CORRELATES OF THE ACADEMIC PERFORMANCE OF SPECIAL SCIENCE CLASS STUDENTS

A Thesis
Presented to
The Faculty of the College of Graduate Studies
Samar State Polytechnic College
Catbalogan, Samar

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts in Teaching (MAT)
Major in Chemistry

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March, 2004

APPROVAL SHEET

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ACKNOWLEDGEMENT

Writing this research has been a fruitful experience to the researcher. Aside from its influence in her academic life, it allowed her to discover so much of God's love, the source of her strength, health and wisdom. For this, the researcher is grateful to Him and to the following people who, in one way or the other, have helped make this study a reality.

Dr. Marilyn D. Cardoso, Dean of the College of Graduate School, for her competent guidance and valuable support for the refinement of the manuscript.

Prof. Florida B. Marco, Research Adviser, for her professional advice, which prompted the researcher to improve the manuscript.

Mr. Leovegildo N. Mante, Principal of Samar National School, for his valuable support by allowing her to conduct the study in said school.

Prof. Rebecca A. Sabarre and Ms. Icy R. Tabones, Librarian and Library Assistant, respectively of Samar State University, for giving the researcher access to the available references in the library.

Special science class teachers and students for their cooperation and invaluable help in the realization of this manuscript.

B.M.L.

DEDICATION

To the great persons in my life,

MAMA MENANG, my mother
For her inspiration ...

TOYTOY, my husband
For his limitless encouragement to finish this work ...

RIZZA, YBOY, DENDEN, my children
For their love and support ...

MAJESTY, CASEY, MARIELLE, CYAN,
BUTCH, PSALM, HEART, my daughter and son-in-law and grandchildren
For their continuous cheer ...

IDA, DITDIT and **LYNLYN**, my sisters and niece
For their genuine concern for the refinement of the Manuscript ...

This I humbly dedicate.

Blanca

ABSTRACT

This study determined the correlates of academic performance of special science class students of Samar National School, Catbalogan, Samar, for SY. 2001-2002. This study used the descriptive-comparative and correlational design. The comparison of the student-respondents' academic performance with respect to attitude towards science, the mean obtained for academic performance of students with highly favorable attitude is 89.61, while the mean of the academic performance of the special science class students with moderately favorable attitude is 89.03. The mean difference is equal to 0.58. This mean difference tested for significance using the t-test results in a t-value equal to 1.00 which value is less than the critical t-value of 1.97 at df+ 163, a= 0.05 (two tailed). The null hypothesis, "There is no significant difference in the academic performance of the special science class students with respect to their attitude towards Science" is accepted. The mean difference in the academic performance f=of the special science class students with respect to their grades in Elementary Science are significant for two group pairs: 1) Excellent and Good Performance in Elementary Science, the difference between the sample means is equal to 2.40, the computed F=10.42, which is greater than the critical F=3.05 interpreted as "significant", and 2) Very Good and Good Performance in Elementary Science, the difference between the sample means is 1.57, the computed F-value is 16.36, which is greater than the critical F=3.05 interpreted as "significant". The special class students' academic performance significantly differs based on their scores in

the DOST Qualifying Examination score, have very good academic performance in the special science class curriculum or their academic achievement does not significantly differ.

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THE PROBLEM AND ITS SETTING

Introduction

In recent years, the Philippines have been continuously engaged in battles against poverty and stagnation. Nevertheless, it has made concerted effort to join the global bandwagon. Today, it is still the country's ardent wish to produce graduates who are at par with those of the rest of the world (Ordillas, 1994:5). It is only through education that the Philippines will have competitive advantage over its Asian neighbors. In view of this, it supports the education sector's attempt to uplift the quality of education, especially in science and technology.

Generally, it is acknowledged that science and technology are important driving forces that speed up the development of the country. In addition, they are instrumental in creating technological capability, which is, in turn, essential for the country's economy. Behind this, however, people empowerment plays a lead role in stirring the country towards its goals. It is by empowering people, especially those who are scientifically inclined and possessed of technological know-how, that the country will attain global competitive advantage at par with its Asian counterparts.

Science education, at its greatest height, will be an effective way of developing desirable attitudes and skills needed for the development of the country in the long run. Thus, this has become a challenge to the Philippine

Government, which is, improving the country's education. In response to this, the Science Education Institute of the Department of Science and Technology (SEI-DOST), in cooperation with the Department of Education, Culture and Sports (DECS), developed and implemented a special program that will improve the quality of education, specifically in fields of science and technology (STEP, 1994: 10).

This breakthrough in the Philippine education sector came about as a response to the report of the Science and Technology Education Plan of the Department of Science and Technology that there are only seven public science high school in the country representing a very small percentage of 33, 438 public high schools in the country today (STEP, 1994: 10). Consequently, in school year 1993-1994 the Science-enriched curriculum under the Engineering and Science Education Projects (ESEP) of DOST was implemented for the first time in the network of 110 Science and Technology- oriented high schools.

During its first year of implementation, out of 17,000 first year applicants, only 9,000 of them qualified for the special science classes where they were exposed to a special science curriculum, additional instructional materials and upgraded laboratory facilities. Furthermore, the special science curriculum provides for additional subjects in Science and Mathematics from first year to fourth year. The students in said classes are provided with a compilation of lessons and activities in S ad T related subjects formulated by specialists in said fields from the academe, DECS and special Science High Schools. This was done

to supplement the Secondary Education Development Program (SEDP) textbooks, which was being used by all the network schools.

Insofar as the subject of their existence was concerned, a network of 110 Science and Technology-oriented high school was tasked to produce a critical mass of quality high school graduates who will pursue careers in the fields of Science and Technology. This network of schools is being assisted in terms of faculty development, acquisition of science equipment, and laboratories and library facilities. To live up to the objective of the special science classes, admission requirements were stricter compared to ordinary classes in public high schools.

In Region VIII, for example, where there are only seven (7) special science high schools, only those applicants whose scholastics records, NEAT results and personal interview results indicate high potential for learning are admitted. As such, the selection of students to special science classes is done with care and thorough deliberation so that they will not be deprived of a college scholarship and perhaps job placements after graduation. Yet, the challenge to those students does not stop upon admission. As a matter of fact, being in said classes requires a tremendous amount of sheer determination and hard work.

Basically, a student has to maintain a good academic standing in which he is to obtain a grade of 83 percent or better in Science 1 and Mathematics 1 and a passing grade in the rest of the subjects in the first year curriculum (As discussed during the "Orientation Workshop for the Implementation of Experimental

Classes in Secondary Science Node Schools of Region VIII", DECS, RSIC, DWU, Tacloban City). In the event that the students do not make in their academic performance, they are asked to transfer to a regular class. It seems, therefore, that the students ought to have solid foundation in their lower education. It is evident that a greater percentage is placed on certain variables that allow the students to qualify for and stay with said classes.

The Samar National School (SNS), Catbalogan, Samar had its special science classes in school year 1993-1994. Its first batch of students graduated in school year 1997. Based on the researcher's experience, as one of the advisers of special science class and at the same time the Science teacher, students with good scholastic standing in their elementary education have competitive advantage over students with lower scholastic standing. It has also been her experience for the past two school years since special science class started that there were students who failed to stay in said classes and were advised to enroll in regular classes. The need to probe into the factors that impact on the students' academic performance in special science classes, coupled with the fact that there is as yet no local study on this topic, inspired the researcher to conduct this study.

Statement of the Problem

Generally, this study aimed to determine the relationship between certain factors and academic performance of the students of special science classes of Samar National School, Catbalogan, Samar, for S.Y. 2001-2002.

Specifically, this study sought to answer the following questions:

1. What is the profile of the students of the special science classes of the Samar National School, Catbalogan, Samar based on the following criteria:

1.1 age;

1.2 sex;

1.3 year level;

1.4 type of the school where elementary course was completed;

1.5 grades in Elementary Science and Elementary Mathematics;

1.6 general weighted average (GWA) in their elementary course;

1.7 DOST qualifying test results; and

1.8 attitude towards science?

2. What is the level of academic performance of students in the special science classes?

3. Is there a significant relationship between academic performance of the student-respondents and the following profile variates:

3.1 age;

3.2 sex;

3.3 year level;

3.4 types of school where elementary course was completed;

3.5 grades in Elementary Science and Elementary Mathematics;

3.6 general weighted average (GWA) grade in elementary;

3.7 DOST qualifying test results; and

3.8 attitude towards science?

4. Are there significant differences in the level of academic performance of students' respondents by;

4.1 age;

4.2 sex;

4.3 year level;

4.4 types of school where elementary course was completed;

4.5 grades in Elementary Science and Elementary Mathematics;

4.6 general weighted average (GWA) grade in elementary;

4.7 DOST qualifying test results; and

4.8 attitude towards science?

5. What implications may be derived from the results of this study?

Hypothesis

To shed light to the problems raised in this study, the following hypotheses were tested.

1. There is no significant relationship between the academic performance of the special science class students of Samar National School, Catbalogan, Samar and the following profile variates:

1.1 age;

1.2 sex;

1.3 year level;

1.4 type of school where an elementary course was completed;

1.5 grades in Elementary Science and Elementary Mathematics;

1.6 general weighted average (GWA) grade in elementary;

1.7 DOST qualifying test results; and

1.8 attitude towards Science.

2. There are no significant differences in the level of academic performance of special science class students by:

2.1 age;

2.2 sex;

2.3 year level;

2.4 type of school where elementary course was completed;

2.5 grades in Elementary Science and Elementary Mathematics;

2.6 general weighted average (GWA) grade in elementary;

2.7 DOST qualifying test results; and

2.8 attitude towards Science.

Theoretical Framework

This study was primarily anchored on Sections 1, 2 and 10 of Article XIV of the 1987 Philippine Constitution. In Section 1, it is specifically provided that "the State shall protect and promote the right of all citizens to quality education at all levels, and shall take appropriate steps to make such education accessible to all". In support thereof, Section 2 provides that "the State shall establish,

maintain, and support a complete, adequate, and integrated system of education relevant to the needs of the people and society". Part of the country's fulfillment of the foregoing provisions, special emphasis was directed towards science and technology as mandated in Section 10, as follows:

> *Section 10. Science and technology are essential for national development and progress. The State shall give priority to research and development, invention, innovation, and their utilization; and to science and technology education, training, and services. It shall support indigenous, appropriate, and self-reliant scientific and technological capabilities, and their application to the country's productive systems and national life.*

In response to the mandate of the Philippine Constitution, the then Department of Education, Culture and Sports (DECS) now the Department of Education, envisioned to produce technologically and globally competitive graduates. This formulated the implementation of a Special Science Class Curriculum for advanced and scientifically inclined students. It aims to help every Filipino learner to gain a functional understanding of scientific concepts and principles linked with real-life situations, and acquire scientific skills, attitudes, and values necessary to analyze and solve day-to-day problems.

With the formulation of special science classes, the question is how students fare in these classes. Hence, this study also zeroed in on Piaget's Theory of Cognitive Development in order to understand the academic performance of students in special science classes. According to Piaget, cited by Santrock (2004:8), cognitive development is a progressive reorganization of mental processes as a result of biological maturation and environmental experience.

Children construct an understanding of the world around them, and then experience discrepancies between what they already know and what they discover in their environment. Moreover, he claims the idea that cognitive development is at the center of human organism and language is contingent on cognitive development.

On the basis of Piaget's contention, teachers should consider the different stages of cognitive development of students when discussing contents of the different subjects in the class – that is, whether they are suitable for the level of students or not. For example, recent studies have shown that students in the same year level and of the same age perform differentially on tasks. Teachers who work with students should consider the levels of cognitive development and should adopt suitable academic expectations with regard to students' cognitive developmental abilities. Students in special science classes have different levels of cognitive developmnent which teachers should consider.

Finally, this study was anchored on Goal Setting Theory by Locke and Latham. According to Locke and Latham, cited by McGregor and Elliot (2002:381-395), goals affect behavior in several ways: (1) directing attention to a task, (2) mobilizing on-task effort, (3) developing task strategies, (4) encouraging task persistence, and (5) setting levels of task proficiency. Consequently, individuals adopting various goal orientations utilize different affective, cognitive, and behavioral patterns during task engagement and performance. Hundreds of studies have supported the basic premise that individuals

committed to specific, difficult goals and who are provided feedback will have higher performance than those with easy or vague goals (Locke and Latham, 2002:357). In this theory, performance is a function of both ability and motivation. Arguing along this light, the academic performance of students in special science classes is a function of both their abilities (cognitive, affective, and others) and their motivation (to succeed).

Conceptual Framework

Figure 1 shows the schematic diagram of this study.

The base frame consisted of the school environment, the sources of data and the period during which this study was conducted. The study was done at the Samar National School, Catbalogan, Samar, involving one hundred sixty five students as respondents out of the two hundred eighty three special science class population, enrolled during the school year 2001-2002.

The next frame contained the whole research process. The smaller frame on the left side is composed of the variates. Each of the variates was correlated with academic performance, the criterion variable, shown at the box on the right side. This relationship is denoted by the double-headed arrow connecting the two frames. These variates were as follow: age, sex, year level, type of school where elementary course was completed, grades in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade in elementary course, DOST qualifying test results, and attitude towards science.

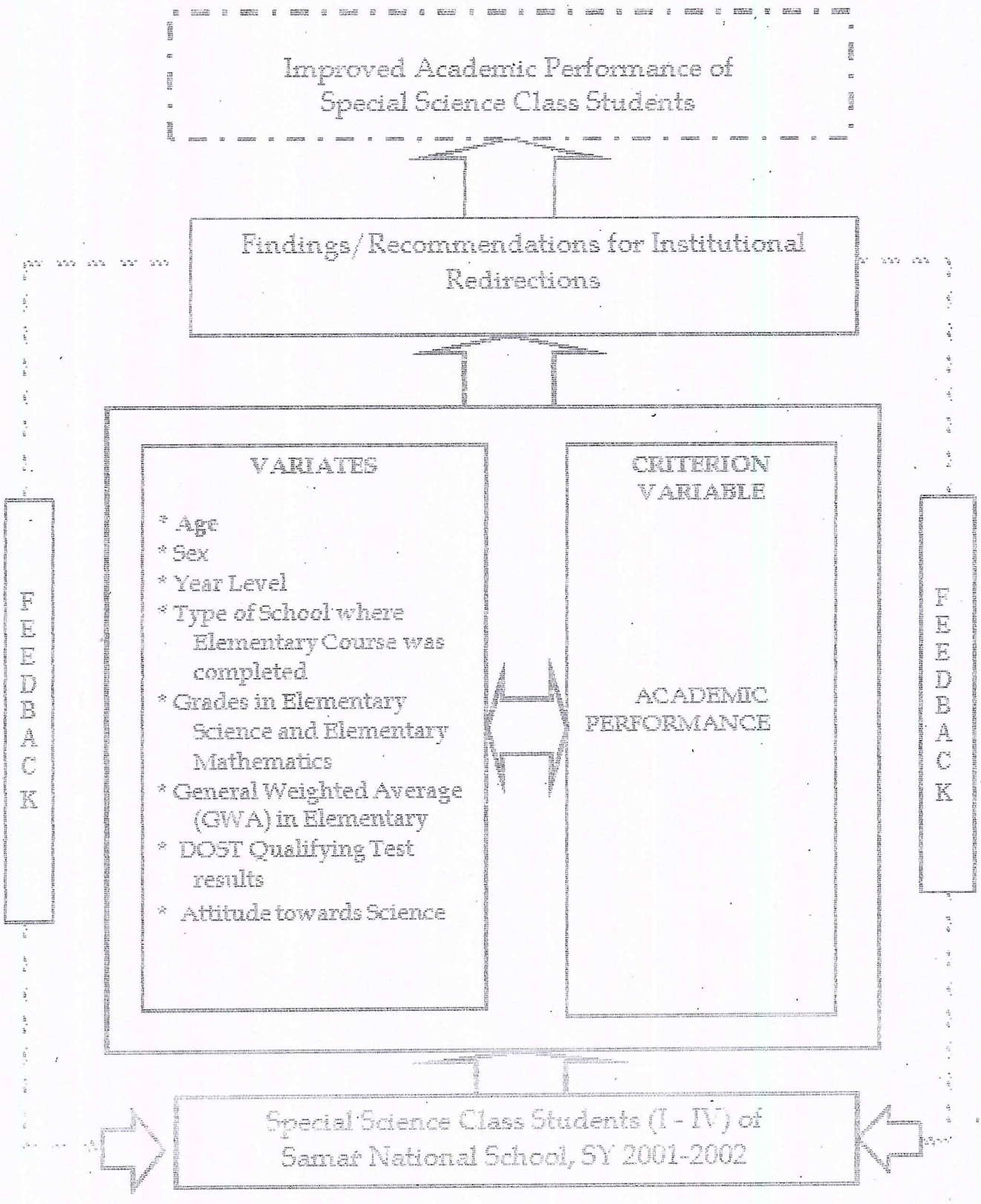

Figure 1. The Conceptual Schema of the Study

After correlating these two variables, the academic performance of the special science class student-respondents were compared using two statistical tools, namely: t-test for independent samples- when there were only two groups to be compared like sex, male and female; and One-way ANOVA for comparison of three or more groups like year level, that is, first, second, third, and fourth year. Differences in academic performance with respect to sex (male and female), attitude towards science (favorable and neutral), and type of elementary school (public and private) were determined using t-test for independent samples, and differences in academic performance with respect to age, year level, grades in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade in elementary, and DOST qualifying test result, and attitude towards science were determined using one-way ANOVA.

