Education (BSEd) and Bachelor of Science in Information Technology (BSIT).

The table shows that the respondents are distributed to the following courses, 140 respondents or 49.12 percent are Bachelor of Elementary Education (BEED), 105 respondents or 36.84 percent are Bachelor of Secondary Education (BSEd), and 40 respondents or 14.04 percent are Bachelor of Science in Information Technology (BSIT). The table shows that Basic Mathematics is a subject of education students.

Table 4

Distribution of the Student-respondents as to Course

Course	Frequency	Percentage
BSIT	40	14.04
BSED	105	36.84
BEED	140	49.12
Total	**285**	**100.00**

Religion. Table 5 presents the religion of the respondents. As seen in the table, majority of the respondents are Roman Catholic with 250 respondents or 87.72 percent. The remaining respondents are Seventh Day Adventist with six (2.11 percent) respondents, Born Again Christian with eight (2.81 percent) respondents, Bible Baptist with four (1.40 percent) respondents, Iglesia ni Cristo with nine (3.16 percent) respondents, Protestant with five (1.75 percent) respondents, and AFRMU Organization, End Time Message, and Aglipay with only one (0.35 percent) respondents, respectively.

Table 5

Distribution of the Student-Respondents as to Religion

Religion	Frequency	Percentage
Roman Catholic	250	87.72
Seventh Day Adventist	6	2.11
Born Again Christian	8	2.81
Bible Baptist	4	1.40
Iglesia ni Cristo	9	3.16
Protestant	5	1.75
AFRMU Organization	1	0.35
End Time Message	1	0.35
Aglipay	1	0.35
Total	**285**	**100.00**

Secondary school graduated from. As to the secondary school graduated from, Table 6 reveals that majority of them come from public high schools (219 or 76.86 percent), 37 or 12.98 percent come from state colleges and universities and 29 or 10.18 percent come from private high schools. The data implies that majority of the college students of state colleges and universities in Samar come from public schools of the province.

Table 6

Distribution of the Student-Respondents as to Secondary Schools Graduated From

Secondary Schools Graduated From	Frequency	Percentage
State College/Universities	37	12.98
Public High Schools	219	76.84
Private High Schools	29	10.18
Total	**285**	**100.00**

Final Grade in Basic Mathematics. Table 7 shows the final grade of the respondents in Basic Mathematics. As seen in the table, the lowest grade obtained by the respondents is 3.0 and 13 respondents or 4.56 percent of them have this as grade in their Basic Mathematics subjects, and the highest grade is 1.2 with two respondents having this as their final grade in the subject.

The distribution of their grades in Basic Mathematics are as follows: 124 or 43.51 percent of the respondents have final grade in Basic Mathematics 2.5 to 2.1 or satisfactory performance, 96 or 33.68 percent of the respondents have final grade in Basic Math from 2.0 to 1.6 or very satisfactory performance, 26 or 9.12 percent have Basic Mathematics grade from 1.5 to 1.2 or superior performance

Table 7

Distribution of the Student-Respondents as to Final Grade in Basic Mathematics

Final Grade in Basic Math	Frequency	Percentage
Superior	**26**	**9.12**
1.2	2	0.70
1.3	4	1.40
1.4	12	4.21
1.5	8	2.81
Very Satisfactory	**96**	**33.68**
1.6	11	3.86
1.7	21	7.37
1.8	20	7.02
1.9	16	5.61
2.0	28	9.82
Satisfactory	**124**	**43.51**
2.1	36	12.63
2.2	23	8.07
2.3	31	10.88
2.4	22	7.72
2.5	12	4.21
Fair	**13**	**4.56**
2.6	8	2.81
2.7	7	2.46
2.8	5	1.75
2.9	6	2.11
3.0	13	4.56
Total	**285**	**100.00**
Mean	**2.1**	-
SD	**0.41**	-

and 13 or 4.56 percent of the respondents have final grade from 3.0 to 2.6 or fair performance.

The table shows that majority of the respondents have final grade in Basic Mathematics described as satisfactory performance and very satisfactory performance.

The mean grade is 2.1 with an SD value of 0.41 which indicated a slight variation in their final grade in Basic Mathematics from the mean grade.

Parents' educational attainment. Table 8 shows the educational attainment of the respondents' parents. As seen in the table, for the parent-fathers' educational attainment, the table reveals that majority of them (86 or 30.18 percent) have reached elementary level of education only, 41 parent-fathers or 14.39 percent are elementary graduates, 39 fathers have reached college level, 38 have high school level of education, and 37 are high school graduates.

The data shows that majority of the fathers of the student-respondents were at least elementary level.

For the parent-mothers, majority of them, 54 or 18.95 percent are college graduates, 53 0r 18.60 percent of them reached high school level, 47 or 16.49 percent are elementary level, 45 each are high school graduates and college level, and 40 are elementary graduates.

The data shows that the lowest educational attainments are more than 50.00 percent of the mothers of the respondents were high school graduate.

Table 8

Distribution of the Student-respondents as to Parents' Educational attainment

Educational Attainment	Father		Mother	
	Frequency	Percentage	Frequency	Percentage
Elementary Level	86	30.18	47	16.49
Elementary Graduate	41	14.39	40	14.04
High School Level	38	13.33	53	18.60
High School Graduate	37	12.98	45	15.79
College Level	39	13.68	45	15.79
College Graduate	44	15.44	54	18.95
Post Graduate			1	0.35
Total	**285**	**100.00**	-	**100.00**

Parents' occupation. Relative to the occupation of parents, Table 9 reveals that majority of the occupations of the parents of the respondents are not income earners.

For the fathers of the student-respondents majority of them are farmers (142 or 49.83 percent). This is followed by 45 or 15.79 percent of them who are fishermen. The remaining respondents' fathers have occupations distributed as follows: 26 or 9.12 percent are construction workers (carpenter, welder, painter,

Table 9

Distribution of the Student-Respondents as to Parents Occupation

Occupation/Employment	Father		Mother	
	Frequency	Percentage	Frequency	Percentage
Farmer	142	49.82	8	2.81
Fisherman	45	15.79		
Drivers (Tricycle, Jeep, Bus)	21	7.37		
Construction Worker (Carpenter, Welder, Painter, etc.)	26	9.12		
Businessmen/ women, Vendors	17	5.96	22	7.72
Private employees (Security guard, delivery checker, water refill worker, laundry woman, house-maid,	5	1.75	4	1.40
Self-employed (Electrician, furniture maker, radio technician, manicurist, dress maker)	3	1.05	4	1.40
Government employees (Office worker, agriculturist, NBI agent, BHW)	16	5.61	8	2.81
Military (soldier)	5	1.75	17	5.96
Teacher	5	1.75	222	77.89
House Keeper				
Total	**285**	**100.00**	**285**	**100.00**

etc.), 21 or 7.37 percent are drivers (tricycle, jeep, and bus), 17 or 5.96 percent are businessmen and vendors, 16 or 5.61 percent are government and local government employees such as office worker, agriculturist, NBI agent, and barangay health workers. The remaining fathers of the respondents have occupations such as, private employee, military men, teachers and self employed.

For the mothers of the student-respondents, their occupations are distributed as follows: 222 or 77.89 percent are housekeepers, 22 or 7.72 percent are business women and vendors, 17 or 5.96 percent are teachers, eight or 2.81 percent are government employees, and four each are private employees and self employed. The data shows that majority of the respondents' mothers are not gainfully employed.

On the whole, the majority of the parents (both mother and father) were engaged in occupations which are not paying well.

<u>**Family monthly income**</u>. Table 10 shows the family monthly income of the student-respondents. As seen in the table, the highest income is in the range from Php 30,000 and above and three respondents have this as family income, the lowest income is below Php 5,000 and majority of the respondents (126 or 44.21 percent) have this as their family monthly income.

Moreover, the distribution of their family income are as follows: 126 or 44.21 percent have income which ranges from Php 5,000 below, 90 respondents

Table 10

Distribution of the Student-Respondents as to Average Family Monthly Income

Average Family Monthly Income (in pesos)	Frequency	Percentage
30,000 and above	3	1.05
25,000 – 29,000	1	0.35
20,000 – 24,999	5	1.75
15,000 – 19,999	24	8.42
10,000 – 14,999	36	12.63
5,000 – 9,999	90	31.58
Below 5,000	126	44.21
Total	**285**	**100.00**
Mean	**Php 6722.81**	-
SD	**Php 7046.90**	-

or 31.58 percent have income from Php 5,000 to Php 9,999. 36 respondents or 12.63 percent have income from Php 10,000 to Php 14,999, 24 or 8.42 percent of the respondents have income from Php 15,000-Php 19,999, the other respondents have income from Php 20,000 to Php 30,000 and above.

The mean income is Php 6,722.81 and the SD for their income is Php 7046.90 which shows that there is a variation in the family income of the respondents from the mean income. The data shows that the family income of majority of the student-respondents is below the poverty threshold set by NEDA in Region VIII, which is Php 15,868 for family of six members (NCSO Report posted January 25, 2005). As a whole, the data shows that majority of the families of the student-respondents have monthly earnings which is not sufficient to supply the needs of the family.

<u>Family size</u>. Table 11 shows the family size distributions of the student-respondents. As seen in the table, the biggest family size is 14 members and the smallest is two. Majority of them, have family size of five with 57 respondents or 20.00 percent of them have this as their family size. This is followed by a family size of six with 55 or 19.30 percent of the respondents have this as their family size.

Table 11

Distribution of the Student-Respondents as to Family Size

Family Size	Frequency	Percentage
2	1	0.35
3	6	2.11
4	20	7.02
5	57	20.00
6	55	19.30
7	36	12.63
8	39	13.68
9	19	6.67
10	33	11.58
11	13	4.56
12	5	1.75
14	1	0.35
Total	**285**	**100.00**
Mean	**7 members**	-
SD	**2 members**	-

The data in the table shows that more than 50.00 percent of the respondents have family size of seven and more. The mean obtained of the family size is seven members and the SD is two members.

The data shows that the majority of the respondents have big family size with at least five children in the family.

Student-respondents' Attitude towards Mathematics

The student-respondents attitude towards Mathematics is presented in Table 12.

As seen in the table, the ratings given to the 20-attitude statements were as follows: six statements was rated as "strongly agree", six statements were rated as undecided by the student-respondents.

The highest rating of 4.54 interpreted as strongly agree indicating a highly positive or very much favorable attitude was given to the attitude statement indicator, "Mathematics is a stimulating and challenging subject" and the lowest rating of 2.62 was given to the attitude statement, "Mathematics is very easy to understand".

The statements which were rated as agree by the respondents which indicated a much favorable attitude or positive attitude towards mathematics are as follows: 1) I believe that mathematics is needed in my daily life-4.29, 2) Mathematics develops my ability to think critically and reason out clearly-4.05,

Table 12

Student-respondents Attitude towards Mathematics

	Attitude Statements	WMean	Interpret
1.	I found mathematics as an interesting subject.	3.88	A
2.	Mathematics is a stimulating and challenging subject.	4.54	SA
3.	I enjoy my mathematics class so I attend my class regularly.	3.78	A
4.	I do not consider Mathematics as a boring subject.	3.78	A
5.	Mathematics develops my ability to think critically and reason out clearly.	4.05	A
6.	I fell relaxed and easy when reading my mathematics lesson.	3.17	U
7.	I feel happier in my mathematics class than in any other class.	3.03	U
8.	I wish I could take more mathematics subjects other than those offered in my course.	3.04	U
9.	I find that the allotted time is not enough for studying mathematics.	3.72	A
10.	Mathematics is very easy to understand.	2.62	U
11.	Mathematics develop in me a feeling of confidence.	3.40	U
12.	I believe that mathematics is the easiest to learn.	2.88	U
13.	Mathematics is my most favorite subject.	2.94	U
14.	I can solve mathematics problems even without the help of somebody.	3.06	U
15.	I study my Mathematics lesson regularly.	3.17	U
16.	Mathematics develops in me an attitude of neatness and accuracy.	3.34	U
17.	I find textbooks in mathematics interesting.	3.24	U
18.	I believe that mathematics is needed in my daily life.	4.29	A
19.	I feel alive in my Mathematics class.	3.40	U
20.	Mathematics is one of my lines of interest.	3.36	U
	Grand Total	**982.95**	
	Grand Mean	**3.45**	**U**

Legend:
4.51-5.00 Strongly Agree (SA)/Very Much Favorable Attitude (VMF)
3.51-4.50 Agree (A)/Much Favorable Attitude (MF)
2.51-3.50 Undecided (U)/Moderately Favorable Attitude (MoF)
1.51-2.50 Disagree (D)/Less Favorable Attitude (LF)
1.00-1.50 Strongly Disagree (SD)/Not Favorable (NF)

3) I found mathematics as an interesting subject-3.88, 4) I enjoy my mathematics class so I attend my class regularly-3.78, 5) I do not consider Mathematics as a boring subject-3.78, and 6) I find that the allotted time is not enough for studying mathematics-3.72.

The first six attitude statement-indicators which were rated "undecided" by the students respondents are: 1) Mathematics develop in me a feeling of confidence-3.40, 2) I feel alive in my Mathematics class-3.40, 3) Mathematics is one of my lines of interest-3.36, 4) Mathematics develops in me an attitude of neatness and accuracy-3.34, 5) I feel relaxed and easy when reading my mathematics lessons-3.17, and 6) I study my Mathematics lessons regularly-3.17.

On the whole, the student-respondents exhibited a moderately favorable attitude towards Mathematics since the grand mean obtained is 4.43 interpreted as "moderately favorable" attitude towards Mathematics.

Profile of the Mathematics Teacher-Respondents

Table 13 and Table 14 discussed the profile of the teacher-respondents. Table 13 presents the profile of the Basic Math teacher-respondents from state colleges and universities in terms of their age, sex, civil status, religion and educational background. Table 14 presents the instructional materials used in teaching Basic Mathematics, teaching strategies used, latest performance rating, teaching experience, and number of relevant seminars and training attended.

Table 13

Age, Sex, Civil Status, Religion and Educational Background of the Mathematics Teacher-Respondents

Resp.	Age (in years)	Sex	Civil Status	Religion	Educational Background
A	29	F	S	Bible Baptist	MAT Math
B	48	F	M	Roman Catholic	MAT Math
C	36	F	M	Iglesia ni Cristo	with units in Ph.D.
D	40	M	M	Roman Catholic	MAST (CAR)-Math
Max	**48**	-	-		**With units in Ph.D.**
Min	**25**	-	-		**MAST (CAR)**
Total	**20s=1 30s=1 40s=2**	**F=3 M=1**	**S=1 M=3**	**Roman Catholic=2 Iglesia ni Cristo=1 Bible Baptist=1**	**With units in Ph.D.=1 MAT=2 MAST (CAR)=1**
Mean	**39.75**	-	-	-	-
SD	**6.08**	-	-	-	-

<u>Age.</u> Table 13 presents the age of the teacher-respondents. As seen in the table, the oldest teacher-respondent is 48 years old while the youngest is 29 years old. Of the four teacher-respondents, one is in their 20s and 30s, and 2 are in their 40s. The mean age was pegged at 39.75 years old which shows that the teachers were still young. The SD obtained was 6.08 showing that the ages of the teachers were slightly dispersed from the mean age.

Sex. Of the four Mathematics teacher-respondents, three of them were female while one is a male. This shows that the Mathematics teachers in state colleges and universities were dominated by females.

Civil Status. The table shows that as to the civil status of the teacher-respondents, three of them were married and one is single. The data shows that majority of the Mathematics teachers in state colleges and universities teaching Basic Mathematics are married. This must be because the majority of them are in their 30s they had established their families.

Religion. Table 13 presents the religion of the teacher- respondents. As seen in the table, two of the respondents are Roman Catholic. One is a Bible Baptist and Iglesia ni Cristo.

Educational background. The table also shows the educational attainment of the teacher-respondents. As seen in the table, two of the teacher-respondents are masters' degree holder (MAT major in Mathematics). One of them has earned units leading to Ph.D. degree and one is a CAR holder leading to the degree Master of Arts in Science Teaching (MAST). The table implies that the teachers in state colleges and universities are majority master's degree holder.

Instructional materials used. As to instructional Materials used in teaching Basic Mathematics the following were used by the mathematics teacher-respondents: textbook was used by all of the four teacher-respondents so with board & chalk. Computers, LCD, and OHP were materials used by three of them.

Worksheets, workbooks, Math instructional materials were used by two of them, and lecture notes by one of them. The data implies that the Basic mathematics teachers used varied instructional materials.

Teaching strategies. Relative to teaching strategies used by math teachers, all the teacher-respondents used lecture discussion, board work and seat work. Three of them used multimedia presentation. Two used CAI in teaching Basic Math and one used investigation.

The data implies that majority of the teacher-respondents used the traditional strategies in teaching Basic Mathematics.

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

Teaching experience. As to the teaching experience of the teacher-respondents, the table shows that one of them had the most number of years in teaching experience (has taught for 28 years) and the teacher who was new in teaching has taught for eight years.

The teaching experiences of the four teacher-respondents were as follows: one each has taught for 28 years, 14 years, 10 years and 8 years. The data implies that majority of the mathematics teacher-respondents were not new to mathematics teaching since majority of them had ten years of teaching experience.

Table 14

Instructional Materials Used, Teaching Experience, Number of Relevant Training/Seminars Attended, and Latest Performance Rating

Resp.	Instructional Materials used	Teaching Strategies	Teaching Experience	Number of Relevant Trainings/ Seminars	Latest Perform -ance Rating
A	OHP, Computer, LCD Worksheet Workbook Lecture notes Math Instruments Textbook Board & chalk	Lecture discussion CAI, Use of Multimedia present-ation, Investigation Board work & seat work	8	7	VS
B	Workbook, OHP, LCD Multimedia, Worksheets Basic Math Inst. Materials Textbook, Board & chalk	Lecture discussion Board work & Seat work, CAI, Multimedia presentation	28	3	VS
C	Board & Chalk, Textbook	Inductive method Lecture discussion Board work & Seat work	14	10	VS
D	Computer, LCD, OHP Board & Chalk, Textbook	Lecture discussion Multimedia presentation Board work & Seatwork	10	5	VS
Max	Textbook Board & Chalk	Lecture discussion Board work & seat work			
Min	Lecture notes	Investigation			
Total	Textbook = 4 Board & Chalk = 4 Computer = 3, LCD = 3 OHP = 3, Worksheet = 2 Workbook = 2, Math instructional materials = 2, Lecture notes = 1	Lecture discussion = 4, Board work & seat work = 4, multi-media = 3, CAI = 2, Investigation = 1	60	25	VS = 4
Mean		-	15	6.25	-
SD		-	81.33	8.92	-

Number of relevant seminars/trainings attended. Table 14 presents the number of relevant seminars and trainings attended by the respondents. As reflected in the table, the attendance to seminars and training in Mathematics of the teacher-respondents, were as follows: one each have attended 10, eight, seven, and five seminars/trainings in mathematics. The data implies that the mathematics teachers should be made to attend seminars and trainings in mathematics teaching since they lack seminars and trainings in Mathematics teaching.

Common Deficiencies in Computational Skills in Basic Mathematics of the Student-respondents

The common deficiencies of student-respondents in computational skills in Basic Mathematics are discussed in this section. The presentation covered the following areas: Whole Numbers, Integers, Fractions, Decimals, Percent and Ratio and Proportion.

Whole numbers. Table 15 presents the common deficiencies in computational skills in whole numbers. As seen in the table, the student-respondents encountered high deficiency in two items under application of whole numbers this is item number 5 and 6 with 204 and 208 respondents or 72.00 and 73.00 percent respondents were not able to answer these items. The respondents encountered fairly low deficiency in order of operation with 140 and 102 student-respondents or 49.00 and 36.00 percent of the respondents were not able to answer these two items (item no. 3 and 4). As to addition/subtraction of whole numbers, 80 respondents or 28.00 percent of them encountered very low deficiency in this computational skill. Division of whole numbers a computational skill which was tested by item number 2 was considered to have very low deficiency with 80 respondents or 28.00 percent of them were deficient in this computational skill. On the whole for whole numbers, the student-respondents obtained a mean of 136 for wrong responses in these six items, which is interpreted as fairly low deficiency.