The findings of this study served as bases for institutional redirections that would ultimately result in the improvement of performance of special science class students of Samar National School, Catbalogan, Samar.

The frame containing the findings of the study is connected to a feedback frame by a broken arrow to the research environment of the study. This means that whatever findings of the study it would be given to the research environment feedback.

Significance of the Study

The data collected from this study provided valuable insights and practical suggestions to people involved in teaching special science classes:

To the Special Science Class Students. The students would have insights into how their academic performance is influenced by some factors. With these insights, they would be able to devise learning preferences that would improve their academic performance. The research guided them to be equipped with the necessary skills needed in pursuing higher education after graduation from high school.

To the Science Educators. Since the study involved the relationship of certain variables to wit: academic performance, this research proved to be of primary importance in that it guided them to understand the proper and appropriate teaching techniques that would develop every student in a special science class into science oriented students.

To the School Administrators. The results of this study would indirectly benefit the school administrators in terms of baseline information as regard to the factors that influence the students' academic performance. The school administrators would be able to initiate, formulate and propose programs for the improvement of Special Science Curriculum. The present investigation served as the baseline information in creating measures that would increase the attainment of the goals of the special science education.

To the Policy Makers. This study provided insights to policy makers, specifically those connected with the Department of Education (DepEd) and Department of Science and Technology (DOST), to establish programs that would enhance the effectiveness of the special science class curriculum.

To the Parents. The study helped them understand their roles in the development of their children in school. The parents would then develop ways to encourage their children to study more, especially in improving their learning styles.

To the Future Researchers. The results of this study would encourage them to pursue similar study in other fields.

Scope and Delimitation

This study determined the correlates of academic performance of special science class students of Samar National School, Catbalogan, Samar, enrolled during the SY 2001-2002. The correlates investigated included the student-respondents' age, sex, year level, type of school where elementary course was completed, grades in elementary Science and Elementary Mathematics, general weighted average (GWA) grade in their elementary course, DOST qualifying test results, and attitude towards Science.

Moreover, it involved a total of 165 high school students selected at random from all year levels of special science classes. It used as main data gathering instrument an Attitude towards Science Scale adopted from Medina

(1995). The documents scrutinized included Form 137-A (Students' Permanent Records) and DOST qualifying test results. The "Attitude towards Science Scale" was used for determining the degree/level of attitude of student-respondents towards science

The validation period was conducted in October 2001. The study period was school year 2001-2002.

Definition of Terms

To facilitate the readers' comprehension, the following terms, as used in the study, were intended to mean as follows:

Academic performance. This refers to the outcome of education- the extent to which a student, teacher or institution has achieved their educational goals (Webster Dictionary 2003:33). In this study this referred to the average grade of special science students which was their final grade in all subjects taken during the school year multiplied by the units for each subject then divided by the number of units; this was the criterion variable of the study.

Attitudes. This term refers to certain emotionalized responses that determine the nature of conduct in a variety of situations, and cause it to conform to certain general requirements (Kishor; 2000:21). In this study, this referred to the student-respondents' emotionalized responses towards Science measured through their responses in the Attitude towards Science Scale.

Attitude towards science. This refers to personal views or general feeling either favorable or unfavorable about science, its concepts, symbols, and principles. Conceptually, this referred to the 20 positive statements which measured the student-respondents' attitude towards Science reflected in their responses in the Attitude towards Science Scale Questionnaire-Checklist.

Correlates. The term is conceptually defined as phenomenon that accompanies another phenomenon, is usually parallel to it, and is related in some way to it (Merriam Webster Dictionary, 2002) This term refers to bring into mutual or reciprocal relations. As applied to this study, these were the factors which were significantly related with the academic performance of special science class students which included their age, sex, year level, type of elementary school graduated from, grades in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade in elementary, and DOST qualifying test results.

DOST. This is an acronym for Department of Science and Technology.

DOST qualifying test result. This referred to the numerical score obtained by the applicant for special science class from the 200-item test prepared by the Department of Science and Technology (DOST), and administered by the DOST, to Science Education Institute, SEIs schools all over the country. Students whose examination results belonged to the top 100 scores were considered as qualifiers for special science classes.

General weighted average (GWA) grade of elementary course. This was the average grade of students in the elementary course obtained by multiplying the grade per subject by the units divided by the total number of units.

Grades in Elementary Science and Elementary Mathematics. This was the final grade obtained by the special science class students in Elementary Science and Elementary Mathematics found in Form 137-A.

Special science class students. They were the students who qualified and were included in the first 100 top scorers and were officially admitted in Samar National School during the school year 2001-2002 under the Special Sciences Class Curriculum.

Subjects. This referred to the special science class students from all year levels (1st to 4th year students) of Samar National School enrolled during the school year 2001-2002 who were made respondents of this study

Variates. This term is synonymous with the word variables, 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-respondents profile variables/factors each of which were correlated to academic performance of special science student-respondents, which included age, sex, year level, type of elementary school graduated from, grades in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade in elementary, DOST qualifying test result, and attitude towards Science.

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

Significant literature and studies that delved into some aspects of this research were surveyed and reviewed to give better insights on the conduct of the present study. This chapter further discusses foreign and local literature, unpublished materials, journals and references in relation to the present study.

Related Literature

At the outset, human beings have the slowest growth and development (Microsoft Encarta Encyclopedia, 2000). As such, they spend many years in a state of physical immaturity, depending on the care and protection of other people in order to survive. A comparison between a child and other species revealed that during the months the former is learning to walk and run consistent steadiness, the latter have already grown to full maturity. The enormous difference in heredity and maturation between and among species resulted to one of the long-standing debates in psychology- that is, nature versus nurture.

On the other hand, the hereditarianism (nature) stressed that all psychological traits are transmitted directly through the genes from generation to generation (Sevilla, et al, 1988, 195). Based on this assumption, the environment has no significant contribution in human growth and development.

On the other hand, the environmentalists (nurture) claimed that a person's whole being is shaped by how and in what circumstances one is raised or "nurtured" (Sevilla, et. al, 1988:200). She further espoused tat all people were born genetically equal and those later differences among them were only a result of different environmental opportunities. After centuries of debating, the conflict between nature and nurture proved to be unanswerable. Psychologists found out that behavior are not the result of a single cause. Simply put, it is the result of heredity interacting with environment interacting with time (Houston, et. al, 1988:85).

Having basic knowledge of the preceding ideas, the members of the academe will begin to consider, not in a single- or narrow-minded way, but within a broad context, how to educate adolescents or high school students. It is, therefore, significant to gain an insight as to how these students actually think in learning situations. There is, thus, a need to probe into the different stages of cognitive growth.

In the past, the general view was that intelligence was, for all practical purposes, determined prior to birth (Spritthall, 1987:345). It meant that there was nothing left to do with it but accept inborn differences and provide different educational experiences depending on whether the child was fast or a slow learner. This assumption produces damaging effect more specifically on the educational programs of the different schools. The curriculum reflected the idea that "the same material or the same curriculum was given to all students but at

different paces, since the "slower" children would not be expected to learn as much or to go as far as the "faster" children (Shipley, et. al., 1972:10). In view of this predicament, Jean Piaget, a noted psychologist, began to revolutionize an understanding of intellectual growth using direct, careful, and systematic observation of children.

According to Piaget, cognitive growth takes place in developmental stages. The stages of growth are distinctively different from one another, and the content of each stage is a major system that determines the way people understand and make sense of experiences (Sprinthall, 1987:456). Cognitive processes involve changes in an individual's thought, intelligence and language (Baer and Bandura, 1966:14).

Moreover, Piaget emphasized that children actively construct their own cognitive worlds; information is not just poured into their minds from the environment. There are two (2) processes that underlie an individual's construction of the world. First and foremost, children learn the process of assimilation into their existing knowledge. Then, children learn the process of accommodation. It occurs when children adjust too little information (Bee, 1981:451). Take for instance an 8-year-old girl who is given a hammer and nail to hang a picture on the wall. She has never used a hammer but from observation she realizes that it is an object to be held, that is swung by the handle to hit the nail. She then fits her behavior into information she already has. This is a manifestation of the process of assimilation. Yet, when she swings too hard, the

The special science high schools are clearly a response to the much-needed pool of students aware in science (STEP, 1994: 10). These are created to respond to developing more flexible curricula. With the establishment of such schools, the question, then, becomes one of academic performance. There is a need to study the academic performance of students in the said classes based on the cognitive development espoused by Piaget.

Related Studies

Inasmuch as the present study dealt with the assessment of the academic performance of the special science class students of Samar National School, Catbalogan, Samar, considering certain variables, the researcher reviewed the following studies related to this one.

In her dissertation, Laluan (1982) correlated high school grades and NCEE ratings with college grades. With particular emphasis on the students' NCEE ratings, the study revealed that the overall NCEE performance was rated "average" from the scaled used, based on the range of scores from 62.8 to 65.64. On the basis finding, it concluded that NCEE ratings of the students served as valid and reliable index in predicting students' success in college. In addition, the correlation coefficient indicated that the test had a sufficient high predictive validity.

The previous study bore similarity with the present one in that they both aimed to assess academic performance of students. They differed, however, in

several aspects. Firstly, the previous study focused on the academic performance of students in college taking into consideration certain variables whereas this study dealt with academic performance of students in high school, specifically in the special science classes of Samar National School, Catbalogan, Samar. Secondly, while the previous study took as variables the students' high school grades and NCEE ratings, the present research had the following variables: (a) age; (b) sex; (c) year level; (d) type of school where elementary course was completed; (e) grades in elementary science; (f) General Weighted Average (GWA) in elementary course; (g) DOST qualifying test results; and (h) Attitude towards Science.

Alcazar (1988) studied the relationship of entrance examination to college marks. She found out that there was a correlation between the scores of the students in the Mendiola Consortium Accreditation Test for Freshman English (MCAT-FE) and their final ratings in English I. The said study further revealed a substantial or marked relationship as evidenced by the computed correlation coefficient of 0.60. The obtained correlation was found significant both at 0.05 and 0.01 level of significance indicating that MCAT-FE grade can measure a student's performance in English I.

While the previous study dealt with the MCAT-FE result as the sole determinant of academic performance in English I, the present one involved several variables such as age, sex, year level, type of school were elementary course was completed, grades in elementary Science and Mathematics, Grade

Point Average in elementary course, DOST qualifying test results and attitudes toward Science as correlates of academic performance in special science classes of Samar National School. Notwithstanding said difference, the two (2) studies were related insofar as they both assessed academic performance of students.

In the meantime, Manuel (1989) conducted a study among freshmen students of the Philippine Normal College and the relationship between their high school grades and NCEE results and their academic performance in college. She had the following findings: 1) the relationship between academic performance in college and GPA in high school showed a moderate correlation. 2) The relationship between the GSA (NCEE) and academic performance in college showed a moderate correlation. 3) Correlation between academic performance in college and the weighted linear combination of high school grades and the NCEE scores showed a higher correlation when taken singly.

Both studies measured academic performance of students in school. Moreover, the two (2) investigations singled out certain variables that were related to the academic performance of the respondents. They differed, however, in that the predictor variables of the previous study were (a) high school grades and (b) NCEE results. The present study determined the impact of the following variables on the academic performance of students in special science classes: 1) Age; 2) Sex; 3) Year level; 4) Type of school where elementary course was completed; 5) Grades in elementary Science; 6) Grade Point Average in elementary; 7) DOST qualifying test results; and 8) Attitudes toward science.

Ibe (1988), in a seminar in the Graduate School of the Manuel L. Quezon University (MLQU), Manila, came up with a team research that worked on several variables as predictors of academic performance in six (6) universities in Metro, Manila. The team came up with the following conclusions: 1. Students' Pre-college Academic Performance. a) The students' grades in high school revealed that they formed a homogenous group with the mean ratings ranging from 81.14 to 82, the lowest being in Mathematics and the highest in English. b) The students' performance in the NCEE varied significantly. They were considerably better in the mental ability subjects than I the subject proficiency subjects. The highest performance was in AR (602.88) and the lowest was in the Science subject.(488.78). 2. Students' performance in the subjects of the NCEE. a) The scores obtained by the students in the different subjects of the NCEE differed significantly. The most significant mean difference was those between AR and the Science subjects of which AR was higher. The subjects where the mean difference was least significant varied from university to university. b) The test for significant differences between means in the three subject for academic proficiency also revealed that mean differences varied from university to university in samples from MLQU, FEU, UE and FEATI University, with the greatest differences registered were in English and Science. 3. Extent to which High School Grades Influences Performance in NCEE. a) When taken singly, high school grades showed the greatest influence on the mathematics of the NCEE. Next to said subject was on the GSA and English subject. The least that

high school grades could predict was the scores in AR. The least effective predictor of NCEE scores was the high school GPA. b) When taken in combinations, the combination of English, Mathematics, Science and high school GPA was the best. This was followed by the combination of only three predictors, namely; English, Mathematics and Science. The least predictive was a combination of only two variables. The NCEE subjects, with the combination of high school grades could predict best were the English and Science subjects, followed by SYR and the least that they could predict was the AR test of the NCEE. 4. Extent to which High School Grades can Predict College Performance. a) In general, high school grades are very good predictors of the students' performance in college performance in English is a high school rating in Mathematics, College Science by high school ratings in Science and college GPA by high school GPA. b) When taken in combinations, high school grades show more prediction precision as the number of predictors increases, and the combination of high school grades in English, Mathematics and Science plus high school performance. 5. Extent to which NCEE scores can Predict College Performance. a) When taken singly, the best predictor of either college, English grades, college Science or College GPA is GSA and the poorest is the AR subject. b) When taken combinations, the combination of the (6) subjects of the NCEE shows the maximum predictive ability on college performance in all the four (4) subjects treated the highest prediction being with college GPA and the least with college Mathematics grades. 6. Predictors with Maximum Predictive Ability. a)

Whet akin singly, NCEE scores can predict the students' performance in college better that high school grade in all the four (4) subject areas, that is, in English, Mathematics, Science and GPA. b) When taken combinations, the NCEE scores still show greater efficacy in predicting college performance than the high school grades and the combination which predicts best is the combination of the six (6) subjects of the NCEE. (7) Extent to which non-intellective factors such as socio-economic status, autobiographical records, age, sex, type of school attended influence the students' performance. a) Of the first three non-intellective factors considered, that is, socio-economic status autobiographical records and age, the only one that showed significant relationship to college performance is autobiographical record. b) Of the other three non-intellective variables - sex, type of school and places of school attended- sex appears to be the most effective predictor of college performance.

The study of Ibe found significant relationship with the present study in that they both tried to assess how students fare academically using certain variables as predictors. The difference lied on the fact that the previous study involved the scores of the students in the different subjects of NCEE and high school GPA as predictor variables and their performances in the selected subjects in college. By contrast, the present study relied on some variables such as GWA in elementary course, DOST qualifying test result and other similar variables as indices of the special science class students' performance.

Hutapia (1991), in his dissertation, worked on selected variables in predicting Indonesian nursing students' performance in school. The study examined the influence of selected admission variables on the academic achievement of 418 nursing students of Indonesia. These variables included the following: (a) high school (b) scores on college entrance test (CET); (c) institutional factors and (d) demographic variables. The research tried to assess the extent to which said variables affected the students' nursing GPA and program completion. The result of his investigation indicated that high school grade proved to be the most predictive of 1st year nursing students' GPA. Furthermore, two of the six subjects in the College Entrance Test, namely, Biology and Mathematics, significantly predicted the GPA and program completion of the students.

The previous study reviewed resembled the present study in that they both dealt with academic achievements of students in school. Both also instituted certain variables that predicted how students fare in school. The variables differed significantly. The previous study concentrated on high school grades, scores on College Entrance Test, institutional factors and demographic variables. By contrast, the present study concentrated on the ages of the respondents, their sex, year level, the type of school where elementary course was completed, grades in elementary science, WA in elementary course, DOST qualifying test results and attitudes toward Science.

Hubilla (1993) conducted a study entitled "Predictors of the Academic Performance of Freshmen College Science Students." This study sought to determine the factors that can best predict academic performance of freshman students of Centro Escolar University (CEU) in Manila. Moreover, this was a descriptive type of research that involved freshman students enrolled during the 1st semester of school year 1992-1993 in the College of Science of CEU.