Table 15

Common Deficiencies in Whole Numbers

Computational skills	Item No.	Wrong Responses Frequency	%	Interpretation
Addition/Subtraction of Whole Numbers	1	80	28	Very low Deficiency
Division of Whole Numbers	2	84	29	Very Low Deficiency
Order of Operations	3	140	49	Fairly Low Deficiency
	4	102	36	Fairly Low Deficiency
Application of Whole Numbers	5	204	72	High Deficiency
	6	208	73	High Deficiency
TOTAL	6	818	287	-
Mean		**134.67**	**48**	**Fairly Low Deficiency**

Integers. As to integers, their common deficiencies in this area which measures their computational skills were distributed as follows: the student-respondents encountered high deficiency and very low deficiency in two items, average deficiency and fairly low deficiency in one item each.

Table 16

Common Deficiencies in Integers

Computational skills	Item No.	Wrong Responses Frequency	%	Interpretation
Addition of Integers	7	73	26	Very Low Deficiency
	8	69	24	Very Low Deficiency
Multiplication of Integers	9	144	51	Average Deficiency
Subtraction of Integers	10	190	67	High Deficiency
Combination of Operations	11	216	76	High Deficiency
	12	118	41	Fairly Low Deficiency
TOTAL	**6**	**810**	**285**	-
Mean		**135**	**48**	**Fairly Low Deficiency**

In combination of operations, the two items which was a test for this computational skill, the respondents encountered fairly low and high deficiency which shows that they have not mastered the law of subtraction of integers with a frequency of wrong responses equal to 190 or 67.00 percent of them were not able to answer it correctly. Multiplication of integers which is item number 9 was not answered by 144 or 51.00 percent of the respondents which is considered average deficiency. Addition of integers, item numbers 7 and 8 were a common deficiency to 73 and 69 respondents or total of 26.00 and 24.00 percent of the respondents, which is considered as a very low deficiency. On the whole, the common deficiency in computational skills under integers obtained an average of 135 or 48.00 percent of the respondents did not mastered this area interpreted as fairly low deficiency.

Fractions. As to common deficiency in computational skills in fractions, the student-respondents encountered fairly low deficiency in finding the least common multiple, with a frequency of wrong responses of 87 or 31.00 percent of the respondents were not able to get this item correct. Equivalent fractions which are tested by item number 14 and 15 were not both answered by 90 of the respondents. It is considered as fairly low deficiency. Similar fractions were not answered by 181 or 64.00 percent of the respondents which is considered as fairly low deficiency. The respondents also encountered average deficiency in two items in addition of fractions, one in multiplication and two items in division of fractions. As reflected in the table the frequencies of not getting the answers to this item right are: 175, 174, 149, 181 and 212 respectively. The respondents encountered fairly low deficiency in two items in conversion of fraction to decimals and vice versa (105 and 98), application of fraction (90), and in two items in equivalent fractions (90 each). The respondents encountered very low deficiency in two items in mixed numbers (56 and 59). The table reveals that as for fractions the respondents encountered fairly low deficiency with a mean 137 for wrong responses.

Table 17

Common Deficiencies Fractions

Computational skills	Item No.	Wrong Responses Frequency	%	Interpretation
Least Common Multiple	13	87	31	Fairly Low Deficiency
Equivalent Fractions	14	90	32	Fairly Low Deficiency
	15	90	32	Fairly Low Deficiency
Similar Fractions	16	181	64	Average Deficiency
Mixed Numbers	17	56	20	Very Low Deficiency
	18	59	21	Very Low Deficiency
Addition of Fractions	19	175	61	Average Deficiency
	20	174	61	Average Deficiency
Subtraction of Fractions	21	214	75	High Deficiency
	22	179	63	Average Deficiency
Multiplication of Fractions	23	149	52	Average Deficiency
Division of Fractions	24	181	64	Average Deficiency
	25	212	74	High Deficiency
Conversion of Fraction to Decimals and Vice Versa	26	105	37	Fairly Low Deficiency
	27	98	34	Fairly Low Deficiency
Application of Fractions	28	90	32	Fairly Low Deficiency
	29	183	64	Average Deficiency
Total	**17**	**2,323**	**817**	-
Mean		**137**	**48**	**Fairly Low Deficiency**

Decimals. As to decimals, the student-respondents encountered "high deficiency" in application of decimals, and division of decimals; average deficiency in conversion of decimals, and applications of decimals; fairly low deficiency in subtraction of decimals, multiplication of decimals, division of decimals, and conversion of decimals to fraction and vice versa; and very low deficiency in addition of decimals. The mean for their deficiency in decimals is 142 wrong responses interpreted as "average deficiency".

Table 18

Common Deficiencies in Decimals

Computational skills	Item No.	Wrong Responses Frequency	%	Interpretation
Addition of Decimals	30	69	24	Very Low Deficiency
Subtraction of Decimals	31	110	39	Fairly Low Deficiency
Multiplication of Decimals	32	116	41	Fairly Low Deficiency
Division of Decimals	33	201	71	High Deficiency
	34	127	45	Fairly Low Deficiency
Conversion of Decimals to Fraction and Vice Versa	35	161	56	Average Deficiency
	36	128	45	Fairly Low Deficiency
Application of Decimals	37	151	53	Average Deficiency
	38	194	68	High Deficiency
	39	158	55	Average Deficiency
Total	**10**	**1,415**	**497**	-
Mean		**142**	**50**	**Average Deficiency**

Percent. As to percent, the student-respondents encountered high deficiency in two items under application of percentage and the other two items under this computational skills test was of average deficiency and fairly low deficiency. Two items in conversions of percent to fraction and vice versa was of high deficiency and one item was of average deficiency. On the whole, the respondents' encountered "high deficiency" in percent with a mean obtained for this area which is 192 wrong responses or 67.00 percent of them was not able to master this area.

Table 19

Common Deficiencies in Percent

Computational skills	Item No.	Wrong Responses Frequency	%	Interpretation
Conversion of Percent to Fraction Vice Versa	40	188	66	Average Deficiency
	41	196	69	High Deficiency
	42	212	74	High Deficiency
Application of percentage	43	236	83	High Deficiency
	44	207	73	High Deficiency
	45	169	59	Average Deficiency
	46	138	48	Fairly Low Deficiency
TOTAL	7	1,346	472	-
Mean		192	67	High Deficiency

Ratio and proportion. As to ratio and proportion, the items under this area tested the computational skills on applications of ratio and proportion. Of the six items, the student-respondents obtained fairly low deficiency in the four items, and the respondents encountered average deficiency in the other two items.

On the whole, the student-respondents' encountered fairly low deficiency in the area on ratio and proportion with 46.00 percent of the respondents were not able to get this item correct.

Table 20

Common Deficiencies in Ratio and Proportion

Computational skills	Item No.	*Wrong* Responses Frequency	%	Interpretation
Application of Ratio and Proportion	47	115	40	Fairly Low Deficiency
	48	170	60	Average Deficiency
	49	161	56	Average Deficiency
	50	120	42	Fairly Low Deficiency
	51	100	35	Fairly Low Deficiency
	52	120	42	Fairly Low Deficiency
TOTAL	**6**	**786**	**275**	-
Mean		**131**	**46**	**Fairly Low Deficiency**

Relationship between the Common Deficiencies of Student-respondents in Computational Skills in Basic Mathematics and Student-Related Variates

The relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and student-related variates is presented in this section.

<u>Age</u>. As to age the computed r was -0.19, between the common deficiencies in computational skills in Basic Mathematics and age of the student-respondents. The negative value of r meant that there is an inverse relationship

Table 21

Relationship between Student-related Variates and Common Deficiencies in Computational Skills in Basic Mathematics

Variables	r-value	t-value	Evaluation/ Decision
Student-Related factors			
Age	-0.19	-3.20	S/Reject Ho.
Sex	0.02	0.29	NS/Reject Ho.
Course	-0.09	-1.57	NS/Reject Ho.
Civil status	-0.19	-3.24	S/Reject Ho.
Religion	-0.10	-1.67	NS/Reject Ho.
Secondary school graduated from	-0.05	-0.81	NS/Reject Ho.
Final grade Basic Math	-0.26	-4.49	S/Reject Ho.
Parents educational background			
Father	0.10	1.61	NS/Reject Ho.
Mother	0.06	1.05	NS/Reject Ho.
Parents occupation			
Father	0.02	0.25	NS/Reject Ho.
Mother	0.03	0.58	NS/Reject Ho.
Family monthly income	0.01	0.24	NS/Reject Ho.
Family size	-0.07	-1.15	NS/Reject Ho.

between the two variables, that is, as the student becomes older his/her common deficiencies in computational skills in Basic Mathematics decreases or is lessened and vice versa. The computed t-value was -3.20, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics and age of the student-respondents". This implies that the age of the student-respondents is significantly related to their common deficiencies in computational skills in Basic Mathematics. That is, if a student is younger, he/she has greater deficiencies in computational skills, and older students have lesser deficiencies in his/her computational skills.

Sex. Relative to the sex the computed r was 0.02, between the common deficiencies in computational skills in Basic Mathematics and sex of the student-respondents. The computed t-value was 0.29, which was less than the critical t-value of 1.96 at 0.05 level of significance and df=283. This led the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and their sex". This implies that the sex of the student-respondents is not significantly related to their common deficiencies in computational skills in Basic Mathematics, that male and female students have the same common deficiencies in computational skills in Basic Mathematics. This must be because they are combined in one class and exposed to the same quality of instruction.

Civil status. As to civil status the computed r was -0.09, between the common deficiencies in computational skills in Basic Mathematics and civil status of the student-respondents. The negative value of r meant that there is an inverse relationship between the two variables. Based on the coding used students who are married have less deficiencies in computational skills in Basic Mathematics than the single ones. The computed t-value was -1.57 which was less than the critical t-value of 1.96 at 0.05 level of significance and df=283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics and civil status of the student-respondents". This implies that single and married students have the same deficiencies in computational skills in Basic Mathematics.

Course. As to course, the computed r was -0.19 between the common deficiencies in computational skills in Basic Mathematics and course of the student-respondents. The negative value of r meant that there is an inverse relationship between the two variables. The students who are taking BSIT encounters less deficiencies in computational skills in Basic Mathematics than the BEED or BSED as coded. The computed t-value was -3.24, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and Course of the student-respondents". This implies that the course of the student-respondents is significantly related to their common deficiencies in computational skills in Basic Mathematics. That is, courses with more mathematics subjects in its curriculum can develop the computational skills of the students faster than courses with lesser number of mathematics subjects.

Religion. As to religion, the computed r was -0.10, between the common deficiencies in computational skills in Basic Mathematics and religion of the student-respondents. The negative value of r meant that there is an inverse relationship between the two variables. As result of the coding the other religion aside from the Roman Catholics were coded with higher numbers. The computed t-value was -1.67, which absolute value was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and their religion". This implies that the religion of the student-respondents is not significantly related to their common deficiencies in computational skills in Basic Mathematics.

Secondary school graduated from. As to secondary schools graduated from the computed r was -0.05, between the common deficiencies in computational skills in Basic Mathematics and the secondary schools where the student-respondents graduated from. The negative value of r meant that there is an inverse relationship between the two variables, that is, students who were graduates of their secondary course from state colleges/universities have lesser deficiencies in computational skills in Basic Mathematics from those graduates in public high schools. The computed t-value was -0.81 which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and secondary schools graduated from". This meant that the secondary school where the student-respondents graduated from is not significantly related to their common deficiencies in computational skills in Basic Mathematics. Students who graduated from public high schools, private high schools and state colleges and universities will not differ in their common deficiencies in computational skills in Basic Mathematics.

Final grade in Basic Mathematics. As to final grade in Basic Mathematics, the computed r was -0.26, between the common deficiencies in computational skills in Basic Mathematics of the student-respondents. The negative value of r meant that there is an inverse relationship between the two variables, that is, the student with excellent performance in Basic Mathematics have less deficiencies in computational skills in Basic Mathematics and vice versa. The computed t-value was -4.49, which absolute value is greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the hypothesis, which states, "There is no relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and final grade in Basic Mathematics". This implies that the final grade in Basic Mathematics of the student-respondents is a measure of their computational skills in Basic Mathematics. Students' deficiencies in computational skills in Basic Mathematics are reflected in their final grade in the subject. The students who got higher grades in Basic Mathematics showed lesser deficiencies in their computational skills, while those students with lower grades in their Basic Mathematics had greater deficiencies in their computational skills.

Parent's educational background. For the father's educational background, the computed r was 0.10, between the common deficiencies in computational skills in Basic Mathematics and father's educational background of the student-respondents. The computed t-value was 1.61, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and fathers' educational background". This implies that the father's educational background is not significantly related to their common deficiencies in computational skills in Basic Mathematics of the students. This must be because the students are the one attending the classes so the father's educational background will not influence it especially if the student will not seek the help of the father in terms of tutoring at home. Students may differ in father's educational background but the common deficiencies of student-respondents in computational skills in Basic Mathematics are the same.

As to mother's educational background the computed r was 0.06, between the common deficiencies in computational skills in Basic Mathematics and mother's educational background of the student-respondents. The computed t-value was 1.05, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and mother's educational background". This implies that the mother's educational background of the student-respondents is not significantly related to their common deficiencies in computational skills in Basic Mathematics. This must be because the education attained by their mother will not affect them if the students will not present the problem at home to their mothers for help. Students may differ by mother's educational background but the common deficiencies of student-respondents in computational skills in Basic Mathematics are the same.

Parents occupation. As to father's occupation the computed r was 0.02, between the common deficiencies in computational skills in Basic Mathematics and father's occupation. The computed t-value was 0.25, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and father's occupation". This implies that the father's occupation of the student-respondents is not significantly related to their common deficiencies in computational skills in Basic Mathematics. Students may differ in father's occupation but the common deficiencies of the student-respondents in computational skills in Basic Mathematics are the same.

As to mother's occupation, the computed r was 0.03, between the common deficiencies in computational skills in Basic Mathematics and mother's occupation of the student-respondents. The computed t-value was 0.58, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and mother's occupation". This implies that the mother's occupation of the student-respondents is not significantly related to their common deficiencies in computational skills in Basic Mathematics. Students may differ in mother's occupation but the common deficiencies of student-respondents in computational skills in Basic Mathematics are the same.

Average family monthly income. As to average family monthly income the computed r was 0.01 between the common deficiencies in computational skills in Basic Mathematics and average family monthly income of the student-respondents. The computed t-value was 0.24, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic

Mathematics and average family monthly income". This implies that the average family monthly income of the student-respondents is not significantly related to their common deficiencies in computational skills in Basic Mathematics. Students may differ in average family monthly income but the common deficiencies of student-respondents in computational skills in Basic Mathematics are the same.

Family size. As to family size the computed r was -0.07, between the common deficiencies in computational skills in Basic Mathematics and family size of the student-respondents. The negative value of r meant that there is an inverse relationship between the two variables, that is, as the size of the family of the student-respondents increases his/her common deficiencies in computational skills in Basic Mathematics decreases or is lessened and vice versa. The computed t-value was -1.15, which absolute value was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and family size of the student-respondents". This implies that the size of the family of the student-respondents is not significantly related to their common deficiencies in computational skills in Basic Mathematics. Students may differ in size of their families but the common deficiencies of student-respondents in computational skills in Basic Mathematics are the same.

Relationship between the Common Deficiencies in Computational Skills and Attitude towards Mathematics of the Student-respondents

The relationship between the common deficiencies in computational skills in Basic Mathematics and attitude towards mathematics of the student-respondent is presented in Table 22. As revealed in the table, the computed r was 0.02, between the common deficiencies in computational skills in Basic Mathematics and attitude towards Mathematics of the student-respondents. The

Table 22

Relationship between Common Deficiencies in Computational Skills in Basic Mathematics and Attitude towards Mathematics of the Student-respondents

Variables	r-value	t-value	Evaluation/ Decision
Common Deficiencies in Computational Skills in Basic Mathematics and Attitude towards Mathematics	0.02	0.34	NS/ Accept Ho.

Critical t-value 1.96 ; df=283 ; α=0.05
Legend: S Significant
NS Not Significant

computed t-value was 0.34, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics and attitude towards mathematics of the student-respondents". This implies that the student-respondent's attitude towards mathematics is not significantly related to their common deficiencies in computational skills in Basic Mathematics. Students may differ in their attitude towards mathematics but the common deficiencies in computational skills in Basic Mathematics are the same.

Relationship between the Common Deficiencies in Computational Skills and Teacher-Related Variates

The relationship between the common deficiencies in computational skills in Basic Mathematics of the student-respondents and teacher-related variates is presented in Table 23.

The teacher-related factors in this study are: age, sex civil status, religion, educational background, instructional materials used in teaching Basic Mathematics, teaching strategies used, latest performance rating, teaching experience, and number of relevant seminars and training attended.

Age. As to age of the teacher, the computed r was – 0.30, between the common deficiencies in computational skills in Basic Mathematics of the students and age of the Mathematics teacher-respondents. The negative r-value denotes an inverse relationship between the variables. This meant that as the teacher's age advances the common deficiencies in computational skills in Basic Mathematics of his/her students are lessened or decreased.

Table 23

Relationship between Common Deficiencies in Computational Skills in Basic Mathematics of the Students and Teacher-related Variates

Common Deficiencies in Computational Skills in Basic Mathematics	r-value	t-value	Interpret/ Evaluation
Age	-0.30	-5.26	S/Reject Ho.
Sex	-0.15	-2.63	S/Reject Ho.
Civil status	0.36	6.47	S/Reject Ho.
Religion	0.10	1.66	NS/Accept Ho.
Educational background	-0.22	-3.78	S/Reject Ho.
Instructional materials used	0.27	4.78	S/Reject Ho.
Teaching strategies	0.46	8.80	S/Reject Ho.
Latest Performance		No Correlation	
Teaching experience	-0.44	-8.31	S/Reject Ho.
Relevant seminars & trainings attended	0.35	6.30	S/Reject Ho.

The computed t-value was -5.26, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and age of the mathematics teacher-respondents". This implies that the teacher-respondents' age is significantly related to the common deficiencies in computational skills in Basic Mathematics of their students. This must be because older teachers are more experienced teachers and they have acquired the necessary experience to spot at once deficiencies in Mathematics in their students and are able to give solutions.

Sex. As to sex of the teacher, the computed r was – 0.15 between the common deficiencies in computational skills in Basic Mathematics of the students and sex of the mathematics teacher-respondents. The negative r-value denotes an inverse relationship of the variables involved. This meant that students with male mathematics teachers have deficiency in computational skills in Basic Mathematics but it is lesser than those of female mathematics teachers. The computed t-value was – 2.63, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and sex of the mathematics teacher-respondents". This implies that the teacher-respondents sex is significantly related to the common deficiencies in computational skills in Basic Mathematics of the students. This must be because students feel easy to approach a female teacher to ask questions and clarifications on the lesson being presented.

Civil status. As to civil status of the teacher, the computed r was 0.36, between the common deficiencies in computational skills in Basic Mathematics of the students and civil status of the Mathematics teacher-respondents. The computed t-value was 6.47, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and civil status of the mathematics teacher-respondents". This implies that the teacher-respondents civil status is significantly related to the common deficiencies in computational skills in Basic Mathematics of the students. Students in Basic Mathematics under married teachers differ in their common deficiencies encountered in computational skills from those students under teachers who are single. This must be because married and single teachers differ on the degree of their responsibilities and commitment.

Religion. As to religion of the teacher, the computed r was 0.10, between the common deficiencies in computational skills in Basic Mathematics of the students and religion of the Mathematics teacher-respondents. The computes t-value was 1.66, which was lesser than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the acceptance of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and religion of the mathematics teacher-respondents". This implies that the teacher-respondents religion is not significantly related to the common deficiencies in computational skills in Basic Mathematics of the students. Teachers may differ in their religion but the common deficiencies in computational skills in Basic Mathematics of their students are the same.

Educational background. As to educational background of the teacher, the computed r was -0.22, between the common deficiencies in computational skills in Basic Mathematics of the students and educational background of the

Mathematics teacher-respondents. The negative r-value denotes an inverse relationship between the variables. This meant that as the teacher-respondents educational qualification advances his/her students common deficiencies in computational skills in Basic Mathematics is reduced and vice versa.