The above-mentioned study concluded that 1. The freshman students of the College of Science had an average achievement in high school grade performance and mental ability and a fairy satisfactory rating in overall entrance examination. 2. There is slight relationship that exists between high school grade point average and academic performance. The same relationship exists between overall entrance examination and grade point average I academic subjects. There is a negligible relationship between mental ability and academic performance. 3. The personal characteristics of the students such as age, sex, fathers' educational attainment, mothers' educational attainment and parents' average income do not affect the performance of students in academic subjects. 4. Overall entrance examination and high school grade point average appear to be good predictors of academic performance.

Hubilla's study bore similarity with the present study in that both involved predictor variables for academic performance of students I school. However, they manifested difference in several respects. Firstly, the respondents of Hubilla's study were freshman students of the College of Science of Centro

NMAT and premedical GWA with performance in medical proper, the present study stressed type of school where elementary course was completed, GWA in elementary course, DOST qualifying test result and attitudes toward Science as predictors for students' performance in the special Science classes of SNS, Catbalogan, Samar.

Besides the foregoing studies, Wong's (1994) research entitled "The Correlation between Creativity and Academic Achievement in Science and Arts among gifted High School Students" found to be relevant to the present one. In the said study, creativity refered to the performance of students in the figural Form B of the Torrance Test of Creative Thinking along the dimensions of fluency, elaboration and originality. On the contrary, students' academic achievement pertained to the grades obtained by the students in the 1st semester of school year 1993-1994.

More so, the study concluded the following: 1) the 2nd year students achieved better in science than in arts and their academic achievement in science is more homogenous than in arts. The 3rd and 4th students achieved better in arts than in science and their academic achievement in arts is more homogenous than in science. 2) There is significant difference between high and low creativity score groups among second, third and fourth year students as regards creativity along the dimensions of fluency, elaboration and originality. On the contrary, as far as academic achievements in science and arts are concerned, no significant difference existed between the groups. 3) There is significant difference between

high and low creativity score groups in all year levels studied as regards creativity along the dimension of fluency, elaboration and originality. 4) There is no significant difference between high and low creativity score groups as regards academic achievements in science and arts.

The two (2) studies were related in the sense that they were both concerned with academic achievements in certain subjects. They were not the same, though, in that the predictors of the present study were type of school where elementary course was completed, GWA in elementary among others. The previous study only correlated one variable, which is creativity, with academic achievement.

In 1991, Bautista conducted a study entitled "The Polytechnic University of the Philippines College Entrance Test Numerical Ability Scores and the Grade Point Averages in Freshman Engineering Mathematics Subjects: A Correlational Study". The study mentioned sought to determine the correlation between the numerical ability scores in the Polytechnic University of the Philippines College Entrance Test (PUPCET) and the GPA in freshman mathematics of sophomore engineering students enrolled during the 1st semester of school year 1990-1991. It found out that there was a substantial relationship between the PUPCET numerical ability scores and the GPA in freshman mathematics.

At the outset, both were correlational studies. Moreover, they dealt with the assessment of students' performance. Nevertheless, they exhibited differences. For one, the previous study wanted to find out whether there was a

relationship between the students' PUPCET numerical ability scores and GPA in freshman mathematics whereas the present study correlated several variables with performance of students in the special science classes. Also, they were not alike in the respondents involved and statistical tools employed.

Navarro (1990) centered on the effectiveness of NCEE with individual performance of students in college. In her study "The predictive Validity of the National College Entrance Examination Scores on the performance of Freshman Students in Selected College Courses", she found out that the students excelled in Reading Comprehension but were deficient in Mathematical Ability. General Scholastic Aptitude and Mathematical ability were found to have a strong predictive ability when it comes to college success as compared with Reasoning Ability, Verbal Ability and Reading Comprehension.

Navarro's study resembled that of the present one insofar as they both measured academic performance of students. The difference lied in the fact that the previous research of Navarro dealt with NCEE and performance in college whereas this one centered on several variables and academic performance in special science classes.

Villarin (1996) conducted a study entitled "A Correlation of the DAT-NSAT in the Performance Ratings of Senior Students". The said action research was undertaken to determine the relation between students' achievement in the Division Assessment Test (DAT) and the National Secondary Assessment Test (NSAT). This involved fifty (50) students of Bagong Silangan High School,

Quezon City during the SY 1995-1996. In addition, the DAT first semester scores were compared with the NSAT results of the fifty students under study. Percentages and frequency distribution of the scores were used to show what percent of the total number of students of high or low ratings from both DAT and NSAT rating. There existed a weak positive correlation between the scores in DAT and NSAT. Fifty-two (52) percent of the students saw favorable growth and positive attitudes with scores ranging from high-high to average - above average to average scores. The findings also showed that students who get low ratings in DAT do not necessarily get low NSAT rating. The researcher recommends that teacher-made test be constructed and developed similar to that of the NSAT in order to familiarize students with the type of questions being asked. It will also help facilitate comprehension of instruction or redirections in the NSAT. It was further recommended that part of the textbook and workbooks in Math I to Math IV be developed in a manner similar to that of the NSAT type of questions.

The study of Villarin found significant relationship with the present study in that they both sought to determine the correlation between certain variables They differed, however, in that Villarin's research was focused in the relationship between students' achievement in the Division Assessment Test (DAT) and the National Secondary Assessment Test (NSAT). By contrast, the present investigation centered on the correlation between certain variables such as age, sex, year level, type of school where elementary course was completed and

others and the achievement of the students in the special science classes of Samar National School.

Agatep (1992), in her study entitled "Achievement of Students in College Algebra in Relation to their NCEE and the college Entrance Numerical Test Performance", tried to determine the factors related to the performance of freshman students in College Algebra. The focal point of the study revolved around the relationship between the performance of the freshman students in College Algebra and their NCEE scores and CENT results. One hundred ninety-seven (197) freshmen students selected through stratified random sampling technique were the subjects of the study. Descriptive statistics and inferential statistics were used in analyzing the data.

The findings of the study were as follow: (1) As to the mean performance of the college freshmen in the NCEE, the computer science students rated the highest while the AB Communication Arts students rated the lowest; (2) In the CENT, the computer science students rated the highest, but the Hotel and Restaurant Management students rated the lowest; (3) The mean achievement of the Nursing Students in College Algebra is the highest followed by the Business Computer, Hotel and Restaurant Management, AB-Communication Arts, and the BS-Psychology students; (4) The mean achievement in College Algebra related significantly to the NCEE scores among freshmen student of the computer, nursing and the AB-communication Arts Programs and this is not observed with the students of the BS Psychology, Business and Hotel Restaurant

Management Programs; (5) The study shows that there is a moderate relationship between the NCEE test performance and CENT performance of the college freshmen in the six degree programs; and lastly, (6) The beta weight difference of 0.04 implies that the CENT is more correlated with college algebra than with the NCEE.

Both studies aimed at determining the correlation that existed between variables. They differed in the variables used as foci of the studies. While the previous investigation use the NCEE scores and CENT results in relation to achievement of students in College Algebra, the present one concentrated on the achievement of the students in special science classes and certain variables such as age, sex, year level, type of school where elementary course was finished and other similar predictors.

Sanchez (1988), in the study entitled "Admission and Other Selected Factors as Predictors of Academic Achievement of the College of Education Students", focused on determining the relationships between demographic factors (the school learning environment, college admission requirements and students' expectations) as reflected in their grade point average (GPA). It was conducted in the College of Education (COEd) of the University of Eastern Philippines (UEP) during the School Year 1987-1988. All the students in the Bachelor of Science in Elementary Education were included in the study. This study employed the descriptive research method through correlational survey.

Multiple regressions were used to determine the significant relationship between the selected factors and the academic achievement of students in College.

The study of Sanchez bore similarity with the present study in the methodologies used and in using an admission test result as one of the variables affecting performance. However, the two studies differed in the level of respondents used and the other variables considered in the study.

In the study of Paquiz (1995), the mathematical achievement of the students was correlated with the NCEE performance of 4th year high school students of NTC, SY 1993-1994. Documentary analysis, observations, and interview were utilized in gathering pertinent data. The scores obtained by the students in the achievement tests served as their mathematics achievement. These scores were categorized as above average (AA), average (A) and below average (BA). The CEE performance was determined through the overall percentile rank obtained by the students in different areas of the 1993 NCEE. The overall NCEE performance was categorized as outstanding (O), very satisfactory (VS), satisfactory (S), fairly satisfactory (FS) and poor (P). The statistical tools used to analyze the data were the percentage, mean and chi-square. The findings showed a significant relationship between the mathematics achievement and NCEE performance of the 4th year students of NTC. Majority of the student-respondents perform very satisfactory in NCEE and has average mathematics achievement. They are very good in reasoning but they have to improve in mathematics in order to achieve a VS category. The researcher recommends that

mathematics teachers adapt varied techniques and methods of teaching so as to carry out the objective of the mathematics program effectively. The NTC high school departments' project should include allotting 3-4 minutes of every period for NCEE review wherein teachers give 2 or 3 questions patterned after the NSAT (National Secondary Assessment Test, revised version of NCEE) type of the tests. Student teachers may be tapped to serve as tutors of those who find difficulty in learning mathematics.

The study of Paquiz bore similarity with the present study since both studies used the same methodology and type of instruments in gathering data. The two studies differed in the independent variable considered.

The study of Tabang (1998) entitled "The Entrance Examination Grades of BS Chemistry Students and their Academic Performance in Mathematics, English and Filipino" investigated the relationship between the performance of sixty (60) second year BS Chemistry students of PUP in the entrance examination and their performance in Mathematics, English and Filipino. Descriptive correlational method was employed. DECS Form 18 and Form 137 were used to obtain the average grades of the students in Mathematics, English, and Filipino. The frequency count, percentage, and arithmetic mean were used to describe their profile, academic performance and entrance examination performance. The chi-square test of independence was used to investigate whether or not relationship exists between the variables. The findings show the following: 1) there is no significant relationship between the respondents' mathematics academic

performance and their grades in the entrance examination. 2) The same result is true for English and Filipino academic performance and entrance examination. 3) The mathematics academic performance of the respondents is significantly related only to their parents' monthly income and education attainment but not to their ages and sex. 4) The English academic performance of the respondents in found related to their fathers' educational attainment but not significantly related to their fathers' educational qualification, age and sex. 5) The respondents' academic performance in Filipino is related to the respondents' age and their parents' total monthly income but not to sex ad parents' educational background.

The study of Tabang was similar to the present study since both studies tried to correlate admission test results to performance of students. In the previous study, it was the performance of college students in three subjects, English, Mathematics ad Filipino. The present study, however, involved all subjects in the high school.

The studies reviewed may differ in several aspects with the present study but somehow they contributed much to shed light to the present study.

Chapter 3

METHODOLOGY

This chapter presents the methods and procedures that were used in the research study. Included in this chapter were the detailed descriptions of the following: the research design, the research instruments, validation of the instrument, sampling procedure, data gathering procedure and statistical treatment of data.

Research Design

This study used the descriptive-comparative and correlational design.

Correlational research design was used to establish, describe or explain the existing relationships between academic performance of special science class students and the following profile variates, namely; students' ages, sex, year level, type of school where elementary course was completed, grades in Elementary Science and Elementary Mathematics, General Weighted Average (GWA) in their elementary course, and students' attitude towards science.

Comparative research design was used to explain the differences in academic performance of special science class students considering the aforementioned factors.

The instrument that was utilized included the Attitude towards Science Scale Questionnaire-Checklist to have data on attitude towards science. Documentary analysis was resorted to have data on students' age, sex, year level

enrollment, type of school where elementary course was completed, grades in Elementary Science and Elementary Mathematics, General Weighted Average (GWA) grade in their elementary course, DOST qualifying test result, and academic performance (HSGPA).

The data gathered were analyzed using the following descriptive statistical measures such as the frequency count, percentage, weighted mean, mean, and standard deviation. Inferential statistics such as Pearson Product Moment Coefficient of Correlation, Fisher's t-test, t-test for independent samples, One-way ANOVA and Scheffe's test were used to analyze the data.

The Pearson Product Moment Coefficient of Correlation was used to determine the relationships that existed between academic performance and each of the aforementioned factors and the t-test for independent samples and One-way ANOVA were used to determine significant differences in the academic performance of special science class students with respect to the factors considered.

The r- value, Fisher's t-value, t-value, and F-value obtained had become the basis in the presentation of findings and stating the conclusion and subsequent recommendations.

Instrumentation

The Attitude towards Science Scale Questionnaire-Checklist was one of the instruments used in the gathering of data. Certain documents were also used to gather data on the student-respondents' profile variates.

Attitude towards Science Scale. This was a questionnaire-checklist adapted from Medina (1995). It contained 20 positive towards science attitude statements. The attitude rating was used to measure their manifestation of attitudes toward Science. The students were given five alternatives indicating their reactions to each statement in the scale. The Likert type of summated rating was adapted. The following point assignments to five different types of responses were used to wit: (5) -Strongly Agree; (4) -Agree; (3) -Undecided (Neutral); (2) -Disagree; and (1) -Strongly Disagree.

School Documents. The researcher used the following school documents and proceeded with the documentary analysis.

Students' permanent records (DECS Form 137-A) were scrutinized. This document was the source of the following data: 1) students' ages; 2) sex; 3) students' year level enrollment; 4) type of school where elementary course was completed; 5) grades in Elementary Science and Elementary Mathematics; 6) General Weighted Average (GWA) grade in their elementary course; and 7) students' academic performance in special science class.

DOST qualifying test result was the other document used in this study. This was requested from the SNS-EMIS. The researcher requested a copy of the

results for four consecutive years. These were for SY 1998-1999, 1999-2000, 2000-2001, and 2001-2002 corresponding to the school year the respondents have taken their DOST qualifying examination.

Validation of the Instrument.

The researcher adapted the Attitude towards Science Scale developed by Medina (1995) which was intended for first year college students. It was revised and improved by the researcher in consultation with some science teachers of SNS, her adviser and students taking MAT major in Chemistry. The improved instrument was validated using the "Test-Retest Method" using first year, second year, third year and fourth year high school students belonging to Section 1 at Samar National School (10 students from each year level) were used to validate the instrument using "Test-Retest Method".

The first administration (test) of the instrument was conducted during the first periodical test. A week after it was given to the same respondents (retest). The researcher computed the correlation coefficient for their responses between the first and second administration. If r was high the measurement obtained would be consistent and the instrument would be reliable and valid. The computed correlation was 0.891 which indicated a strong relationship according to Ebel's interpretation.

Sampling Procedure

The researcher used stratified random sampling technique to determine the respondents of the study using year level as the stratum. The sample size adequate for the research study was determined using Sloven's formula [n = N/ (1+Ne^2)]. In the formula, n = desired sample size, N= total population, and e = desired margin of error. The actual respondents/samples of the study were determined by using lottery sampling. Taking into consideration the year level of the students, names of the special science class students were written in small pieces of paper, rolled and place in a box, a total of 165 names corresponding to the total number of respondents were picked out from the box.

Table 1 shows the sampling frame of the study distributed by year level.

Table 1

Sampling Frame of the Study

Year Level	Total Population	Number of Respondents	Percentage
First Year	97	57	34.55
Second Year	55	32	19.39
Third Year	78	45	27.27
Fourth Year	59	31	18.79
Total	289	165	100.00

The total number of respondents using the data on Table 1 was 165. Table 1 showed the distribution of the respondents/samples by year level. As seen in the table, there were 57 respondents or 34.55 percent from the first year, 32 respondents or 19.39 percent from the second year, 45 respondents or 27.27 percent from the third year level, and 31 respondents or 18.79 percent from the fourth year level. There were more respondents who were first year level and few respondents from the fourth year level.

Data Gathering Procedure

The gathering of data proceeded in this manner.

First, the researcher asked permission from the Principal of the Samar National School (SNS), Catbalogan, Samar to conduct the present study to the special science class students, during the school year 2001-2002. The researcher further requested permission from the Principal to get copies of the needed documents such as the students' permanent records (Form 137 -A) and the DOST qualifying test result from SNS, Educational Management Information System (EMIS) Office.

Second, the researcher employed stratified random sampling technique to determine the sample size per year level and lottery sampling to determine the actual respondents of the study.

Third, the Attitude towards Science Scale Questionnaire-Checklist was given to the respondents of the study.

Fourth, after collecting the accomplished questionnaire-checklist on students' attitude towards Science and other pertinent documents, the data were immediately scored, tabulated and analysed.

Statistical Treatment

The data gathered from the respondents were carefully tallied, analyzed, and interpreted qualitatively and quantitatively.

The descriptive statistical tools used were frequency counts, percentage, mean, standard deviation, and weighted mean. Inferential statistical tools included the Pearson Product Moment Coefficient of Correlation (Pearson r), Fisher's t-test, t-test for independent samples, One-way ANOVA, and Scheffe's test.

Frequency Count. This statistical tool was resorted to determine the number of respondents who were of the same age, sex, year level, type of school where elementary course was completed, grades in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade in the elementary course, DOST qualifying test results, level of academic performance of the student in the special science class (general average of all subjects taken) and attitude towards science.

Percentage. This was used in the analysis and interpretation of data on age, sex, type of school where elementary course was completed, grades in Elementary Science and Elementary Mathematics, and etc.

Mean. This statistical measure was used to determine the quantitative characteristics of the respondents like age, grades in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade in their elementary course, and level of academic performance of the special science class student. It was also used to determine the overall attitude towards Science of the special science class student-respondents.

Weighted Mean (WX). This was used to describe the collective perceptions of the special science class student-respondents as regard to their attitude towards science.

Standard Deviation. This statistical measure was used to describe variations of quantitative data from the mean, such data include, age, grades in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade in the elementary course, DOST qualifying test results, level of academic performance of the student in the special science class (general average of all subjects taken).

Pearson Product Moment Coefficient of Correlation (Pearson r). This statistical tool was used to determine the relationships between the academic performances of the special science class students (HSGPA) and each of the following factors: age, sex, year level, type of school where elementary course was completed, grades in Elementary Science and Elementary Mathematics, DOST qualifying test results, and attitude towards science. This formula suggested by (Guilford, 1973:88) was used.

$$r = \sqrt{\frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{[\Sigma X^2 - (\Sigma X)^2][\Sigma Y^2 - (\Sigma Y)^2]}}$$

where:

N = total number of observations

ΣX = the sum of the data of the independent variable

ΣY = the sum of the data of the dependent or criterion variable

ΣX^2 = the sum of the squared values of the independent variable

ΣY^2 = the sum of the squared values of the dependent or criterion variable.

Fisher's t-test. To reject or accept the hypothesis that there is no significant relationship of the computed coefficient of correlation between each of the variates and academic performance of students in special science classes the Fisher's t-test was used. The following formula for Fisher's t-test was used:

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

Where:

t = test of significance

r = the computed correlation

N= number of respondents

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

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

r from ± .20 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

The reliability of the computed correlation was interpreted using the following scale:

Reliability		Degree of Reliability
0.95 - 0.99	-	Very high, rarely found among teacher's made test
0.90 - 0.94	-	High equaled by few test
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 inadequate for individual measurement although useful for group average and school survey

To test the number 2 hypothesis of the study, two statistical tests were used, namely: 1) t-test for independent samples (two groups to compare) and 2) One-way ANOVA (three or more groups to compare).

t-test for Independent Samples. This statistical tool was used to test the number 2 hypothesis of the study on the significant difference in the academic

performance of special science class students with respect to sex (male and female), attitude towards science (favorable and uncertain), and type of elementary school graduated from (public and private). This statistical tool was used to test the hypothesis, "There are no significant differences in the level of academic performance of special science class students with respect to sex, attitude towards science, and type of elementary school graduated from".

The following t-test formula by Bartz (1981: 382) was used:

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - 0}{\sqrt{\frac{N_1S_1^2 + N_2S_2^2}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Where:

t = refers to the computed t- value

$\bar{X}_1$ = refers to the mean of the academic performance (i.e. males)

$\bar{X}_2$ = refers to the mean of the academic performance (i.e. females)

S_1 = refers to the standard deviation of the academic performance of the male group

S_2 = refers to the standard deviation of the academic performance of the female group

N_1 = refers to the number of male- respondents

N_2 = refers to the number of female- respondents

One-way ANOVA. This was used to statistically test whether there were significant differences in the academic performance of the special science class students when grouped with respect to age, year level, grades in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade of their elementary course, and DOST qualifying test results, and attitude towards Science. The formula for the computation of One-way ANOVA is shown in Table 2.

Table 2

Computation Formula for One-way ANOVA

Sources of Variation (S.V.)	Degrees of freedom	Sum of Square (SS)	Mean Squares (MS)	Computed F
Between Groups	k – 1	$SSB = \frac{\Sigma x^2}{Ng} - CF$	$MSB = \frac{SSB}{k-1}$	$F = \frac{MSB}{MSW}$
Within Groups	N – k	$SSW = \Sigma x^2 - CF$	$MSW = \frac{SSW}{N-k}$	
Total	N-1	$SST = \frac{\Sigma xij^2}{N-1} - CF$		

Scheffe's Test. When the hypothesis tested using ANOVA is rejected it will necessarily mean further testing to find exactly where the significant difference lies when comparing the means of the groups, i.e. excellent, very good, and good performers special science class students.

The Scheffe's method of multiple comparisons (Padua, 1976: 234) was used. The formula is as follows:

$$F = \frac{(X_i - X_j)^2}{MSw \times (1/Ni + 1/N_j)}$$

Where:

F = Scheffe test ratio

MSw = within group sum of squares

X_i = Mean of the i group

X_j = Mean of the j group

N_i = Number of cases of the i group

N_j = Number of cases of the j group

An alpha level of 0.05 was used to determine the statistical significance of the relationships between the level of academic performance of the special science class student-respondents and each of their profile variates. Also, it was used to determine the statistical significance of the differences in academic performance of the special science class student-respondents with respect to the profile variates. All the data was processed using statistical software.

Chapter 4

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter presents, analyzes and interprets the data gathered. This includes the presentation and discussions of the profile of the student-respondents and the level of academic performance of students in special science classes. This also includes the tests of hypotheses.

Profile of Students of Special Science Classes

The profile of the student-respondents is presented in terms of age, sex, year level enrollment, school type where elementary course was completed, average grade in Elementary Science and Elementary Mathematics, general weighted average (GWA) grade in their elementary course, DOST qualifying test result, and attitude towards science. This is presented in the next five tables.

Table 3 presents the age and sex profile of the special class student-respondents.

Age. Table 3 shows the data on the ages of the respondents of the study. It can be gleaned from the table that most of the respondents are 15 years old with a frequency of 43 or 26.06 percent. This is followed by 14 years old students with a frequency of 40 or 24.24 percent, and 12 years old with a frequency of 39 or 23.64 percent. The remaining respondents are 13 years old (29 or 17.58 percent), 16 years old (13 or 7.88 percent), and 11 years old (1 or 0.61 percent).

Table 3

Distribution of the Respondents According to Age and Sex

Age (in years)	SEX				Total	
	Female		Male			
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
16	11	6.67	2	1.21	13	7.88
15	33	20.00	10	6.06	43	26.06
14	22	13.33	18	10.91	40	24.24
13	21	12.73	8	4.85	29	17.58
12	31	18.79	8	4.85	39	23.64
11	1	0.61	0	0.00	1	0.61
Total	119	72.12	46	27.88	165	100.00
Mean					13.77 yrs.	
SD					1.29 yrs.	

On the whole, the respondents mean age is 13.77 years old, which indicate that the respondents are quite young. The standard deviation yield a value of 1.29 years considering that the respondents were from four-year levels this spread of their ages is quite close.

Sex. The same table reflects the distribution of the sex of the student-respondents. Based on Table 3, majority of the student-respondents were females. Of the 165 student-respondents of this study, 119 respondents or 72.12 percent were females. On the contrary, 46 respondents or 27.88 percent were males. The result shows that there were more female respondents than males.

Table 4 presents the year level enrollment of the special science class student-respondents and type of elementary school graduated from.

Year Level Enrollment. The 165 respondents of the study were distributed according to their year level enrollment, as shown in Table 4. As reflected in the table, a total of 57 respondents or 35 percent of the sample were from the first year level. Moreover, 32 students or 19 percent were enrolled as second year students. Forty-five or 27 percent of the sample were third year students whereas 31 students or 19 percent of the sample were in their fourth year level. The data shows that there were more student-respondents from the first year level and few respondents from the fourth year level.

School Type where Elementary Course was Completed. Table 4 also reflects the distribution of respondents according to school type where elementary course was completed.

As can be seen from the table, for the first year respondents, 54 were graduates from public elementary schools, with only three of them from private

Table 4

Distribution of Respondents according to Year Level Enrollment and School Type where Elementary Course was Completed

Year Level	Type of School where Elem. Course was Completed				Total	
	Public		Private			
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
First Year	54	32.73	3	1.82	57	34.55
Second Year	27	16.36	5	3.03	32	19.39
Third Year	43	26.06	2	1.21	45	27.27
Fourth Year	26	15.76	5	3.03	31	18.79
Total	150	90.91	15	9.09	165	100.00

elementary schools. For the second year students, 27 were from public elementary schools whereas only five were graduates of private elementary schools.

Insofar as the third year respondents were concerned, 43 students graduated from public elementary schools while the remaining two were from private elementary schools. Lastly, the fourth year respondents had 26 coming from public schools for their elementary education while five of them were graduates of private elementary schools.

On the whole, 150 students or 90.91 percent were graduates of public elementary schools and 15 students or 9.09 percent were coming from private elementary schools.

This implied that most of the students admitted to the special science classes of Samar National School, Catbalogan, Samar completed their elementary course in public elementary schools with only very few of them from private institutions. This must be because most parents availed of public elementary education than private elementary education.

The respondents' average grade in Elementary Science, Elementary Mathematics, and general weighted average (GWA) grade in their elementary course is presented in Table 5.

Average Grade in Elementary Science. The distribution of the respondents according to their average grades in Elementary Science is shown in Table 5. As reflected in the table, no student obtained an average grade in

Elementary Science of 79 and below interpreted as poor performance. This must be because one of the criteria in the admission of the students to the special science curriculum is that only students with average grades of 80 or better in Elementary Science should be admitted.

Moreover, 45 or 27.27 percent of the respondents got an average grade in Elementary Science of 89-91 which is interpreted as "good" (for a grade of 89) and very good for grades of 90 and 91), 40 or 24.24 percent of the respondents got an average grade in Elementary Science of 92-94 interpreted as "very good".

Table 5

Distribution of Respondents According to Average Grade in Elementary Science and Elementary Mathematics

	Elementary Science		Elementary Mathematics	
Grade	Frequency	Percent	Frequency	Percent
98-100	1	0.61	1	0.61
95-97	4	2.42	5	3.03
92-94	40	24.24	22	13.33
89-91	45	27.27	31	18.79
86-88	41	24.85	41	24.85
83-85	15	9.09	36	21.82
80-82	19	11.52	29	17.58
Total	165	100.00	165	100.00
Mean	88.49		87	
SD	4.01		4.26	

Legend:

95-above	-Outstanding
90-94	-Very good
85-89	-Good
80-84	-Fair
75-79	-Poor
74-below	-Not passing

Forty-one or 24.85 percent of the respondents had an average grade in the said subject from 86-88 interpreted as "good", while 15 or 9.09 percent obtain average grade in the same subject from 83-85 interpreted as fair (for a grade of 83 1and 84), and good (for a grade of 85). The remaining respondents, 19 of them (11.52 percent) have average grade from 81-82 interpreted as fair performance, and five of them have an average grade in Elementary Science of 95 and higher than 95 interpreted as excellent performance. The mean grade obtained for Elementary Science is 88.49, which shows that majority of the students in special science class have good grades in Science.

Average Grade in Elementary Mathematics. The distribution of the respondents according to their average grades in Elementary Mathematics is shown in the same table.

As reflected in the same table, no student obtained an average grade in Elementary Mathematics of 79 or lower interpreted as poor performance in the subject.

Moreover, 41 or 24.85 percent of the respondents got an average grade in Elementary Mathematics from 86-88 interpreted as "good", 36 or 21.82 percent of the respondents have average grade in Elementary Mathematics from 83-85 which is interpreted as fair (for grade of 83 and 84) and good (for a grade of 85). Thirty –one respondents obtain a grade from 89-91 which is interpreted as good (for grade of 89) and very good (for grade of 90 and 91). Six respondents obtain average grade in Elementary Mathematics interpreted as excellent. 29 or 17.58

percent have fair performance in Elementary Mathematics for their average grade obtained is from 80-82.

The mean grade in the said subject is 87 which show that majority of the students in the special science class have "good" grades in Elementary Mathematics. The SD obtained is 4.26, which indicated that the grades of the respondents in Elementary Mathematics are slightly dispersed from the mean grade obtained for the same subject. The table implied that majority of the students admitted to the special science classes is at least average students; they had grades in Elementary Mathematics of 80 and better.

General Weighted Average (GWA) Grade in the Elementary Course.

Table 6 reveals the distribution of the respondents according to their general weighted average (GWA) grade in their elementary course.

The table shows that the highest general weighted average grade obtained by three of the student-respondent is 96 and the lowest GWA grade in the elementary is 85 and 45 of the 165 student –respondents have this as their grade. Moreover, it shows that all of the 165 student-respondents have a GWA grade in the elementary course from 85 to 96. Since, only students with a general weighted average in their elementary course of 85 or higher are allowed to take the DOST qualifying test. The mean obtained for the general weighted average grade in elementary is 88.44 which show that the respondents have general weighted average grade in their elementary course interpreted as "good".

Table 6

Distribution of Respondents According to the General Weighted Average (GWA) Grade in Elementary Course

Scores	Frequency	Percentage
96	3	1.82
95	7	4.24
94	8	4.85
93	7	4.24
92	11	6.67
91	12	7.27
90	10	6.06
89	11	6.67
88	15	9.09
87	12	7.27
86	24	14.55
85	45	27.27
Total	165	100.00
Mean	88.44	-
SD	4.48	-

Legend:

95-above -Outstanding
90-94 -Very good
85-89 -Good
80-84 -Fair
75-79 -Poor
74-below -Not passing

DOST Qualifying Test Scores. Table 7 shows the result of the distribution of scores of the student-respondents in the 200-item DOST Qualifying Test.

As shown in the table, the highest score in the DOST qualifying test belong to the score interval 130-139, and the lowest score is from the score interval 40-49.

Table 7

Distribution of Respondents According to DOST Qualifying Test Scores

DOST Test Scores	Frequency	Percentage
130-139	2	1.21
120-129	5	3.03
110-119	7	4.24
100-109	10	6.06
90-99	12	7.27
80-89	24	14.55
70-79	41	24.85
60-69	32	19.39
50-59	30	18.18
40-49	2	1.21
Total	165	100.00
Mean	77.23	
SD	19.52	

Legend:
200 - Outstanding
160-199 - Very High
120-159 - High
80 -119 - Average
40-79 - Low
0-39 - Very Low

The data reveal that most of the respondents (41 students) scored from 70-79, this is followed by 32 respondent with scores from 60-69, and 30 respondents with scores from 50-59. These DOST scores were considered low scores including a score ranging from 40-49 which was the scores obtained by two of the respondents.

Some of the respondents obtained DOST Qualifying Test scores from 80-119 considered as average score in the 200-item test. These scores were

distributed as follows: 24 of the respondents have scores from 80-89, 12 respondents have scores from 90-99, 10 respondents have scores from 100-109, and 7 respondents obtaining scores of 110-119

Only a total of seven respondents obtained scores considered as high score, five respondents with scores from the interval 120-129, and two respondents with scores from the interval 130-139.

The data shows that most of the students admitted to the special science curriculum at Samar National School have DOST scores greater than 40 but less than 100 of the 200-item test. This implies that the student-respondents admitted to the special science classes are just average students based on their scores in the DOST qualifying test. This must be because the selection of students in special science class is dependent on the cut-off score which is the top 100 scorers from the takers.

Attitude towards Science. Table 8 shows the distribution of the respondents according to their attitude towards science.

The twenty attitude statements obtained weighted mean rating from 3.51-4.50 interpreted as "agree" which indicate that the student-respondent have highly favorable attitude towards Science. The first six statements which obtained the highest weighted mean rating are: 1) I don't get bored in a science class-4.45, 2) I enjoy my science class so I attend my class regularly-4.44, 3) I believe that science is the easiest to learn-4.43, 4) I find science an interesting subject-4.43, 5) I

Table 8

Student-Respondents' Attitude towards Science

Attitude Statements	Weighted Mean	Interpretation
1. I find science an interesting subject.	4.43	A
2. Science is stimulating and challenging subject.	4.39	A
3. I enjoy my science class so I attend my class regularly.	4.44	A
4. I don't get bored in a science class.	4.45	A
5. Science develops my ability to think critically and reason out correctly.	4.32	A
6. I feel relaxed and comfortable when reading my science lessons.	4.39	A
7. I feel happier in my science class than in other class.	4.07	A
8. I wish I could take more science subjects other than those offered in my course.	3.94	A
9. I find that the allotted time is just enough for studying science.	4.40	A
10. I understand science very well if I study it.	4.02	A
11. Science develops in me a feeling of superiority and self-importance.	4.20	A
12. I believe that science is the easiest to learn.	4.43	A
13. Science is the most important subject.	4.30	A
14. I can solve science problems without the help of somebody.	3.98	A
15. I study my science lessons regularly.	4.50	A
16. Science makes me feel relaxed, happy and very comfortable.	4.40	A
17. I found textbooks in science very interesting.	4.32	A
18. I believe that science is needed in my daily life.	4.26	A
19. I feel alive and alert in my science class.	4.07	A
20. Science is one of my favorite subjects.	3.82	A
Grand Total	84.68	-
Grand Mean	4.26	A

Legend:

4.51 - 5.00	Strongly Agree (SA)/Extremely Favorable Attitude (EFA)
3.51 - 4.50	Agree (A)/Highly Favorable Attitude (HFA)
2.51 - 3.50	Undecided (U)/Moderately Favorable Attitude (MFA)
1.51 - 2.50	Disagree (D)/Less Favorable Attitude (LFA)
1.00 - 1.50	Strongly Disagree (SD) /Unfavorable Attitude (UA)

find that the allotted time is just enough for studying science-4.40, and 6) Science makes me feel relaxed, happy and very comfortable-4.40. The result shows that the respondents have highly favorable attitude towards science, as shown by the grand mean posted at 4.26, interpreted as "agree".