The computed t-value was -3.98, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283, this led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the student and educational background of the mathematics teacher-respondents". This implies that the teacher-respondents educational background is significantly related to the common deficiencies in computational skills in Basic Mathematics of the students. This also implies that teachers with higher educational attainment have more knowledge to impart to the students.

Instructional materials used. As to instructional materials used by the teacher, the computed r was 0.27, between the common deficiencies in computational skills in Basic Mathematics and instructional materials used by the Mathematics teacher-respondents. The computed t-value was 4.78, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and instructional materials used by the mathematics teacher-respondents". This implies that the instructional materials used by the teacher-respondents are significantly related to the common deficiencies in computational skills in Basic Mathematics of their students. This implies that the teacher using varied and many instructional materials have students with greater common deficiency in computational skills in Basic Mathematics. This must be because computational skills in Basic Mathematics are mastered by using board and chalk only since it need drill strategy by the teacher for student to master computational skills in Basic Mathematics.

Teaching strategies. As to teaching strategies of the mathematics teacher, the computed r-value was 0.46, between the common deficiencies in computational skills in Basic Mathematics and teaching strategies of the Mathematics teacher-respondents. The computed t-value was 8.80, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics and teaching strategies of the mathematics teacher-respondents". This implies that the teacher-respondents teaching strategies is significantly related to the common deficiencies in computational skills in Basic Mathematics of the students. This also implies that when a teacher uses more teaching strategies more deficiencies in computational skills is observed in the student. This must be because many teaching strategies are not necessary in developing the computational skills of the student. Drill strategy is necessary for the students to develop mastery in computation.

Latest performance rating. As to the latest performance rating of the teacher, no correlation was obtained since latest performance rating is constant because all of the teacher-respondents have very satisfactory performance rating.

Teaching experience. As to teaching experience of the teacher, the computed r was -0.44, between the common deficiencies in computational skills in Basic Mathematics and teaching experience of the teacher-respondents. The negative r-value indicates an inverse relationship between the variables. As the teacher gains experience his/her students' common deficiency in computational skills in Basic Mathematics is reduced. The computed t-value was -8.31, which absolute value is greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and teaching experience of the mathematics teacher-respondents". This implies that the teacher-respondents teaching experience is significantly related to the common deficiencies in computational skills in Basic Mathematics of the students. Teachers with longer teaching experience has adapted and exposed to learners of multiple intelligences. He/she can be able to select easily the classroom activities that fit to the level of the learners.

Number of relevant seminars and trainings attended. As to relevant seminars and trainings attended of the teacher-respondents, the computed r was 0.35, between the common deficiencies in computational skills in Basic

Mathematics and number of relevant seminars and trainings attended of the Mathematics teacher-respondents. The computed t-value was 6.30, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and number of relevant seminars and trainings attended by the mathematics teacher-respondents". This implies that that the teacher-respondents number of relevant seminars and trainings attended is significantly related to the common deficiencies in computational skills in Basic Mathematics of the students. Teachers attending several seminars and training in Basic Mathematics have students with or greater common deficiency in computational skills in Basic Mathematics because of missed classes due to attendance in seminars and trainings.

Implications

This following were the implications from the findings of the study:

1. A significant correlation between common deficiency in computational skills in Basic Mathematics and age of the student-respondents implies that the teacher in mathematics should give differentiated activities considering the ages of his/her students.

2. A significant correlation between common deficiency in computational skills in Basic Mathematics and course of the student-respondent

implies that the curriculum for teacher education and information technology should be examined for possible improvement or enhancement.

3. A significant correlation between common deficiency in computational skills in Basic Mathematics and final grade in Basic Mathematics of the student-respondents implies that the teacher in mathematics should give remedial instruction as early as during the midterm so that students' deficiency in mathematics will be addressed.

4. A significant correlation between common deficiency in computational skills in Basic Mathematics and age of the teacher implies that young mathematics teachers should be sent to attend seminars/trainings or advised to take graduate course in mathematics so that what they lack for experience will be augmented by trainings and schooling.

5. A significant correlation between common deficiency in computational skills in Basic Mathematics and educational background of the teacher implies that the teacher in mathematics should enroll in graduate program to enhance their knowledge in mathematics.

6. A significant correlation between common deficiency in computational skills in Basic Mathematics and civil status of the teacher in Basic Mathematics implies that the teachers should not bring family problems to class they should separate their private life from their work.

7. A significant correlation between common deficiency in computational skills in Basic Mathematics and instructional materials used to

teach Basic Mathematics implies that the teacher in mathematics should used several and varied instructional materials.

8. A significant correlation between common deficiency in computational skills in Basic Mathematics and teaching strategies used by the mathematics teacher implies that the teacher in mathematics should be innovate enough to use strategies which will motive students to study mathematics.

9. A significant correlation between common deficiency in computational skills in Basic Mathematics and number of seminars and trainings attended in Mathematics implies that the teachers who have not attended seminars and training should be made to attend to enhance their knowledge and skills.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter provides the summary of findings, the corresponding conclusions, and recommendations that were formulated.

Summary of Findings

From the data collected, organized, and analyzed, the findings obtained were the following:

1. The student-respondents have a mean age of 17.90 years old, majority of them were females, single, taking BEED, Roman Catholic, graduated from public high schools, with average final grade in Basic Mathematics of 2.1 or satisfactory performance, with parents who are elementary level for a father and college graduate for a mother, with father a farmer and mother a house keeper, with a mean family income of PhP6,722.81 and a family size of seven members in the family.

2. The student-respondents exhibited a moderately favorable attitude towards mathematics with a grand mean of 3.45.

3. The teacher-respondents of the study have a mean age of 39.75 years old, majority of them are female, married, Roman Catholic, masters' degree holder, used textbooks, board and chalk as instructional materials, and lecture discussion, board work and seat work as teaching strategy, with very satisfactory

performance rating, with a mean teaching experience of 15 years and have a mean attendance in relevant seminars of six seminars.

4. The student-respondents deficiency in computational skills in Basic Mathematics for the following areas are as follows: 1) whole numbers is 48 percent or fairly low deficiency; 2) integers is 48.00 percent or fairly low deficiency; 3) fractions is 48.00 percent or fairly low deficiency; 4) decimals is 50.00 percent or average deficiency; 5) percent is 67.00 percent or high deficiency, and 6) ratio and proportion is 46.00 percent or fairly low deficiency.

5. The relationship between the common deficiencies in computational skills in Basic Mathematics and student-related variates reveal the following:

As to age the computed r was -0.19, between the common deficiencies in computational skills in Basic Mathematics and age of the student-respondents. The computed t-value was -3.20, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and age" is rejected.

As to sex the computed r was 0.02, between the common deficiencies in computational skills in Basic Mathematics and sex of the student-respondents. The computed t-value was 0.29, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and their sex" is accepted.

As to civil status the computed r was -0.09, between the common deficiencies in computational skills in Basic Mathematics and civil status of the student-respondents. The computed t-value was -1.57, which absolute value was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics and civil status of the student-respondents" is accepted.

As to course the computed r was -0.19, between the common deficiencies in computational skills in Basic Mathematics and course of the student-respondents. The computed t-value was -3.24, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and course of the student-respondents" is rejected.

As to religion, the computed r was -0.10, between the common deficiencies in computational skills in Basic Mathematics and religion of the student-respondents. The computed t-value was -1.67, which absolute value was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and their religion" is accepted.

As to secondary schools graduated from the computed r was -0.05, between the common deficiencies in computational skills in Basic Mathematics and secondary schools graduated from of the student-respondents, the computed t-value was -0.81, which absolute value was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and secondary schools graduated from" is accepted.

As to final grade in Basic Mathematics, the computed r was -0.26, between the common deficiencies in computational skills in Basic Mathematics and final grade in Basic Mathematics of the student-respondents, the computed t-value was -4.49, which absolute value is greater than the critical t-value 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and final grade in Basic Mathematics" is rejected.

For educational background of parents, for the fathers' educational background the computed r was 0.10, between the common deficiencies in computational skills in Basic Mathematics and fathers' educational background of the student-respondents, the computed t-value was 1.61, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and father educational background" is accepted.

As to mothers' educational background the computed r was 0.06, between the common deficiencies in computational skills in Basic Mathematics and mothers' educational background of the student-respondents. The computed t-value was 1.05, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and mothers' educational background" is accepted.

As to parents' occupation, for fathers' occupation the computed r was 0.02, between the common deficiencies in computational skills in Basic Mathematics and fathers' occupation. The computed t-value was 0.25, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and fathers' occupation" is accepted. For mothers' occupation, the computed r was 0.03, between the common deficiencies in computational skills in Basic Mathematics and mothers' occupation of the student-respondents, the computed t-value was 0.58, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and mothers' occupation" was accepted.

As to average family monthly income the computed r was 0.01, between the common deficiencies in computational skills in Basic Mathematics and average family monthly income of the student-respondents. The computed t-value was 0.24, which was less than the critical t-value of 1.96 at 0.05 level of significance at df = 283. The hypothesis, "There is no significant relationship between the common deficiencies of student-respondents in computational skills in Basic Mathematics and average family monthly income" is accepted.

As to family size the computed r was -0.07, between the common deficiencies in computational skills in Basic Mathematics and family size of the student-respondents. The computed t-value was -1.15, which absolute value was less than the critical t-value of 1.96 and 0.05 level of significance and df = 283. The null hypothesis "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics and family size of the student-respondents" is accepted.

6. The relationship between the common deficiencies in computational skills in Basic Mathematics and attitude towards mathematics of the student-respondent revealed a computed r of 0.02. The computed t-value was 0.34, which was less than the critical t-value of 1.96 at 0.05 level of significance

and df = 283. The null hypothesis "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics and attitude towards mathematics of the student-respondents" was accepted.

7. The relationship between the common deficiencies in computational skills in Basic Mathematics of the students and teacher –related variates reveal the following:

As to age of the teacher, the computed r was -0.30, between the common deficiencies in computational skills in Basic Mathematics of the students and age of the mathematics teacher-respondents. The computed t-value was -5.26, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic mathematics of the students and age of the mathematics teacher-respondents" is rejected.

As to sex of the teacher, the computed r was -0.15 between the common deficiencies in computational skills in Basic Mathematics of the students and sex of the mathematics teacher-respondents. The computed t-value was -2.63, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and sex of the mathematics teacher-respondents" was rejected.

As to civil status of the teacher, the computed r was 0.36, between the common deficiencies in computational skills in Basic Mathematics of the students and civil status of the Mathematics teacher-respondents. The computed t-value was 6.47, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. This led to the rejection of the null hypothesis, which states, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and civil status of the mathematics teacher-respondents".

As to religion of the teacher, the computed r was 0.10, between the common deficiencies in computational skills in Basic Mathematics of the students and religion of the Mathematics teacher-respondents. The computed t-value was 1.66, which was less than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and religion of the mathematics teacher-respondents" was accepted.

As to educational background of the teacher, the computed r was -0.22, between the common deficiencies in computational skills in Basic Mathematics of the students and educational background of the Mathematics teacher-respondents. The computed t-value was -3.78, which absolute value was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and educational background of the mathematics teacher-respondents" is rejected.

As to instructional materials used by the teacher, the computed r was 0.27, between the common deficiencies in computational skills in Basic Mathematics of the students and the instructional used by the mathematics teacher-respondents. The computed t-value was 4.78, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and instructional materials used by the mathematics teacher-respondents" was rejected.

As to teaching strategies of the mathematics teacher, the computed r was 0.46, between the common deficiencies in computational skills in Basic Mathematics and teaching strategies of the Mathematics teacher-respondents. The computed t-value was 8.80, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and teaching strategies of the mathematics teacher-respondents" was rejected.

As to latest performance rating of the teacher, no correlation was obtained since latest performance rating is a constant because all of the teacher-respondents have very satisfactory performance rating.

As to teaching experience of the teacher, the computed r was -0.44, between the common deficiencies in computational skills in Basic Mathematics of the students and teaching experience of the Mathematics teacher-respondents. The computed t-value was -8.31, which absolute value is greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and teaching experience of the mathematics teacher-respondents" was rejected.

As to number of relevant seminars and trainings attended by the teacher, the computed r was 0.35, between the common deficiencies in computational skills in Basic Mathematics of the students and number of relevant seminars and trainings attended by the Mathematics teacher-respondents. The computed t-value was 6.30, which was greater than the critical t-value of 1.96 at 0.05 level of significance and df = 283. The null hypothesis, "There is no significant relationship between the common deficiencies in computational skills in Basic Mathematics of the students and number of relevant seminars and trainings attended by the mathematics teacher-respondents" was rejected.

Conclusions

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

1. The students from state colleges and universities in Samar taking Basic Mathematics possessed similar characteristics as to age, sex, civil status,

course, religion, school where secondary education was completed, final grade in Basic Mathematics, parents' educational background, parents' occupation, family monthly income, and family size.

2. The attitude towards mathematics of the student-respondents is moderately favorable.

3. The teachers teaching Basic Mathematics in SUC's of Samar possessed similar characteristics as to age, sex, civil status, religion, educational background, instructional materials used, teaching strategies, latest performance rating, teaching experience, and relevant seminars and trainings attended.

4. The student-respondents encountered high deficiency in percent, average deficiency in decimals and fairly low deficiency in whole numbers, integers, fractions and ratio and proportion.

5. The student-related factors which are significantly related to the common deficiencies in computational skills in Basic Mathematics of the students are age, course and final grade in Basic Mathematics. The other student-related factors were not significantly related.

6. The attitude towards Mathematics of the student-respondents is not significantly related to the common deficiencies in computational skills in Basic Mathematics.

7. The teacher-related factors which are significantly related to common deficiencies in computational skills in Basic Mathematics of the Student-respondents are age, sex, civil status, educational background,

instructional materials used, teaching strategies, teaching experience, and number of relevant seminars and trainings attended. The latest performance rating of the teacher-respondents were not significantly related to the common deficiencies in computational skills of the student-respondents.

Recommendations

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

1. The teachers must continually adjust the level of his/her instruction in response to the learning capacity of the students.

2. The curriculum planners must increase the number of mathematical learning activities in education courses that will develop the computational skills of the students.

3. Their must be a constant evaluation of the students' performance to check the learning competence achieved by the students.

4. Their must be a constant monitoring of mathematics classes by the supervisors to ensure the relevance of the learning task against the objectives set in each lesson in mathematics.

5. Mathematics teachers must properly select the appropriate teaching strategies and instructional materials that will best develop the computational skills of the students.

6. The administration should invest on teachers' professional development and capacity building to support improved mathematics performance.

7. Another research should be conducted to verify the findings of this study.

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APPENDICES

APPENDIX A

Republic of the Philippines
Samar State University
Catbalogan, Samar

February 13, 2009

The President
Samar State University
Catbalogan, Samar

Sir:

I would like to request permission from your good office to administer my questionnaire to the freshmen BSEd and BEEd students of SSU, Catbalogan, Samar for the school year 2008-2009. The result of this will be used as data for my master's thesis entitled "**COMMON DEFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG FRESHMEN COLLEGE STUDENTS.**"

I thank you for your favorable action on this matter.

Very truly yours,

(Sgd.) NILDA C. JAMIN
Researcher

Noted:

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

Approved:

(Sgd.) SIMON P. BABALCON, Ph.D.
University President, SSU

APPENDIX B

Republic of the Philippines
Samar State University
Catbalogan, Samar

February 12, 2009

The President
Samar State College of Agriculture and Forestry
San Jorge, Samar

Madam:

I would like to request permission from your good office to administer my questionnaire to the freshmen BSEd and BSIT students of SSCAF, San Jorge, Samar for the school year 2008-2009. The result of this will be used as data for my master's thesis entitled **"COMMON DEFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG FRESHMEN COLLEGE STUDENTS."**

I thank you for your favorable action on this matter.

Very truly yours,

(Sgd.) NILDA C. JAMIN
Researcher

Noted:

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

Approved:

(Sgd.) AIDA L. TOBES, Ed.D.
President, SSCAF

APPENDIX C

Republic of the Philippines
Samar State University
Catbalogan, Samar

February 17, 2009

The President
Tiburcio Tancinco Memorial Institute
of Science and Technology
Calbayog City, Samar

Madam:

I would like to request permission from your good office to administer my questionnaire to the freshmen BSEd and BEEd students of TTMIST, Calbayog City, Samar for the school year 2008-2009. The result of this will be used as data for my master's thesis entitled **"COMMON DEFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG FRESHMEN COLLEGE STUDENTS."**

I thank you for your favorable action on this matter.

Very truly yours,

(Sgd.) NILDA C. JAMIN
Researcher

Noted:

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

Approved:

(Sgd.) SOCCORO O. BOHOL, Ph.D.
President, TTMIST

APPENDIX D

SAMAR STATE COLLEGE OF AGRICULTURE AND FORESTRY
San Jorge, Samar

February 2, 2009

DR. GAIL B. VELARDE
Dean, College of Education
Samar State University
Catbalogan, Samar

Madam:

I have the honor to request permission from your good office to administer my diagnostic test in Basic Mathematics on Wednesday and Friday, February 4and 6, 2009 to Second Year BSEd and BEEd students for the purpose of validation of test questions. The result of this will be used as an instrument for my master's thesis entitled **"COMMON DEFFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG COLLEGE FRESHMEN".**

Your favorable consideration on this request is highly appreciated.

Very truly yours,

(Sgd.) NILDA C. JAMIN
Researcher

Noted:

(Sgd.) FLORIDA B. MARCO
Adviser

Recommending Approval:

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

Approved:

(Sgd.) GAIL B. VELARDE, Ph.D.
Dean, College of Education

APPENDIX E

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan, Samar

March 2, 2009

Dr. GAIL B. VELARDE
Dean, College of Education
Samar State University
Catbalogan, Samar

Madam:

The first year BSEd and BEEd students of your school for the SY: 2008-2009 is selected as one of the respondents in my study entitled **"COMMON DEFFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG COLLEGE FRESHMEN"**. Their final grade in the Basic Mathematics fort he first semester is one of the necessary data in this study. In connection with this, I would like to ask permission and approval from your good office to have access of their grade sheets in Basic Mathematics for the first semester of SY: 2008-2009.

Your kind consideration is highly appreciated.

Very truly yours,

(Sgd.) NILDA C. JAMIN
Researcher

Noted:

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

Approved:

(Sgd.) GAIL B. VELARDE, Ph.D.
Dean, College of Education

APPENDIX F

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan, Samar

LETTER TO THE TEACHER-RESPONDENT

February 12, 2009

Dear respondent,

I am a bonafide student of Samar State University, Catbalogan, Samar who is presently conducting a research entitled, "**COMMON DEFFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG COLLEGE FRESHMEN**", in partial fulfillment of the requirements of the degree Master of Arts in Teaching Mathematics. In this respect, you are chosen to be one of the respondents of this study. Rest assured that your responses to the research instrument would be treated with utmost confidentiality.

Thank you very much for your cooperation in providing me your most valued time and effort.

Very truly your,

(Sgd.) NILDA C. JAMIN
Researcher

APPENDIX G

QUESTIONNAIRE FOR THE TEACHER-RESPONDENTS

Direction: Please provide the needed information by writing The answer/s on the blank space/s provided for each item and by checking (/) the appropriate box/ boxes.

Part I. Respondents Personal Profile

Name (Optional): ____

Age: ____________ Sex: ( ) Male ( ) Female Civil Status: ____________

Religion: __________________ Educational Attainment: ___________________

Instructional Materials Used in Mathematics (Please write): __________________
____

Teaching Strategies Used: ____

Performance Rating: ______ Teaching Experience (yrs. & mos.): ___________

Relevant Seminars and Trainings Attended: ______________
____
____
____
____
____

APPENDIX H

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan, Samar

LETTER TO THE STUDENT-RESPONDENT

February 12, 2009

Dear respondent,

I am a bonafide student of Samar State University, Catbalogan, Samar who is presently conducting a research entitled, "**COMMON DEFICIENCIES IN COMPUTATIONAL SKILLS IN BASIC MATHEMATICS AMONG COLLEGE FRESHMEN**", in partial fulfillment of the requirements of the degree Master of Arts in Teaching Mathematics. In this respect, you are chosen to be one of the respondents of this study. Rest assured that your responses to the research instrument would be treated with utmost confidentiality.