Academic Performance of the Student-Respondents

The distribution of the respondents according to their level of academic performance is shown in Table 9.

Table 9

Respondents' Level of Academic Performance in Special Science Class (Average Grade Obtained in Subjects Taken)

Academic Performance (Average Grade)	Frequency	Percentage
95-97	2	1.21
92-94	34	20.61
89-91	31	18.79
86-88	42	25.45
83-85	30	18.18
80-82	26	8015.76
Total	165	100.00
Mean	87.42	-
SD	4.15	-

Legend:

95-above -Outstanding
90-94 -Very good
85-89 -Good
80-84 -Fair
75-79 -Poor
74-below -Not passing

Two or 1.21 percent has outstanding performance obtaining an average grade from 95-97. Thirty-four respondents have "very good" performance or they obtain an average rating from 92-94, while 31 or 18.79 percent student-respondents obtained good (average grade of 89) and very good performance rating (average grade of 90 and 91).

Moreover, 26 or 15.76 percent of the respondents got fair performance (80-82), and 42 or 25.45 percent of the respondents have average grade from 86-88 indicating a good performance, and 30 or 18.18 percent of the respondents have fair performance (average grade of 83 and 84) and good performance (average grade of 85). On the whole, majority of the special science class student-respondent have "good" performance in school.

The table implied that students admitted to the special science classes should have "good" academic performance in school otherwise if they cannot maintain the average grade requirement they will be transferred to the regular class.

Relationships between the Academic Performance of the Student-Respondents and their Profile Variates

The results of the Pearson Product Moment Coefficient of Correlation for the relationship between students' academic performance (HSGPA) and each of the following profile variates: age, sex, year level enrollment, school type where elementary course was completed, grades in Elementary Science, grades in

Elementary Math, general weighted average (GWA) grade in elementary, DOST Qualifying Test result, and attitude towards science are presented in Table 10.

Age. The result of the computation of the correlation between ,the students' academic performance and their age is shown in Table 9. The obtained r- value for students' academic performance and their age is -0.22 indicating a "low" but significant relationship using the table of critical values of r (Appendix D). An r- value equal to 0.138 is significant at df = 163 α =0.05 (two tailed test).

Table 10

Results of the Correlation Analysis between Students' Academic Performance and Each of the Profile Variates

Academic Performance & Profile Variates	r-value	t-value	Evaluation	Decision
Age	-0.224	13.10	S	Reject Ho.
Sex	0.101	1.30	NS	Accept Ho.
Year Level Enrollment	0.26	3.52	S	Reject Ho
School Type where Elementary Course was Completed	0.200	2.61	S	Reject Ho.
Grades in Elementary Science	0.340	4.62	S	Reject Ho.
Grades in Elementary Mathematics	0.410	5.74	S	Reject Ho
GWA Grade in Elementary	0.439	6.24	S	Reject Ho.
DOST Qualifying Test Result	0.493	7.24	S	Reject Ho.
Attitude towards Science	0.194	2.53	S	Reject Ho

r critical = 0.138, α = 0.05, df = 163
t crit = 1.96, α = 0.05, df=163 (2-tailed)

0.266, which, based on the significant r-value of 0.138 for df=163, α =0.05, is interpreted as significant relationship. The computed t-value is 3.52, which value is greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed). The computed t-value based on the r- value obtained is significant. This led to the rejection of the null hypothesis, "There is no significant relationship between the student-respondents level of the academic performance in special science class and their year level enrollment". This must be because to be in the special science class, or to stay in said class, one has to maintain a grade point average of 83 or better. Thus, a student who is promoted to a higher year level in the special science class has to satisfy the grade requirement, which would mean that he/she has to perform what is expected of him/her.

Type of Elementary School where Elementary Course was Completed.

With respect to the relationships of academic performance of special science class students and type of school where elementary course was completed, the obtained r was 0.20, which is significant based on the critical r-value which is 0.138 at df = 163, α = 0.05. The computed t-value based on the obtained r-value was 2.61. This value is greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed). Based on the result of the computation, there was a significant relationship between student-respondents academic performance in special science class and type of school where elementary course was completed. This means that the type of school where elementary course was completed matter with respect to the academic performance of the student-respondents in a special

science class. This must be because the public elementary schools where most of the special science class students came from offered adequate training and opportunities for the pupils to develop and harness their potentials which equaled or even surpassed, the training given in the private elementary schools and this served as their passport in high school.

Grade in Elementary Science. For the relationships between academic performance of special science class students and grade in Elementary Science, the obtained r was 0.34. This value of r is greater than the critical r-value which is 0.138 at $df = 163$, $\alpha = 0.05$, which means significant relationship existed between the variables correlated. The computed t-value based on the r-value was 4.62. This is greater than the critical t-value of 1.645, $df = 163$, $\alpha = 0.05$ (two tailed), which led to the rejection of the null hypothesis, There is no significant relationship between academic performance of special class students and grade in Elementary Science. This means that the student-respondent, who had stronger foundation in Elementary Science, as evidenced by their grades in Elementary Science, had better academic performance in the special science class. In simpler terms, a student with better grade in elementary science had an edge in terms of academic performance in the special science curriculum considering that the curriculum is Science based.

Grade in Elementary Mathematics. For the relationship between academic performance in a special science class and grades in Elementary Mathematics, the obtained r-value is 0.410, this r-value is greater than the critical

r-value, which is 0.138 at df = 168, α = 0.05. The relationship between the variables is significant. The computed t-value is 5.74, which was greater than the critical t-value of 1.645, df = 168, α = 0.05 (two tailed). The null hypothesis, "There is no significant relationship between students' academic performance in special science class and grades in Elementary Mathematics" is rejected.

This means that the student-respondents, who had good foundation in elementary Mathematics, had better academic performance in a special science curriculum in high school. This must be because Mathematics is considered as the most difficult subject in high school. A good foundation in Mathematics as evidenced by the grade in Elementary Mathematics will lead to better academic performance in high school.

General Weighted Average (GWA) Grade in the Elementary Course. The relationship between students' academic performance and the general weighted average (GWA) grade in the elementary course obtained an r = 0.439. This r-value is greater than the critical r-value, which is 0.138 at df = 168, α = 0.05. The relationship between the variables correlated is significant based on the critical r-value. The computed t-value was 6.24, which was greater than the critical t-value of 1.645, at df = 168, α = 0.05 (two tailed. The null hypothesis, "There is no significant relationship between students' academic performance in special science class and general weighted average (GWA) grade in the elementary course" is rejected. This means that student-respondents admitted to the special science class with high general weighted average (GWA) grade in

their elementary course will have a better academic performance in special science class.

DOST Qualifying Test Results. The relationship between academic performance of a special science class student and DOST qualifying test score yielded an r-value of 0.493. This obtained r-value is greater than the critical r-value, which is 0.138 at df = 163, α = 0.05. The relationship is significant. The t-value of 7.24 obtained was greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed), which denote that the r-value obtained is significant. The null hypothesis, "There is no significant relationship between students' academic performance in special science class and DOST qualifying test score" is rejected. This means that the student-respondents who earned better scores in the DOST qualifying test indicate better academic performance in high school. This must be because the DOST Qualification Test is a valid and reliable test. It can predict students who will succeed in the special science curriculum.

Attitude towards Science. The relationship between the student-respondents' level of academic performance in special science class and level of attitude towards Science obtained an r-value of 0.194, which is greater than the critical r-value, which is 0.138 at df = 163, α = 0.05. The computed t-value was 2.53, which was greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed). This t-value is interpreted as "significant". The null hypothesis, "There is no significant relationship between students' level of academic performance in special science class and level of attitude towards Science" is rejected. This

means that attitude towards Science is related to the academic performance of the student-respondents. This implies that a student who had a favorable attitude towards Science had a better academic performance in school. On the contrary, a student with unfavorable attitude towards Science will not have good performance in school.

On the whole, of all the students' profile variates correlated with their academic performance in special science class, only sex of the student-respondents is not significantly related.

Comparison of Academic Performance of Students in Special Science Class with respect to the Profile Variates

The academic performance of the special science class students were compared with respect to the profile variates. Two statistical tools were used-the t-test for independent samples (compares two groups) and the One-way ANOVA (compares three or more groups). For comparative analysis of academic performance of the special class students relative to sex (i.e. male and female), attitude towards Science (i.e. highly favorable, moderately favorable), and type of school where elementary course was completed (i.e. public and private), the t-test for independent sample was used.

The One-way ANOVA was used for comparative analysis of the academic performance of special science class respondents grouping them as to their ages (16, 15, 14, 13, 12, and 11 years old), as to year level enrollment (first year, second

year, third year, and fourth of), as to grades in Elementary Science, and grades in Elementary Mathematics (98-100, 95-97, 92-94, 89-91, 86-88, 83-85, and 80-82), as to general weighted average (GWA) grade in elementary (96, 95, 94, 93, ... , 85), as to DOST qualifying test scores (130-139, 120-129, 110-119, 100-109, 90-99, 80-89, 70-79, 60-69, 50-59, and 40-49).

Age. Table 11 reveals the result of the One-way ANOVA for the comparison of the academic performance of the special science class student-respondents grouped with respect to their ages.

As gleaned from the table, the mean square between groups of 15.69 turned greater than the mean square within groups of 6.04. These values yielded a computed F-value of 2.60, which is less than the critical F-value of 3.05 at .05 level of significance, df = 2 and 162. This led to the acceptance of the null hypothesis, "There is no significant difference in the level of academic performance of the special science class students with respect to their age". This

Table 11

Comparison of the Academic Performance of Special Science Class Student-Respondents Grouped with Respect to their Age

Sources of Variation	SS	Df	MS	F value	F Crit
Between Groups	31.37	2	15.69	2.60	3.05
Within Groups	979.08	162	6.04		
Total	1010.45	164		(Accept Ho.)	

means that the academic performance of special science class students whose age is 16, 14, or 11 allowing for small differences in their ages do not significantly differ within year level or even across year level. For example, the grade obtained as academic performance of a 13-year old and an 11-year old first year special science class students are essentially the same.

Sex. Table 12 reveals the result of the t-test for independent samples used for comparison of academic performance of female special science class student-respondents and the academic performance of the male special science class student-respondents.

As seen in the table, the academic performance of the female special science class student-respondents is 89.66, while the mean of the academic performance of the male special science class students is 89.09. The mean difference of the performance of the female and the male student-respondents is

Table 12

Comparison of the Academic Performance of Male and Female Student-Respondents

Statistics	Female	Male
Mean	89.66	89.09
Variance	6.01	6.22
Observation	118	45
Mean Difference	0.57	
Df	163	
t Stat	1.31	
t Critical two tail	1.97	
Evaluation	Not Significant	
Decision	Accept Ho.	

equal to 0.57. This mean difference tested for significance using the t-test resulted to a t-value equal to 1.31. This value is less than the critical t-value of 1.97, at .05 level of significance, df=163 (two-tailed) interpreted as "not significant". The hypothesis, "There is no significant difference in the academic performance of the special science class students with respect to sex". This implies that male and female special science class students do not differ in academic performance. This must be because both sexes are combined in a special science class or there is no separate class which caters to female only or to male students only. The special science class is a mixed class as to sex or it is a combination of male and female students which are exposed to the same learning content.

Year Level Enrollment. Table 13 reveals the result of the One-way ANOVA for the comparison of the academic performance of the special science class students grouped with respect to year level enrollment.

As gleaned from the table, the mean square between groups of 102.59 turned greater than the mean square within groups of 4.37. These values yielded a computed F-value of 23.49 which is greater than the critical F-value of 2.67 at .05 level of significance, df = 3 and 162. This led to the rejection of the null hypothesis, which states that "there is no significant difference in the level of academic performance of the special science class students with respect to their year level enrollment"

Table 13

Comparison of the Academic Performance of Special Science Class Student-Respondents Grouped with Respect to their Year Level Enrollment

Sources of Variation	SS	Df	MS	F-value	F crit
Between Groups	307.56	3	102.53	23.49	2.67
Within Groups	702.86	162	4.37		
Total	1010.45	165		(Reject Ho.)	

Testing further the significance of the difference in academic performance of special science class students, Table 14 shows the result of the computation using Scheffe's test to determine which pair of means yielded significant variations in the academic performance of the four different year levels. Six pairs of means were compared to determine where the significant difference lies.

For Pair 1- Fourth Year vs. Third Year, the difference between the sample means is 2.75, the computed F-value is 31.79, which is greater than the critical F= 2.66 interpreted as "significant".

For Pair 2- Fourth Year vs. Second Year, the difference between the sample means is -0.04 with a computed F-value is 0.01, which is less than the critical F= 2.66 interpreted as "not significant".

For Pair 3- Fourth Year vs. First Year, the difference between the sample means is equal to 2.82, the computed F-value is 36.59, which is greater than the critical F= 2.66 interpreted as "significant".

Table 14

Scheffe's Test of the Significance of the Comparisons of the Academic Performances of the Special Science Class Student-Respondents Compared with Respect to Year Level

Groups Compared	Mean Difference	Scheffe's Value		Evaluation
		Computed	Critical	
4th year vs. 3rd year	2.75	31.79	2.66	Significant
vs. 2nd year	-0.04	0.01	2.66	Not Significant
vs. 1st year	2.82	36.59	2.66	Significant
3rd year vs. 2nd year	-2.79	33.34	2.66	Significant
vs. 1st year	0.07	0.03	2.66	Not Significant
2nd year vs. 1st year	2.86	38.41	2.66	Significant

For Pair 4- Third Year vs. Second Year, the difference between the sample means is equal to -2.79, the computed F-value is 33.34, which is greater than the critical F= 2.66 interpreted as "significant".

For Pair 5- Third Year vs. First Year, the difference between the sample means is 0.07, the computed F-value is 0.03, which is less than the critical F= 2.66 interpreted as "not significant".

For Pair 6- Second Year vs. First Year, the difference between the sample means is equal to 2.86, the computed F-value is 38.41, which is greater than the critical F= 2.66 interpreted as "significant".

Type of Elementary School Graduated From. For the comparison of academic performance of special science class students with respect to type of

Table 15

Comparison of the Academic Performance of Public and Private Elementary School Graduates Special Science Class Students

Statistics	Public	Private
Mean	89.37	91.10
Variance	6.23	3.42
Observation	148	17
Mean Difference	1.74	
Df	163	
t Stat	-2.78	
t Critical two tail	1.97	
Evaluation	Significant	
Decision	Reject Ho.	

elementary school graduated from, the mean obtained for the academic performance of the special science class students who were graduates from public elementary school is 89.37, while the mean of the academic performance of the special science class students who were graduates of private elementary school is 91.10, the mean difference of the performance of those students who graduated from public elementary school and private elementary school is equal to 1.74. This mean difference tested for significance using the t-test resulted to a t-value equal to -2.78. This value (absolute value) is greater than the critical t-value of 1.97 (two-tailed) interpreted as "significant". This led to the rejection of the null hypothesis, "There is no significant difference in the academic performance of the special science class students with respect to type of elementary school graduated from". This implies that special science class students who graduated

from the public elementary schools were much better in terms of academic achievement in the special science curriculum compared to those who were graduates of private elementary schools. This only indicates that the students admitted to the special science class curriculum that were product of the pilot elementary schools of Catbalogan have much better chances of not eliminated from the curriculum.

Grades in Elementary Science. Table 16 reveals the comparison of the academic performance of the special science class students grouped with respect to grades in Elementary Science using the One-way ANOVA.

As gleaned from the table, the mean square between groups of 61.60 turned greater than the mean square within groups of 5.48. These values yielded a computed F-value of 11.25, which is greater than the critical F-value of 3.05 at .05 level of significance, df = 2 and 163. This led to the rejection of the null hypothesis, which state that "there is no significant difference in the level of

Table 16

Comparison of the Academic Performance of Special Science Class Student-Respondents Grouped with Respect to their Grades in Elementary Science

Sources of Variation	SS	Df	MS	F-value	F crit
Between Groups	123.19	2	61.60	11.25	3.05
Within Groups	892.73	163	5.48		
Total	1015.92	165		(Reject Ho.)	

academic performance of the special science class students with respect to their grades in Elementary Science".

Grouping respondents with respect to their grades in Elementary Science, the special science class students' academic performance significantly differ. Students with better grades in Elementary Science have greater chance of having good performance in the special science curriculum. This must be because if their science foundation in the elementary grades is good the concept that they have learned in Science is just reinforced when they go to high school. Since, the special science curriculum is science based it is favorable for students who are good in science at the start with the assumption that the grades in Elementary Science are representative of their performance in the subject.

Further testing using the Scheffe's test to determine which mean differences between pair of means compared are significant, Table 17 shows this result.

Table 17

Scheffe's Test of the Significance of the Comparisons of the Academic Performances of the Special Science Class Student-Respondents Compared with Respect to Grades in Elementary Science

Groups Compared	Mean Difference	Scheffe's Value		Evaluation
		Computed	Tabular	
Excellent vs. Very Good	0.84	1.19	3.05	NS
Very Good vs. Good	1.57	16.36	3.05	S
Excellent vs. Good	2.40	10.42	3.05	S

Three pairs of means were compared to determine where the significant difference lies. For Pair 1- Excellent vs. Very Good academic performance, the computed F-value is 1.19, which is less than the critical F= 3.05 interpreted as "not significant".

For Pair 2- Excellent vs. Good performance, the difference between the sample means is equal to 2.40, the computed F= 10.42, which is greater than the critical F= 3.05 interpreted as "significant".

For Pair 3- Very Good vs. Good Performance, the difference between the sample means is 1.57, the computed F-value is 16.36, which is greater than the critical F= 3.05 interpreted as "significant".

Grades in Elementary Mathematics. The comparison of the academic performance of special science class students grouped with respect to grades in Elementary Mathematics is presented in Table 18.

As gleaned from the table, the mean square between groups of 88.58 turned greater than the mean square within groups of 5.14. These values yielded

Table 18

Comparison of the Academic Performance of Special Science Class Student-Respondents Grouped with Respect to their Grades in Elementary Mathematics

Sources of Variation	SS	Df	MS	F-value	F crit
Between Groups	177.16	2	88.58	17.22	3.05
Within Groups	833.30	162	5.14		
Total	1010.45	164			

a computed F-value of 17.22, which is greater than the critical F-value of 3.05 at .05 level of significance, df = 2 and 162. This led to the rejection of the null hypothesis, which state that "there is no significant difference in the level of academic perfotmance of the special science class students with respect to their grades in Elementary Mathematics.

This means that the academic performance of special science class students differs based on their grades in Elementary Mathematics. Students – respondents with high Elementary Mathematics performance have the greater chance of having good performance in the special science class. This must be because if their mathematics foundation in the elementary grades is good the concept that they learned in Mathematics will just be reinforced when they go to high school. With this close association between science and mathematics, it is favorable for students who are good in mathematics at the start. This is measured by the grades obtained by the students in Elementary Mathematics in their Grade VI, which is with the assumption that the grades are representative of their performance in the subject.

Further testing to find where the significant differences lay, the Scheffe's test is applied on the obtained means of their academic performances of the special science class student based on their Elementary Mathematics grades. Mean differences between pair of means were tested for significance of the difference and is reflected in Table 19.

Three pairs of means were compared to determine where the significant difference lies.

For Pair 1- Excellent vs. Very Good performance, the difference between the sample means is 2.74, the computed F-value is 5.39, which is greater than the critical F= 3.05 interpreted as "significant".

For Pair 2- Excellent vs. Good performance, the difference between sample means is equal to 4.57, the computed F-value is 15.68, which is greater than the critical F= 3.05 interpreted as "significant".

For Pair 3- Very Good vs. Good performance, the difference between the sample means is 1.83, the computed F-value is 22.22, which is greater than the critical F= 3.05 interpreted as "significant".

Table 19

Scheffe's Test of the Significance of the Comparisons of the Academic Performances of the Special Science Class Student-Respondents Compared with Respect their Grade in Elementary Mathematics

Groups Compared	Mean Difference	Scheffe's Value		Evaluation
		Computed	Tabular	
Excellent vs. Very Good	2.74	5.39	3.05	S
Excellent vs. Good	4.57	15.68	3.05	S
Very Good vs. Good	1.83	22.22	3.05	S

General Weighted Average (GWA) Grade in the Elementary Course.

Table 20 reveals the result of the One-way ANOVA for the comparison of the academic performance of the special science class students grouped with respect to the General Weighted Average (GWA) grade of their elementary course.

As gleaned from the table, the mean square between groups of 80.45 turned greater than the mean square within groups of 5.24. These values yielded a computed F-value of 15.34, which is less than the critical F-value of 3.05 at .05 level of significance, df = 2 and 162. This led to the rejection of the null hypothesis, which state that "there is no significant difference in the level ofacademic performance of the special science class students with respect to their general weighted average (GWA) grade of their elementary course"

This means that the academic performance of special science class students differ as to their general weighted average (GWA) grade in their elementary course. Students with very high and excellent general weighted average grade in their elementary course have greater chance of having very

Table 20

Comparison of the Academic Performance of Special Science Class Student-Respondents Grouped with Respect to the General Weighted Average (GWA) Grade in Elementary Course

Sources of Variation	SS	Df	MS	F-value	F crit
Between Groups	160.90	2	80.45	15.34	3.05
Within Groups	849.64	162	5.24		
Total	1010.54	164			

good performance in the special science class curriculum. This must be because if their GWA in the elementary is good, this indicates that they are better students in their elemientary. Since high school education is just another chapter of a child education; a student who is good in the elementary level will also be good in high school considering that high school education is just an extension of his elementary education.

The result of the Scheffe's test to determine which pair of means is significant in terms of the academic performance of the special class student based on their GWA grade of their elementary course is reflected in Table 21.

Three pairs of means were compared to determine which mean difference is significant.

For Pair 1- Excellent vs. Very Good Performance, the difference between the sample means is -1.83, the computed F-value is 23.33, which is greater than the critical F= 3.051 interpreted as "significant".

Table 21

Scheffe's Test of the Significance of the Comparisons of the Academic Performances of the Special Science Class Student-Respondents Compared with Respect to the General Weighted Average (GWA) Grade in Elementary Course

Groups Compared	Mean Difference	Scheffe's Value		Evaluation
		Computed	Tabular	
Excellent vs. Very Good	-1.83	23.33	3.05	S
Excellent vs. Good	-5.04	9.49	3.05	S
Very Good vs. Good	-3.20	3.78	3.05	S

For Pair 2- Excellent vs. Very Good, the difference between the sample means is -5.04, the computed F-value is 9.49, which is greater than the critical F= 3.05 interpreted as "significant".

For Pair 3- Very Good vs. Good, the difference between the sample means is -3.20; the computed F-value is 3.78, which is greater than the critical F- 3.05 interpreted as "significant".

DOST Qualifying Examination Result. Table 22 reveals the result of the One-way ANOVA for the comparison of the academic performance of the special science class students grouped with respect to result in the DOST Qualifying Examination

As gleaned from the table, the mean square between groups of 111.24 turned greater than the mean square within groups of 4.95. These values yielded a computed F-value of 22.47, which is greater than the critical F-value of 3.05 at 05 level of significance, df = 2 and 162. This lead to the rejection of the null hypothesis, which state that "there is no significant difference in the level of

Table 22

Comparison of the Academic Performance of Special Science Class Student-Respondents Grouped with Respect to the DOST Qualifying Examination Scores

Sources of Variation	SS	Df	MS	F-value	F crit
Between Groups	222.48	2	111.24	22.47	3.05
Within Groups	801.88	162	4.95		
Total	1024.36	164		(Reject Ho.)	

academic performance of the special science class students with respect to their scores in the DOST Qualifying Examination".

This means that the special science class student academic performance significantly differ based on their scores in the DOST Qualifying Examination. Students with high DOST Qualifying Examination score will have very good academic performance in the special science class curriculum. This must be because the DOST Qualifying Examination is a valid and reliable examination; hence it can screen students who will be good and who will perform well in the special science curriculum.

Further test using the Scheffe's test to determine which mean difference between pair of means is significant in terms of the academic performance of the special class student based on their score in the DOST Qualifying Test is presented in Table 28.

Three pairs of means were compared to determine where the significant differences lie.

For Pair 1- student whose DOST score is in the range 120-159 and 80-119, the difference between the sample means is 2.06, the computed F-value is 5.30, which is greater than the critical F= 3.05 interpreted as "significant".

For Pair 2- student whose DOST score is in the range 120-159 and 40-79, the difference between the sample means is 4.09, the computed F-value is 22.18, which is greater than the critical F= 3.05 interpreted as "significant".

Table 23

Scheffe's Test of the Significance of the Comparisons of the Academic Performance of the Special Science Class Student-Respondents Compared with Respect to the DOST Qualifying Examination Scores

Groups Compared	Mean Difference	Scheffe's Value		Evaluation
		Computed	Tabular	
High Scores (120-159) vs. Average Scores (80-119)	2.06	5.30	3.05	NS
High Scores (120-159) vs. Low Scores (40-79)	4.09	22.18	3.05	S
Average Scores (80-119) vs. Low Scores (40-79)	2.03	29.32	3.05	S

For Pair 3- students whose DOST score is in the range 80-119 and 40-79, the difference between the sample means is 2.03, the computed F-value is 29.32, which is greater than the critical F= 3.05 interpreted as "significant".

Attitude towards Science. Table 24 shows the attitude towards Science of the student-respondents. As seen in the table, the mean obtained for the academic performance of the special science class students with highly favorable attitude is 89.61, while the mean of the academic performance of the special science class students with moderately favorable attitude is 89.03. The mean difference of the special science class students with highly favorable attitude who "agree" to the twenty attitude statement and those who were "undecided" or having moderately favorable attitude only in their academic performance is

equal to 0.58. This mean difference tested for significance using the t-test result to a t-value equal to 1.00 which value is less than the critical t-value of 1.97 at df = 163, a = 0.05 (two tailed). This led to the acceptance of the null hypothesis that "there is no significant difference in the academic performance of the special science class students with respect to their attitude towards Science". This implies that special science class students with highly favorable attitudes and those with moderately favorable attitude towards Science perform just the same in the special science class curriculum or their academic achievement do not significantly differ. They may have an unfavorable or negative attitude towards science but still they achieve just the same with those who have positive attitude towards science implying that they are motivate by other factors.

Table 24

Comparison of the Academic Performance of Student-Respondents with Highly Favorable and Moderately Favorable Attitude towards Science

Statistics	Highly Favorable Attitude	Moderately Favorable Attitude
Mean	89.61	89.03
Variance	6.11	6.52
Observation	144	21
Mean Difference	0.58	
Df	163	
t Stat	1.00	
t Critical two tail	1.97	
Evaluation	Not Significant	
Decision	Accept Ho.	

Implications

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

1. The administration should improve or make revisions of the present admission requirement for first year applicants. The revision should consider the inclusion of their attitudes towards science. A valid attitude questionnaire should be administered to the applicants seeking admission to the special science class.

2. In addition, the teacher's in-charge of the screening of the student-applicants should look into the type of the elementary school where the student came from, students coming from public pilot elementary schools have better chances of surviving and succeeding in the special science curriculum.

3. Students with good grades in Elementary Science, and Elementary Mathematics, with high general weighted average (GWA) grade in their elementary course, with high scores in the DOST Qualifying Examination, and with favorable attitudes toward science have better performance in special science classes. Guidance should be given to retain their good performance.

4. Special science class solely for female students only or for male students only should be formed or tried as experiment if logistics will not be a problem although academic performance of the female and male students were found not to vary.

5. Since promotion of a special science class student to the next higher or upper grade level means that he/she has to maintain and satisfy a certain grade

requirement the school should attain to the needs of these students and confer with parents regarding the problems of these students and ask their support that parental supervision regarding their studies should be strengthen, improved and enhanced.

6. English is the language used in teaching and learning of Science and Mathematics, admitting a student to the special science curriculum should include students' grade in English in Grade VI as one of the admission requirements.

7. Since, academic performance of students is a function of the students, teachers, curriculum, and the school, enhancement in teaching mathematics and sciences should be encouraged by the school administrator in their teachers.

8. Close parental participation towards students' school activities should be encouraged by teachers and the school with the objective of improving students' academic performance. PTA meetings should be used to thresh out problems of students especially if it concern parents' involvement on their academic performance.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions and recommendations of the study.

Summary of Findings

The following were the important findings of the study.

1. The student-respondents' age ranges from 11-16 years old with most of them 15 years old and having a mean age of 13.77 years old.

2. The student-respondents of this study are composed of 119 (72.12 percent) females and 46 (27.88 percent) males.

3. A total of 150 respondents (90.91 percent) were graduates of public elementary schools and 15 respondents (9.09 percent) were graduates from private elementary schools.

4. A total of 57 respondents or 35 percent of the sample were from the first year level. 32 students or 19 percent were enrolled as second year students. 45 or 27 percent of the sample were third year students, and 31 students or 19 percent of the sample were in their fourth year level.

5. The mean grade obtained for Elementary Science is 88.49 interpreted as good grade in the subject and for Elementary Mathematics the mean grade is 87 interpreted as good grade in the subject.

6. The 165 student-respondents have a general weighted average (GWA) grade in the elementary course which ranges from 85 (lowest) to 97 (highest). The mean obtained for the general weighted average grade in elementary is 88.71 interpreted as "good" grade,

7. The students admitted to the special science curriculum at Samar National School have obtained DOST scores from 40 to 139, the highest score belong to the interval 130-139 and the lowest score is found in the interval 40-49. The mean score is located in the interval 70-79 and it is 77.23.

8. The grand mean obtained for their attitude towards Science is 4.26, interpreted as "agree" which indicated a very favorable attitude towards Science.

9. The academic performance of the student respondents based on their grade point average (HSGPA) ranges from 85 (lowest) to 97 (highest). The mean obtained for academic performance of the special science class student-respondents is 88.67 interpreted as "good" performance in school.

10. The correlation between students' academic performance and their age obtained an r- value of -0.22 which absolute value is greater than critical value of r = 0.138 at df = 163 α =0.05 (two tailed test). The computed t-value to test for the significance of the obtained r is 13.10 which was higher than the critical t-value of 1.645 at df=163, α = 0.05 (two tailed), the null hypothesis, "There is no significant relationships between the students' academic performance (HSGPA) and age" is rejected.

11. The correlation between students' academic performance and sex of the student-respondents yield an r = 0.101 interpreted as "not significant" based on the value of significant r. The obtained t-value is 1.30, which is less than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed), interpreted as "not significant". The hypothesis, "There is no significant relationship between academic performance of student-respondents and sex" is accepted.

12. The obtained r for the correlation between academic performance and year level enrollment of the student-respondents is 0.266, based on the significant r-value, which is 0.138 for df=163, α =0.05, this is interpreted as significant relationship. The computed t-value is 3.52, which value is greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed), The computed t-value based on the r- value obtained is significant. The null hypothesis, "There is no significant relationship between the student-respondents level of the academic performance in special science class and their year level enrollment" is rejected.

13. The correlation of academic performance of special science class students and type of school where elementary course was completed obtained an r = 0.20, which is significant based on the critical r-value which is 0.138 at df = 163, α = 0.05. The computed t-value was 2.61, this value is greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed), which relationship is significant between student-respondents' academic performance in special science class and type of school where elementary course was completed. The null hypothesis, "There is no significant relationship between the student-

respondents level of the academic performance in special science class and their year level enrollment" is rejected.

14. The relationships between academic performance of special science class students and grade in Elementary Science, the obtained r was 0.34. This value of r is greater than the critical r-value which is 0.138 at df = 163, α = 0.05, which means significant relationship existed between the variables correlated. The computed t-value based on the r-value was 4.62. This is greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed), which led to the rejection of the null hypothesis, "There is no significant relationship between academic performance of special class students and grade in Elementary Science".

15. For the correlation between academic performance in a special science class and grades in elementary Mathematics, the obtained r-value is 0.410, this r-value is greater than the critical r-value, which is 0.138 at df = 163, α = 0.05. The relationship between the variables is significant. The computed t-value is 5.74, which was greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed), the null hypothesis, "There is no significant relationship between students' academic performance in special science class and grades in Elementary Mathematics" is rejected.

16. The correlation between students' academic performance and the general weighted average (GWA) grade in the elementary course obtained an r = 0.439. This r-value is greater than the critical r-value, which is 0.138 at df = 163, α = 0.05. The relationship between the variables correlated is significant based on

the critical r-value. The computed t-value was 6.24, which was greater than the critical t-value of 1.645, at df = 163, α = 0.05 (two tailed. The null hypothesis, "There is no significant relationship between students' academic performance in special science class and general weighted average (GWA) grade in the elementary course" is rejected.

17. The correlation between academic performance of a special science class student and DOST qualifying test score yielded an r-value of 0.493, the obtained r-value is greater than the critical r-value, which is 0.138 at df = 163, α = 0.05. The relationship is significant. The t-value of 7.24 obtained based on the r-value was greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed), which denote that the r-value obtained is significant. The null hypothesis, "There is no significant relationship between students' academic performance in special science class and DOST qualifying test score" is rejected.

18. The correlation between the student-respondents' level of academic performance in special science class and level of attitude towards Science obtained an r-value of 0.194, which is greater than the critical r-value, which is 0.138 at df = 163, α = 0.05. The computed t-value was 2.59, which was greater than the critical t-value of 1.645, df = 163, α = 0.05 (two tailed). This t-value is interpreted as "significant". The null hypothesis, "There is no significant relationship between students' level of academic performance in special science class and level of attitude towards Science" is rejected.