Thank you very much for your cooperation in providing me your most valued time and effort.

Very truly yours,

(Sgd.) NILDA C. JAMIN
Researcher

APPENDIX I

QUESTIONNAIRE TO THE STUDENT-RESPONDENTS

Direction: Please provide the needed information by writing The answer/s on the blank space/s provided for each item and by checking (/) the appropriate box/ boxes.

Part I. Respondents Personal Profile

1. Name(Optional): ______________________________
2. Age: ____________
3. Sex:
   ( ) Male
   ( ) Female
4. Civil Status: ______________
5. Course: ____________________
6. Religion: __________________
7. School where secondary educational was completed:
   ( ) State College/ University
   ( ) Private High School
   ( ) Public High School
8. Final Grade in Basic Mathematics: ______________________
9. Parents' Educational Attainment:

Father	Mother
( )Elementary Level	( )Elementary Level
( )Elementary Graduate	( )Elementary Graduate
( )High School Level	( )High School Level
( )High School Graduate	( )High School Graduate
( )College Undergraduate	( )College Undergraduate
( )College Graduate	( )College Graduate
( )Post Graduate	( )Post Graduate

10. Parents' Occupation:
    Father: ______________________________
    Mother: ______________________________
11. Average Family Monthly Income (Php): ____________________
12. Family Size: ______________________________

APPENDIX J

Questionnaire For Attitude Scale Towards Mathematics

Name:________________________________ **Age:** ___________ **Sex:**_________

Curriculum:____________________ **Yr.&Sec.:** _____________________________

S.Y.: _________________________________

Purpose : To determine the attitudes of students toward Mathematics.

Directions : Each of the statements in the questionnaire expresses a feeling that a particular person has towards Mathematics.

Consider each statement carefully and encircle the number after each statement if you:

5 – Strongly Agree (SA) – which means that you are very much in favor of what the statement says.

4 – Agree (A) – you consent or approve of what the statement says.

3 – Undecided (U) – under some circumstances you would agree while in others you would disagree.

2 – Disagree (D) – you are not in favor of what the statement says.

1 – Strongly Disagree (SD) – you are very much against what the statement says.

Be sure to answer just as you really think. The information you will give will be treated with utmost confidence.

ATTITUDE STATEMENTS	SA 5	A 4	U 3	D 2	SD 1
1. I found mathematics as an interesting subject.					
2. Mathematics is a stimulating and challenging subject.					
3. I enjoy my mathematics class so I attend my class regularly.					
4. Mathematics is not a boring subject.					
5. Mathematics develops my ability to think critically and reason out clearly.					
6. I feel relaxed and easy when reading my mathematics lessons.					
7. I feel happier in my mathematics class than n any other classes.					
8. I wish I could take more mathematics subjects other than those offered in my course.					
9. I find that the allotted time is not enough for studying mathematics.					
10. Mathematics is very easy to understand.					
11. Mathematics develops in me a feeling of confidence.					
12. I believe that mathematics is the easiest to learn.					
13. Mathematics is my most favorite subject.					
14. I can solve mathematics problems even without the help of somebody.					
15. I study my mathematics lesson regularly.					
16. Mathematics develops in me an attitude of neatness and accuracy.					
17. I find textbooks in mathematics interesting.					
18. I believe that mathematics is needed in my daily life.					
19. I feel alive in my mathematics class.					
20. Mathematics is one of my line of interest.					

APPENDIX K

TABLE OF SPECIFICATION IN BASIC MATHEMATICS

CONCEPTS/TOPICS	□□□□□□				□□□□□ □□ □□□□□ □□□	□□□□□ □□□□□ □
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I) WHOLE NUMBERS Operations of Whole Numbers Orders of Operations Problems of Whole Numbers			1, 2	3, 4 5, 6	2 2 2 (6	12
II) INTEGERS Operations of Integers			7 , 8, 9, 10, 11, 12		6 (6)	12
III) FRACTIONS Greatest Common Factors (GCF) and Least Common Multiple (LCM) Equivalent Fractions/ Fractions in lowest term Mixed Numbers Operations of Fractions Conversions of Fractions to Decimals Problems on Fractions			, 18,19,2 0, 21,22,2 5 27	13 14, 15, 16 17 23,24 26 28, 29	1 3 1 8 2 2 (17)	32
IV) DECIMALS Operations of Decimal Numbers Conversion of Decimal Numbers to Fraction Problems on Decimal Numbers			30,31,3 2, 33,34	35, 36 37,38,3 9	5 2 3 (10)	19
V) PERCENT Conversion of Percent to Fraction Problems on Percent				40,41,4 2 43,44,4 5 46	3 4 (7)	13
VI) RATIO AND PROPORTION Solving Proportions Problems on Proportions			47, 48	49,50,5 1, 52	2 4 (6)	12
TOTAL	□	□	**22**	**30**		**52**
Percent (%)	□	□	**67**	**33**		**100**

APPENDIX L

DIAGNOSTIC TEST

Direction: Select the correct answer from the given choices and write the letter of your answer on the answer sheets.

1. What is the result if the difference between 5,928 and 7,629 is subtracted from the sum of 12,058 and 967?
   a. 523 c. 9,390
   b. 2,466 d. 11,324

2. Which of the following will give a quotient of 61 with a reminder of 7?
   a. 3,756 divided by 61 c. 3,728 divided by 61
   b. 3,462 divided by 61 d. 3,537 divided by 61

3. Which of the following expressions is equal to 13?
   a. $10 \div 2 \times 5$ c. $4+77 \div 11 \times 2-5$
   b. $4 \times 3+15 \div 5$ d. $5 \times 7+2-6 \times 3$

4. What is the result of the combination of operations in $25 = (44 \div 11)2 - 14$?
   a. 12 c. 19
   b. 15 d. 21

5. What is the total amount of money the three have together if John has P145, Glen has P123, and Ben has P12 more than John and Glen together?
   a. P280 c. P465
   b. P327 d. P548

6. Mrs. Miranda budgeted an amount of P400 weekly allowance and P500 monthly rental for boarding house to each of her four children. How much will she spend for her children within ten months?
   a. P96,000 c. P69,000
   b. P84,000 d. P36,000

7. Find the sum of -2, 4, -6, 8, and -3.

a. 1 c. 3

b. 2 d. 4

8. Which of the choices below is the sum of 24, -8, -3, 31, and -9?

a. 30 c. 40

b. 35 d. 45

9. Which expression below will give a result of 15?

a. -46-(-31) c. -31-(-46)

b. 46-(-31) d. 31-(-46)

10. What is the difference when -72 is diminished by the result of (-45)-25?

a. -2 c. 132

b. -52 d. -142

11. 15-7+8×6÷2×5=?

a. 240 c. 128

b. 140 d. 96

12. {3[-8(4-2)]} ÷[-4(5-2)]=?

a. 6 c. 4

b. -5 d. -4

13. Which of the choices is the least common multiple of 6, 8, 4, and 3?

a. 24 c. 18

b. 32 d. 12

14. Which of the given fractions does not belong to the group of equivalent fractions? ¾, 5/15, 2/6, 6/18

a. ¾ c. 2/6

b. 5/15 d. 6/18

15. From the choices below, which fraction is equivalent to 18/24, 6/8 and 9/12?

a. 2/3 c. ½

b. ¾ d. 4/3

16. Which set of fractions below are similar fractions when reduced to lowest terms?
a. 21/14, 14/4, 15/6, 84/24
b. 13/4, 13/8, 15/4, 17/8, 13/5
c. 14/2, 12/8, 15/4, 18/3, 21/8
d. 12/3, 13/4, 17/9, 10/3, 11/15

17. Which fraction is equal to 21/4 in mixed number?
a. 5 ¼
b. 6 ¾
c. 4 1/3
d. 7 ¾

18. What is 15 2/3 as improper fraction?
a. 39/3
b. 48/3
c. 47/3
d. 42/3

19. What is the sum of 2/3, ¾, 4/5?
a. 1 7/60
b. 2 19/60
c. 2 13/60
d. 3 17/60

20. Add: 2 ¼ + 3 ½ + 1 ¾
a. 8 ¼
b. 6 ¾
c. 7 ½
d. 7 ¾

21. Subtract: 3 2/3 – 2 1/6
a. ½
b. 3/2
c. ¾
d. 2/3

22. Subtract: 9/10 – 1/6 – 2/3
a. 3/14
b. 2/17
c. 1/18
d. 1/15

23. Which of the following is the product of 4/5, 8/9, and ¾?
a. 11/15
b. 4/15
c. 8/15
d. 7/15

24. Which of the choices below is the result when 6 1/9 is divided by 1 5/6?

a. 3 14/35

b. 3 2/3

c. 2 2/3

d. 4 2/3

25. What is the quotient of 9 1/8 ÷ 1 2/3?

a. 3 14/35

b. 4 13/40

c. 6 11/30

d. 5 19/40

26. Which of the decimals below is equal to 11/20?

a. 0.45

b. 0.55

c. 0.65

d. 0.35

27. What is 7/15 in decimal form?

a. 0.47

b. 0.37

c. 0.57

d. 0.67

28. On a Saturday, Julie planned to spend 2 ½ hours washing her clothes, ¾ hour fixing her room, and 1 ½ hours studying. How many hours does she spend to work on these tasks?

a. 4 1/3

b. 4 ½

c. 4 ¾

d. 2 ½

29. A rectangle has a length of ¾ meter and a width of ½ meter. What is its perimeter?

a. 3 1/3

b. 3 ¼

c. 2 ¾

d. 2 ½

30. What is the sum of the following decimal numbers?

0.47, 1.003, 28.92, and 356.031

a. 358.621

b. 378.932

c. 303.004

d. 386.424

31. 41, 252.036 – 456.9236 – 548.074 = ?

a. 40,256.03

b. 40,247.04

c. 40,258.13

d. 40,127.08

32. Multiply: 5.053 (248.12×1.593)

a. 1,997.22
b. 1,261.79
c. 1,255.34
d. 1,158.25

33. What is the quotient when 1,642 is divided by 13.6?

a. 120 with a remainder of 10
b. 120 with a remainder of 9
c. 120 with a remainder of 8
d. 120 with a remainder of 11