19. The comparisons of the academic performance of the special science class students based on the group means using One-way ANOVA for age, the mean square between groups of 15.69 turned greater than the mean square within groups of 6.04. The computed F-value of 2.60 was obtained, which is less than the critical F-value of 3.05 at .05 level of significance, df = 2 and 162. The null hypothesis, "There is no significant difference in the level of academic performance of the special science class students with respect to their age" is accepted.

20. The comparison of the academic performance of female and male special science class students using the group means, the mean of the academic performance of the female special science class student-respondents is 89.66, while that of the male is 89.09, the mean difference of the performance of the female and the male student-respondents is equal to 0.57. This mean difference tested for significance using the t-test resulted to a t-value equal to 1.31. This value is less than the critical t-value of 1.97, at .05 level of significance, df=163 (two-tailed) interpreted as "not significant". The hypothesis, "There is no significant difference in the academic performance of the special science class students with respect to sex" is accepted.

21. The comparison of the academic performance of the special science class students using means obtained for each group when grouped with respect to year level enrollment, the mean square between groups of 102.53 turned greater than the mean square within groups of 4.37, a computed F-value of 23.49

was obtained which is greater than the critical F-value of 2.67 at .05 level of significance, df = 3 and 162. The null hypothesis, "There is no significant difference in the level of academic performance of the special science class students with respect to their year level enrollment" is rejected.

22. Further test using Scheffe's test showed significant variations in the academic performance lies between the following pairs: Fourth Year vs. Third Year, the difference between the sample means is 2.75, the computed F-value is 31.79, which is greater than the critical F= 2.66 interpreted as "significant"; Fourth Year vs. First Year, the difference between the sample means is equal to 2.82, the computed F-value is 36.59, which is greater than the critical F= 2.66 interpreted as "significant"; Third Year vs. Second Year, the difference between the sample means is equal to -2.79, the computed F-value is 33.34, which is greater than the critical F= 2.66 interpreted as "significant"; and Second Year vs. First Year, the difference between the sample means is equal to 2.86, the computed F-value is 38.41, which is greater than the critical F= 2.66 interpreted as "significant".

23. For the comparison of academic performance of special science class students using group means with respect to type of elementary school graduated from, the mean obtained for the academic performance of the special science class students who were graduates from public elementary school is 89.37; while the mean of the academic performance of the special science class students who were graduates of private elementary school is 91.10, the mean difference of the

performance of those students who graduated from public elementary school and private elementary school is equal to 1.74. This mean difference tested for significance using the t-test resulted to a t-value equal to -2.78. This value (absolute value) is greater than the critical t-value of 1.97 (two-tailed) interpreted as "significant". The null hypothesis, "There is no significant difference in the academic performance of the special science class students with respect to type of elementary school graduated from" is rejected.

24. The comparison of the academic performance of the special science class students grouped with respect to grades in Elementary Science using the One-way ANOVA obtain mean square between groups of 61.60 which is greater than the mean square within groups of 5.48, obtain a computed F-value of 11.25, which is greater than the critical F-value of 3.05 at .05 level of significance, df = 2 and 163, the null hypothesis, "There is no significant difference in the level of academic performance of the special science class students with respect to their grades in Elementary Science" is rejected.

25. Further testing using the Scheffe's test to determine which mean difference in the academic performance of the special science class students with respect to their grades in Elementary Science are significant, two group pairs are significant: 1) Excellent and Good performance in Elementary Science, the difference between the sample means is equal to 2.40, the computed F= 10.42, which is greater than the critical F= 3.05 interpreted as "significant"; and 2) Very Good and Good Performance in Elementary Science, the difference between the

sample means is 1.37, the computed F-value is 16.36, which is greater than the critical F= 3.05 interpreted as "significant".

26. The comparison of the academic performance of special science class students grouped with respect to grades in Elementary Mathematics results in mean square between groups of 88.58 which is greater than the mean square within groups of 5.14. These values yielded a computed F-value of 17.22, which is greater than the critical F-value of 3.05 at .05 level of significance, df = 2 and 162. This led to the rejection of the null hypothesis, which state that "there is no significant difference in the level of academic performance of the special science class students with respect to their grades in Elementary Mathematics.

27. Further testing using Scheffe's test to find where the significant differences lie on the obtained means of their academic performances of the special science class student based on their Elementary Mathematics grades, the mean differences tested for significance of the difference are: 1) Excellent vs. Very Good performance in Elementary Mathematics, the difference between the sample means is 2.74, the computed F-value is 5.39, which is greater than the critical F= 3.05 interpreted as "significant"; 2) Excellent vs. Good performance in Elementary Mathematics, the difference between sample means is equal to 4.37, the computed F-value is 15.68, which is greater than the critical F= 3.05 interpreted as "significant"; 3) Very Good vs. Good performance in Elementary Mathematics, the difference between the sample means is 1.83, the computed F-

value is 22.22, which is greater than the critical F= 3.05 interpreted as "significant".

28. The comparison of the academic performance of the special science class students grouped with respect to the General Weighted Average (GWA) grade of their elementary course reveals the mean square between groups of 80.45 turned greater than the mean square within groups of 5.24. These values yielded a computed F-value of 15.34, which is less than the critical F-value of 3.05 at .05 level of significance, df = 2 and 162. This lead to the rejection of the null hypothesis, which state that "there is no significant difference in the level of academic performance of the special science class students with respect to their general weighted average (GWA) grade of their elementary course".

29. The result of the Scheffe's test to determine which pair of means is significant in terms of the academic performance of the special class student based on their GWA grade of their elementary course, the following pairs of means are significant. 1) Excellent vs. Very Good Performance in their general weighted average (GWA) grade, the difference between the sample means is -1.83, the computed F-value is 23.33, which is greater than the critical F= 3.051 interpreted as "significant"; 2) Excellent vs. Very Good Performance in their general weighted average (GWA) grade, the difference between the sample means is -5.04, the computed F-value is 9.49, which is greater than the critical F= 3.05 interpreted as "significant"; 3) Very Good and Good Performance in the general weighted average (GWA) grade in the elementary course, the difference

between the sample means is -3.20; the computed F-value is 3.78, which is greater than the critical F- 3.05 interpreted as "significant".

30. The result of the One-way ANOVA for the comparison of the academic performance of the special science class students grouped with respect to scores obtained in the DOST Qualifying Examination, the mean square between groups of 111.24 turned greater than the mean square within groups of 4.95. These values yielded a computed F-value of 22.47, which is greater than the critical F-value of 3.05 at .05 level of significance, df = 2 and 162. This lead to the rejection of the null hypothesis, which state that "there is no significant difference in the level of academic performance of the special science class students with respect to their scores in the DOST Qualifying Examination".

31. Further test using the Scheffe's test to determine which mean difference between pair of means is significant in terms of the academic performance of the special class student based on their score in the DOST Qualifying Test, three pairs of means were compared to determine where the significant differences lie: 1) Student whose DOST score is in the range 120-159 or high score and 80-119 average score, the difference between the sample means is 2.06, the computed F-value is 5.30, which is greater than the critical F= 3.05 interpreted as "significant"; 2) Student whose DOST score is in the range 120-159 or high score and 40-79 or low scores, the difference between the sample means is 4.09, the computed F-value is 22.18, which is greater than the critical F= 3.05 interpreted as "significant"; 3) Students whose DOST score is in the range 80-119

average score and 40-79 or low score , the difference between the sample means is 2.03, the computed F-value is 29.32, which is greater than the critical F= 3.05 interpreted as "significant".

32. The comparison of the student-respondents' academic performance with respect to attitude towards science, the mean obtained for academic performance of students' with highly favorable attitude is 89.61, while the mean of the academic performance of the special science class students with moderately favorable attitude is 89.03. The mean difference is equal to 0.58. This mean difference tested for significance using the t-test result to a t-value equal to 1.00 which value is less than the critical t-value of 1.97 at $df = 163$, $a = 0.05$ (two tailed). The null hypothesis, "There is no significant difference in the academic performance of the special science class students with respect to their attitude towards Science" is accepted.

Conclusions

The following were the conclusions derived from the findings of the study:

1. The socio-demographic profile of the student-respondents cut across different categories. The student-respondents were aged appropriately for their year level, were predominantly females, more from the first year level and few respondents from the fourth year level and majority have completed their elementary course in public elementary schools.

2. Majority of the students in special science class have better academic performance in Elementary Science and Elementary Mathematics as shown by their grades.

3. The special science class students belong to the upper ten percent of their graduating class as shown by their general weighted average grade in their elementary course.

4. Student-respondents admitted to the special science classes are just average students based on their scores in the DOST qualifying test.

5. The students in the special science curriculum have highly favorable attitude towards Science.

6. The special science class students in Samar National School who were not eliminated or transferred to the regular class were able to maintain the grade requirement to be able to stay in a special science class.

7. Age of the respondents is related to his/her academic performance – hence, older respondents have better grade point average in high school.

8. Sex is not related to student-respondents' academic performance.

9. A student who is promoted to a higher year level in the special science class has to satisfy the grade requirement expected of him/her.

10. The type of school where elementary course was completed matter with respect to the academic performance of the student-respondents in a special science class.

11. The student-respondent, who had stronger foundation in Elementary Science, as evidenced by their grades in Elementary Science, had better academic performance in the special science class.

12. The student-respondents, who had good foundation in Elementary Mathematics, had better academic performance in a special science curriculum in high school.

13. Most of the students admitted to the special science curriculum with very high general weighted average (GWA) grade in their elementary course have better academic performance in special science class.

14. The student-respondents who earned better scores in the DOST qualifying test have better academic performance in high school.

15. The attitude towards Science is related to the academic performance of the student-respondents – hence, a student who had a favorable attitude towards Science had better academic performance in school.

16. The academic performance of special science class student compared as to their age does not significantly differ based on the means obtained for each group.

17. Male and female special science class students do not differ in academic performance.

18. The academic performance of the special science class students in the upper year levels is significantly different from the academic performance of special science class students in the lower year level.

19. The Scheffe's test used to further test significant variations in the academic performance using mean differences between pairs of grouped means. were found significant for the following pairs: Fourth Year vs. Third Year, the difference between the sample means is 2.73, the computed F-value is 51.79, which is greater than the critical F= 2.66 interpreted as "significant"; Fourth Year vs. First Year, the difference between the sample means is equal to 2.82, the computed F-value is 56.59, which is greater than the critical F= 2.66 interpreted as "significant"; Third Year vs. Second Year, the difference between the sample means is equal to -2.79, the computed F-value is 53.34, which is greater than the critical F= 2.66 interpreted as "significant"; and Second Year vs. First Year, the difference between the sample means is equal to 2.86, the computed F-value is 58.41, which is greater than the critical F= 2.66 interpreted as "significant".

20. Special science class students who graduated from the public elementary schools were much better in terms of academic achievement in the special science curriculum compared to those who were graduates of private elementary schools and have much better chances of not eliminated from the curriculum.

21. The special science curriculum is science-based, hence, students with better grades in Elementary Science have greater chance of having good performance in the special science curriculum.

22. The mean difference in the academic performance of the special science class students with respect to their grades in Elementary Science are

significant for two group pairs: 1) Excellent and Good performance in Elementary Science, the difference between the sample means is equal to 2.40, the computed F= 10.42, which is greater than the critical F= 3.05 interpreted as "significant"; and 2) Very Good and Good Performance in Elementary Science, the difference between the sample means is 1.57, the computed F-value is 16.36, which is greater than the critical F= 3.05 interpreted as "significant"

23. The academic performance of special science class students differs based on their grades in Elementary Mathematics. Student-respondents with high Elementary Mathematics performance have the greater chance of having good performance in the special science class.

24. Significant differences lie on the obtained means of the academic performances of the special science class student based on their Elementary Mathematics grades, the mean differences tested for significance of the difference are: 1) Excellent vs. Very Good performance in Elementary Mathematics, the difference between the sample means is 2.74, the computed F-value is 5.99, which is greater than the critical F= 3.05 interpreted as "significant"; 2) Excellent vs. Good performance in Elementary Mathematics, the difference between sample means is equal to 4.37, the computed F-value is 15.68, which is greater than the critical F= 3.05 interpreted as "significant"; 9) Very Good vs. Good performance in Elementary Mathematics, the difference between the sample means is 1.83, the computed F-value is 22.22, which is greater than the critical F= 3.05 interpreted as "significant.

25. The academic performance of special science class students differ as to their general weighted average (GWA) grade in their elementary course. Students with very high and excellent general weighted average grade in their elementary course have greater chance of having very good performance in the special science class curriculum.

26. The Scheffe's test to further test which mean difference between pair of means is significant in terms of the academic performance of the special class student based on their GWA grade of their elementary course, the pairs: 1) Excellent vs. Very Good Performance in their general weighted average (GWA) grade in elementary, the difference between the sample means is -1.83, the computed F-value is 23.39, which is greater than the critical F= 3.051 interpreted as "significant"; 2) Excellent vs. Very Good Performance in their general weighted average (GWA) grade, the difference between the sample means is -5.04, the computed F-value is 9.49, which is greater than the critical F= 3.05 interpreted as "significant"; 3) Very Good and Good Performance in the general weighted average (GWA) grade in the elementary course, the difference between the sample means is -3.20; the computed F-value is 3.78, which is greater than the critical F- 3.05 interpreted as "significant".

27. The special science class students' academic performance significantly differ based on their scores in the DOST Qualifying Examination. Students with high DOST Qualifying Examination score have very good academic performance in the special science class curriculum.

28. Special science class students with highly favorable attitudes and those with moderately favorable attitude towards Science perform just the same in the special science class curriculum or their academic achievement does not significantly differ.

Recommendations

The following were the recommendations derived from the findings and conclusions:

1. There is a need for DOST to examine their admission requirements for the special science class. A review of the graduates' performance for the last 10 years should be studied to serve as bases aside from the result of this study.

2. The school should consider including as their admission requirement students' attitudes towards science since the curriculum is a science-based curriculum.

3. A validated attitude questionnaire should be developed by DOST to be given to students seeking admission to the special science class to determine students' attitude towards science and that positive attitude should be developed in these students.

4. The teachers who are in-charge in the screening of applicants to the special science class should consider the type of elementary school where the applicant is a graduate because it was found out in this research that it is related to the academic performance of the student in a special science curriculum.

5. Students' grade requirement for admission to the special science class should be raised from a grade of 85 to higher than 85 if possible in order that students who are admitted have a much better chance of not being eliminated since the general weighted average of a student in a special science class is related to academic performance in school.

6. Grades in Elementary Science and Elementary Mathematics were factors related to academic performance of students in special science class, since instruction in science is in English, grade in English in grade VI should be considered as an admission requirement for special science class.

7. Students should be advised to improve their academic performance as they progress from one year level to the next upper level by exerting more effort towards their studies since in a study of science concepts and principles are reinforced as one ascends the educational ladder.

8. Students who are misplaced in the special science curriculum because they qualified and were admitted but shows no inclination towards science should be advised to transfer to the regular class as early as in their first year.

9. A science faculty should be assigned as faculty mentor, adviser, guidance teacher, and absentee parent of special class students so that students can present their problems regarding school especially on maintaining the grade requirement in a special science class.

10. Another study on other factors related to academic performance of special science class students should be conducted.

BIBLIOGRAPHY

A. BOOKS

Adelson, Joseph "Turning Point Preparing American Youth for the 21st Century" Handbook of Adolescent Psychology, Individual bases of Adolescent Development. New York: Macmillan Publishing Company, 2nd ed., 1980.

Bartz, Albert E. Basic Statistical Concepts. New York: Macmillan Publishing Company, 2nd ed, 1981.

Bee, Helen. The Developing Child, Just the Facts 101, Textbook Key Facts. Textbook Outlines, Highlights, and Practice Quizzes. 1981.

Best, Helen. The Developing Child, Just the Facts 101, Textbook Key Facts. Textbook Outlines, Highlights and Practice Quizzes. 1981.

Best, John W. and Kahn, James V. Research in Education. New Jersey. Prentice Hall, 6th ed, 1976.

Butch, Floyd L. Psychology and Life. Bombay, D.B. Taraporevala Sons and Co., 7th ed, 1970.

Catell, Ronald B. Psychology in Education, 6th ed. New Jersey. McGraw-Hill Publishing Inc., Ltd, 1970.

Downie, N.M. and R.W. Heath. Basic Statistical Method. 7th ed. New York Harper Row Publishers, 1982.

Ebel, R.L. Measuring Educational Achievement. New Jersey. Prentice Hall, Inc., 1965.

Faith, B. et al. Fundamental Statistics. Trinitas Publishing Inc., 2003.

Findley, Warren. "Purpose of the School Testing Program and their Effective Development". The Impact and Improvement of School Program. Chicago: The National Society for the Study of Education, 1963.

Guilford, W. and Frutcher, B. Fundamentals of Statistics in Psychology and Education. Tokyo McGraw-Hill Kogakusha, 1973.