34. Divide: 942.32 ÷ 14.06

a. 70.22
b. 69.13
c. 68.42
d. 67.02

35. Which fraction below is equal to 0.128?

a. 16/125
b. 15/125
c. 14/125
d. 13/125

36. What is the fractional form of 0.3125?

a. 5/16
b. 7/16
c. 9/16
d. 21/16

37. A notebook costs P9.80. a Biology book costs 12.5 times the price of the notebook, and a mathematics book costs 1.2 times the price of the Biology book. What is the price of the mathematics book?

a. P138
b. P150
c. P147
d. P162

38. A teacher has a net take home pay of P15,000. If his rate is P62.50 per hour, how much will he receive for that month if he has a total overload of 7.33 hours?

a. P15,893.25
b. P15,724.30
c. P15,572.35
d. P15,458.125

39. A plant grows at the rate of 7.7 centimeters per week. At this rate, how many weeks will it take the plant to grow 17.50 centimeters?

a. 2.26 c. 2.75
b. 2.50 d. 2.85

40. What is 45% in fraction?

a. 5/20 c. 9/20
b. 7/20 d. 11/20

41. Which fraction below is equal to 11/13?

a. 55/400 c. 57/400
b. 56/400 d. 58/400

42. How many percent is equal to 11/13?

a. 82% c. 84%
b. 83% d. 85%

43. How many percent is the discount of the t-shirt if it has a marked price of P799 and was sold at the amount of P654?

a. 10% c. 18%
b. 14% d. 22%

44. In a mathematics class of 40 students, 95% passed the subject. How many students failed?

a. 1 c. 3
b. 2 d. 4

45. A housewife earns 10% commission on all kitchen utensils she sells by conducting home sales parties. If one year she earned P45,000, what was her total sales?

a. P4,500,000 c. P450,000,000
d. P450,000 d. P45,000,000

46. A pizza pie which costs P180 was shared four friends. Is each will pay 25% of the amount, how much will each pay?

a. P35
c. P40
b. P30
d. P45

47. What is the missing term in the proportion 3/2 = 15/N?
a. 5
c. 15
b. 10
d. 20

48. Which of the choices below is the value of N in the proportion 30/115 = N/6?
a. 1.57
c. 3.25
b. 2.42
d. 4.08

49. An agriculture teacher instructed his students to bring 6 posts each for the fencing of their garden. If there are 48 students, how many posts will be used to fence their garden?
a. 206
c. 245
b. 224
d. 288

50. In a computer class, the ratio of the number of computers to the number of students is 1:3. How many computers are needed to accommodate a class of 60 students?
a. 10
c. 20
b. 15
d. 25

51. In a civil wedding, a caterer is paid P6,750 for 30 visitors. How much will be paid if there is an additional of 15 visitors?
a. P10,125
c. P8,750
b. P9,155
d. P8,500

52. What is the ratio of boys to girls if there are 18 boys and 48 girls in a Damath competition?
a. 3:8
c. 5:8
b. 4:7
d. 6:11

Prepared by:

Mrs. Nilda Cabarles-Jamin
Researcher

APPENDIX M

DIAGNOSTIC TEST ITEM ANALYSIS

Item no.	UG	UP	Diff. Index p=(UG+LG)/2	EVALUATION	Disc. Index=(UG-LG)/1	EVALUATION	
1	8	7	0.94	Very Easy	0.13	Very Low Satisfactory	***Reject***
2	8	6	0.88	Very Easy	0.25	Very Low Satisfactory	***Reject***
3	8	7	0.94	Very Easy	0.13	Very Low Satisfactory	***Reject***
4	7	3	0.63	Fairly Easy	0.50	Highly Satisfactory	
5	8	8	1.00	Very Easy	0.00	Very Low Satisfactory	***Reject***
6	1	0	0.06	Very Hard	0.13	Very Low Satisfactory	***Reject***
7	8	2	0.63	Fairly Easy	0.75	Highly Satisfactory	
8	3	0	0.19	Fairly Hard	0.38	Fairly Satisfactory	
9	8	8	1.00	Very Easy	0.00	Very Low Satisfactory	***Reject***
10	8	2	0.63	Fairly Easy	0.75	Highly Satisfactory	
11	7	5	0.75	Fairly Easy	0.25	Fairly Satisfactory	
12	7	3	0.63	Fairly Easy	0.50	Highly Satisfactory	
13	6	5	0.69	Fairly Easy	0.13	Very Low Satisfactory	***Reject***
14	5	4	0.56	Fairly Easy	0.13	Very Low Satisfactory	***Reject***
15	5	1	0.38	Fairly Hard	0.50	Highly Satisfactory	
16	5	5	0.63	Fairly Easy	0.00	Very Low Satisfactory	***Reject***
17	6	4	0.63	Fairly Easy	0.25	Fairly Satisfactory	
18	8	5	0.81	Fairly Easy	0.38	Fairly Satisfactory	
19	7	2	0.56	Fairly Easy	0.63	Highly Satisfactory	
20	1	2	0.19	Fairly Hard	-0.13	Reject the item	
21	5	2	0.44	Fairly Hard	0.38	Fairly Satisfactory	
22	8	5	0.81	Fairly Easy	0.38	Fairly Satisfactory	
23	8	5	0.81	Fairly Easy	0.38	Fairly Satisfactory	
24	4	1	0.31	Fairly Hard	0.38	Fairly Satisfactory	
25	6	2	0.50	Fairly Hard	0.50	Highly Satisfactory	
26	5	2	0.44	Fairly Hard	0.38	Fairly Satisfactory	
27	6	1	0.44	Fairly Hard	0.63	Highly Satisfactory	
28	8	6	0.88	Very Easy	0.25	Fairly Satisfactory	
29	8	2	0.63	Fairly Easy	0.75	Highly Satisfactory	
30	7	5	0.75	Fairly Easy	0.25	Fairly Satisfactory	
31	6	1	0.44	Fairly Hard	0.63	Highly Satisfactory	
32	8	4	0.75	Fairly Easy	0.50	Highly Satisfactory	
33	8	4	0.75	Fairly Easy	0.50	Highly Satisfactory	
34	8	5	0.81	Fairly Easy	0.38	Fairly Satisfactory	
35	7	3	0.63	Fairly Easy	0.50	Highly Satisfactory	
36	7	5	0.75	Fairly Easy	0.25	Fairly Satisfactory	
37	8	8	1.00	Very Easy	0.00	Very Low Satisfactory	***Reject***
38	8	8	1.00	Very Easy	0.00	Very Low Satisfactory	***Reject***
39	8	8	1.00	Very Easy	0.00	Very Low Satisfactory	***Reject***
40	6	6	0.75	Fairly Easy	0.00	Very Low Satisfactory	***Reject***
41	8	8	1.00	Very Easy	0.00	Very Low Satisfactory	***Reject***
42	4	1	0.31	Fairly Hard	0.38	Fairly Satisfactory	
43	7	5	0.75	Fairly Easy	0.25	Fairly Satisfactory	

44	7	7	0.88	Very Easy	0.00	Very Low Satisfactory	***Reject***
45	8	2	0.63	Fairly Easy	0.75	Highly Satisfactory	
46	6	2	0.50	Fairly Hard	0.50	Highly Satisfactory	
47	7	3	0.63	Fairly Easy	0.50	Highly Satisfactory	
48	8	5	0.81	Fairly Easy	0.38	Fairly Satisfactory	
49	7	5	0.75	Fairly Easy	0.25	Fairly Satisfactory	
50	8	3	0.69	Fairly Easy	0.63	Highly Satisfactory	
51	7	4	0.69	Fairly Easy	0.38	Fairly Satisfactory	
52	5	1	0.38	Fairly Hard	0.50	Highly Satisfactory	
53	8	4	0.75	Fairly Easy	0.50	Highly Satisfactory	
54	6	2	0.50	Fairly Hard	0.50	Highly Satisfactory	
55	4	6	0.63	Fairly Easy	-0.25	Fairly Satisfactory	
56	7	5	0.75	Fairly Easy	0.25	Fairly Satisfactory	
57	7	5	0.75	Fairly Easy	0.25	Fairly Satisfactory	
58	6	2	0.50	Fairly Hard	0.50	Highly Satisfactory	
59	1	0	0.06	Very Hard	0.13	Very Low Satisfactory	***Reject***
60	3	2	0.31	Fairly Hard	0.13	Very Low Satisfactory	***Reject***
61	6	5	0.69	Fairly Easy	0.13	Very Low Satisfactory	***Reject***
62	6	3	0.56	Fairly Easy	0.38	Fairly Satisfactory	
63	4	4	0.50	Fairly Hard	0.00	Very Low Satisfactory	***Reject***
64	4	3	0.44	Fairly Hard	0.13	Very Low Satisfactory	***Reject***
65	4	2	0.38	Fairly Hard	0.25	Fairly Satisfactory	

CURRICULUM VITAE

CURRICULUM VITAE

NAME	:	NILDA C. JAMIN
DATE OF BIRTH	:	April 24, 1969
PLACE OF BIRTH	:	Ranera, San Jorge, Samar
HOME ADDRESS	:	148 Erenas, San Jorge, Samar
CIVIL STATUS	:	Married
PARENTS		
FATHER	:	Luciano Verzosa Cabarles
MOTHER	:	Tarciana Velarde Cabarles
HUSBAND	:	Alicio Conde Jamin
CHILDREN	:	Mona Suzanne, Reniel, Jamaica Mae, Alex Raeniel, Leila Angelie, Erika Allysandra

EDUCATIONAL BACKGROUND

ELEMENTARY	:	Matalud Elementary School
SECONDARY	:	Samar State College Of Agriculture And Forestry Samar State University
COLLEGE	:	BSIE-Mathematics Samar State University
GRADUATE	:	MAT-Mathematics

MEMBERSHIP IN ORGANIZATION

MEMBER : SSCAF PA-SSCAF Personnel Association

ELIGIBILITIES

PROFESSIONAL BOARD EXAMINATION FOR TEACHERS (PBET) 1990

SEMINARS

Leadership Training Oct. 25-29, 2006 SSCAF, San Jorge, Samar

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