Kelly, William A. Educational Psychology. Milwaukee. The Bruce Publishing Co, 1968.

Kishor, Ricks T. Social Foundation of Thought and Action. USA: Warren Publishing House Inc., 2000.

Lindvale, C.M. Measuring Pupil Advancement and Aptitude. New York Harcourt Brace and World Inc., 1967.

Locke, Edwin A and Latham, Gary P. A Theory of Goal Setting and Task Performance. New York Prentice Hall, Illustrated Edition, 1990.

Merriam Webster Dictionary, 2002, 2003.

Morris, Charles G. Psychology. 7th ed New Jersey. Prentice Hall, 1986.

Santrock, John W. A Topical Approach to Life-Span Development. New York. U.S.A.: McGraw-Hill Book Co., 2004.

Sevilla, Consuelo G et al. General Psychology with Values Development Lessons. Manila: Rex Book Store, 1988.

Sprinthall, Norman A. and Sprinthall, Richard C. Educational Psychology: A Development Approach. New york: Random House, Inc., 4th ed, 1987.

Shipley, et al. Handbook of Child Psychology. New York: Harcourt Brace and World Inc., 1972.

Padua, Roberto N. and Adanza, Estela G. Statistics: Theory and Application Manila: Rex Book Store Co., 1986.

Piaget, Jean. The Condition of Learning. New York: Holt Rinehart Winston, 1960.

The New Webster Dictionary of the English Language, International Edition, 2004.

Walpole, Ronald E. Introduction to Statistics. New york: Macmillan Publishing Co., Inc., 3rd ed, 1982.

B. JOURNALS. MAGAZINES, AND PERIODICALS

Baer, Paul E. and Bandura, Albert Behavior Theory and Identificatory Learning Behavior. American Journal of Orthopsychiatry. Volume 33, Issue 7, pages 591-601, July 1966.

Houston, Kent B. Heritability of Hostility-Related Emotions, Attitudes and Behaviors. Journal of Behavioral Medicine, Volume 16, Issue 3, pages 237-256, June 1983.

Ordillas, Clemente. The Philippines in the 21st Century, Newsletter, 1994.

C. UNPUBLISHED MATERIALS

Agatep, Shirley G. "Achievement of Students in College Algebra in Relation to their NCEE and the College Entrance Numerical Test Performance" Unpublished Dissertation, Philippine Normal University, Manila, Philippines, 1992.

Alcazar, Tita M. "The Practice Validity of the Mendiola Consortium Accreditation Test for Freshmen English" Unpublished Master's Thesis, Centro Escolar University, Manila, Philippines, 1989..

Bautista, Leodegario S. "The Polytechnic University of the Philippines College Entrance Test Numerical Ability Scores and the Grade Point Average in Freshmen Engineering Mathematics Subjects:

A Correlational Study". Unpublished Master's Thesis, Polytechnic University of the Philippines, 1991.

Hubilla, Salvacion B. "Predictors of the Academic Performance of Freshman College Science Students" Unpublished Master's Thesis, Philippine Normal University, Manila, 1993.

Hutapea, Ronald A. "The Investigation of Selected Admission Variables in Predicting Students" Academic Performance at Two Nursing Schools in Indonesia". Unpublished Dissertation, University of North Sumatra, Indonesia, 1991.

Ibe, Milagros D. "Students' Pre-College Academic Performance" Unpublished Dissertation, University of the Philippines, Diliman, Quezon City, 1988.

Laluan, Erlinda B. "Performance of Second Year College Students in the State Universities in Region I, Its Relation to NCEE Scores" Unpublished Dissertation, Baguio Central University, Baguio City, 1982.

Maglaya, Zenaida N. "The National Medical Admission Test (NMAT) and Pre-Medical Scholastic Ratings as Predictors of Academic Performance in the Medical Course". Unpublished Master's Thesis, Centro Escolar University, Manila, 1994.

Manuel, Conchita O. "The Relationship of High School Grades and the National College Entrance Test with the Academic Performance of the First Year Students of the Philippine Normal College". Unpublished Master's Thesis, Centro Escolar University, Manila, 1989.

Medina, Paul T. "Correlates of Academic Performance in High School Chemistry". Unpublished Master's Thesis, Centro Escolar University, Manila, 1995.

Navarro, Emerita C. "The Predictive Validity of the National College Entrance Examination Scores on the Performance Students in Selected College Courses". Unpublished Master's Thesis, Polytechnic University of the Philippines, 1990.

Paquis, Antonio A. "Correlates of Mathematics Performance of Fourth Year High School Students of National Teachers College". Unpublished Master's Thesis, PUP, Manila, 1995.

Sanchez, Salvacion T. "Admission and other Selected Factors as Predictors of Academic Achievement of the College of Education Students" Unpublished Master's Thesis, University of Eastern Philippines, University Town, Catarman, Northern Samar, 1988.

Tabang, Emelio D. "The Entrance Examination Grades of BS Chemistry Students and Their Academic Performance in Mathematics, English, and Filipino" Unpublished Master's Thesis, Polytechnic University of the Philippines, 1998.

Villarin, Thelma B. "A Correlation of the DAT-NSAT in the Performance Ratings of Senior Students" Unpublished Action Research, Division of Quezon City, 1996.

Wong, Reynaldo. "The Correlation between Creativity and Academic Achievements in Science and Art among Gifted High School Students". Unpublished Master's Thesis, Monash University, 1994.

D. ELECTRONIC AND OTHER REFERENCES

Microsoft Encarta Encyclopedia, 2000

Philippine Constitution, 1987

Science and Technology Educational Plan (STEP) 1994.

APPENDICES

APPENDIX A

Request for Approval of Problem

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar

April 8, 1996

RIZALINA M. URBIZTONDO, Ed.D.
Dean, Graduate and Post-Graduate Studies
Samar State Polytechnic College
Catbalogan, Samar

Madam:

In my desire to start writing my thesis proposal, I have the honor to submit for approval one of the following research problems, preferably Problem No. 1.

1. THE ELEMENTARY COURSE GPA AND THE DOST QUALIFYING TEST RESULT AS PREDICTORS OF ACADEMIC PERFORMANCE IN A SPECIAL SCIENCE CLASS

2. THE GPA AND THE DOST QUALIFYING TEST FOR A SPECIAL SCIENCE CLASS

3. THE ACADEMIC PERFORMANCE OF SPECIAL SCIENCE CLASS STUDENTS: AN ASSESSMENT

I hope for your early and favorable action on this request.

Very truly yours,

(Sgd.) BLANCA M. LABIO
Researcher

Approved:

(Sgd.) RIZALINA M. URBIZTONDO, Ed.D.
Dean, Graduate and Post-Graduate Studies

APPENDIX B

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar
SCHOOL OF GRADUATE STUDIES

APPLICATION FOR ASSIGNMENT OF ADVISER

Name: LABRO, BLANCA MARCO
Surname First Name Middle Name

Candidate for Degree: Master of Arts in Teaching

Area of Specialization: Chemistry

Title of Proposed Thesis/Dissertation: THE ELEMENTARY COURSE GPA AND THE DOST QUALIFYING TEST RESULT AS PREDICTORS OF ACADEMIC PERFORMANCE IN A SPECIAL SCIENCE CLASS

(Sgd) Mrs. BLANCA M. LABRO
Applicant

Prof. FLORIDA B. MARCO
Name of Designated Adviser

Approved:

(Sgd) RIZALINA M. URBIZTONDO, Ed.D.
Dean, Graduate Studies

CONFORME:

(Sgd.) Prof. FLORIDA B. MARCO
Adviser

In three copies: 1st Copy – for the Dean
2nd Copy – for the Adviser
3rd Copy – for the Applicant

APPENDIX C

Attitude towards Science Checklist

Directions: This part of the questionnaire contains items about your attitude towards Science. Using the five-point scale below, please indicate your disposition towards Science:

5 – Strongly Agree (SA)
4 – Agree (A)
3 – Undecided (U)
2 – Disagree (D)
1 – Strongly Disagree (SD)

Attitude Statements	Responses				
	SA (5)	A (4)	U (3)	D (2)	SD (1)
1. I find science an interesting subject.					
2. Science is stimulating and challenging subject.					
3. I enjoy my science class so I attend my class regularly.					
4. I don't get bored in a science class.					
5. Science develops my ability to think critically and reason out correctly.					
6. I feel relaxed and comfortable when reading my science lessons.					
7. I feel happier in my science class than in other class.					
8. I wish I could take more science subjects other than those offered in my course.					
9. I find that the allotted time is just enough for studying science.					
10. I understand science very well if I study it.					
11. Science develops in me a feeling of superiority and self-importance.					
12. I believe that science is the easiest to learn.					
13. Science is the most important subject.					

14. I can solve science problems without the help of somebody.					
15. I study my science lessons regularly.					
16. Science makes me feel relaxed, happy and very comfortable.					
17. I found textbooks in science very interesting.					
18. I believe that science is needed in my daily life.					
19. I feel alive and alert in my science class.					
20. Science is one of my favorite subjects.					

Thank you very much!

APPENDIX D

Values of r for the .05 and .01 Level of Significance

df (N-2)	0.05	0.01	df(N-2)	0.05	0.01
1	0.997	1.000	31	0.344	0.442
2	0.950	0.990	32	0.339	0.436
3	0.878	0.959	33	0.334	0.430
4	0.812	0.917	34	0.329	0.424
5	0.765	0.875	35	0.325	0.418
6	0.707	0.834	36	0.32	0.413
7	0.666	0.798	37	0.316	0.408
8	0.632	0.765	38	0.312	0.403
9	0.602	0.735	39	0.308	0.998
10	0.576	0.708	40	0.304	0.393
11	0.553	0.684	41	0.301	0.389
12	0.533	0.661	42	0.297	0.384
13	0.514	0.641	43	0.294	0.38
14	0.497	0.623	44	0.291	0.376
15	0.482	0.606	45	0.288	0.372
16	0.468	0.590	46	0.285	0.368
17	0.456	0.575	47	0.282	0.365
18	0.444	0.562	48	0.279	0.361
19	0.433	0.549	49	0.276	0.358
20	0.423	0.537	50	0.273	0.354
21	0.413	0.526	60	0.250	0.325
22	0.404	0.515	70	0.232	0.302
23	0.396	0.505	80	0.217	0.283
24	0.388	0.496	90	0.205	0.267
25	0.381	0.487	100	0.195	0.254
26	0.374	0.479	200	0.138	0.181
27	0.367	0.471	300	0.113	0.148
28	0.361	0.463	400	0.098	0.128
29	0.355	0.456	500	0.088	0.115
30	0.349	0.449	1000	0.062	0.081

Adapted from A. L. Sockloff and J. N. Edney, Some extension of Student's t and Pearson's r central distributions, Technical Report (May, 1972), Measurement and Research Center, Temple University, Philadelphia.

APPENDIX E

Computations of Fisher's t-test Based on the Pearson r-value for Correlation of Academic Performance (HSGPA) and Variates

Variates	r-value	r2	1-r2	n-2/ 1-r2	√n2/ 1-r2	t-value	tval.	Decision
Age	-0.22	0.05	0.95	171.61	13.10	-2.88	S	Reject Ho.
Sex	0.10	0.01	0.99	164.65	12.83	1.30	NS	Reject Ho.
Year Level	0.27	0.07	0.93	175.41	13.24	3.57	S	Reject Ho.
Elem. Sch. where Grad. From	0.20	0.04	0.96	169.79	13.03	2.61	S	Reject Ho.
Grade in Elem. Science	0.34	0.12	0.88	184.31	13.58	4.62	S	Reject Ho.
Grade in Elem. Math	0.41	0.17	0.83	196.94	14.03	5.74	S	Reject Ho.
GWA Grade in Elem.	0.44	0.19	0.81	202.13	14.22	6.26	S	Reject Ho.
DOST Qualifying Test	0.49	0.24	0.76	214.50	14.65	7.15	S	Reject Ho.
Attitude towards Science	-0.22	0.05	0.95	171.29	13.09	-2.88	S	Reject Ho.

APPENDIX F

Computation of One-way ANOVA and Scheffe's Test for Comparison of Student-Respondents Academic Performance with respect to Year Level Enrollment

Academic Performance Compared with respect to Year Level Enrollment

SUMMARY					
Groups	*Count*	*Sum*	*Average*	*Interpret*	*Variance*
Fourth Year	31	2828.87	91.25	Average	3.43
Third Year	45	3982.69	88.50	Average	2.42
Second Year	32	2021.41	91.29	Average	3.37
First Year	57	5040.7	88.43	Average	6.95
ANOVA					
Source of Variation	*SS*	*Df*	*MS*	*F*	*F crit*
Between Groups	307.57	3	102.53	23.49	2.66
Within Groups	702.86	162	4.37		
Total	1010.45	165	Reject Ho.		

Test of Significance Using Scheffe's Test

Groups Compared		Mean Difference			Scheffe's		
xi	Xj	xi-xj	(xi-xj)2	MSw x (1ni+1/nj)	F-value	Fcrit	Eval.
4th year	3rd year						
91.25	88.5	2.75	7.5625	0.24	31.76	2.66	S
4th year	2nd year						
91.25	91.29	-0.04	0.00	0.24	0.01	2.66	NS
4th year	1st year						
91.25	88.43	2.82	7.95	0.24	33.40	2.66	S
3rd year	2nd year						
88.5	91.29	-2.79	7.7841	0.24	32.70	2.66	S
3rd year	1st year						
88.5	88.43	0.07	0.0049	0.24	0.02	2.66	NS
2nd year	1st year						
91.29	88.43	2.86	8.1796	0.24	34.36	2.66	S

APPENDIX G

Computation of One-way ANOVA and Scheffe's Test for Comparison of Student-Respondents Academic Performance with respect to Grade in Elementary Science

Academic Performance Compared with respect to Grade in Elementary Science

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Interpret*	*Variance*
Outstanding	11	1003.59	91.23	Very Good	9.33
Very Good	59	5333.36	90.40	Very Good	5.55
Good	95	8527.71	88.83	Good	5.03

ANOVA

Source of Variation	*SS*	*Df*	*MS*	*F*	*F crit*
Between Groups	123.19	2	61.60	11.25	3.05
Within Groups	892.73	163	5.48		
Total	1015.92	165	**Reject Ho.**		

Test of Significance Using Scheffe's Test

Groups Compared		Mean Difference					
xi	xj	xi-xj	(xi-xj)2	NSw x (1ni+1/nj)	Scheffe's F-value	Fcrit	Eval.
Outstanding	Very Good						
91.24	90.40	0.84	0.70	0.58	1.19	3.05	NS
Outstanding	Good						
91.24	88.83	2.40	5.78	0.55	10.42	3.05	S
Very Good	Good						
90.40	88.83	1.57	2.45	0.15	16.36	3.05	S

APPENDIX H

Computation of One-way ANOVA and Scheffe's Test for Comparison of Student-Respondents Academic Performance with respect to Grade in Elementary Mathematics

Academic Performance Compared with respect to Grade in Elementary Mathematics

SUMMARY					
Groups	*Count*	*Sum*	*Average*	*Interpret*	*Variance*
Excellent	4	373.81	93.45	Very Good	4.99
Very Good	49	4444.98	90.71	Very Good	5.31
Good	112	9954.87	88.88	Good	5.08
ANOVA					
Source of Variation	*SS*	*Df*	*MS*	*F*	*F crit*
Between Groups	177.16	2	88.58	22.47	3.05
Within Groups	833.30	162	5.14		
Total	1010.45	164	**Reject Ho.**		

Test of Significance Using Scheffe's Test

Groups Compared		Mean Difference					
xi	Xj	xi-xj	(xi-xj)2	MSw x (1ni+1/nj)	Scheffe's F-value	Fcrit	Eval.
Outstanding	Very Good						
93.45	90.71	2.74	7.51	1.39	5.40	3.05	S
Outstanding	Good						
93.45	88.88	4.09	16.74	1.39	15.03	3.05	S
Very Good	Good						
90.71	88.88	1.83	4.10	1.39	22.22	3.05	S

APPENDIX I

Computation of One-way ANOVA and Scheffe's Test for Comparison of Student-Respondents Academic Performance with respect to General Weighted Average (GWA) Grade in Elementary Course

Academic Performance Compared with respect to Grade in Elementary Science

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Interpret*	*Variance*
Outstanding	108	9597.49	88.89	Good	4.91
Very Good	55	4988.39	90.80	Very Good	5.94
Good	2	187.80	93.90	Very Good	3.75

ANOVA

Source of Variation	*SS*	*Df*	*MS*	*F*	*F crit*
Between Groups	160.90	2	80.45	15.34	3.05
Within Groups	849.64	162	5.24		
Total	1010.54	164	**Reject Ho.**		

Test of Significance Using Scheffe's Test

Groups Compared		Mean Difference					
xi	Xj	xi-xj	(xi-xj)2	MSw x (1ni+1/nj)	Scheeffe's F-value	Fcrit	Eval.
Outstanding	Very Good						
88.89	90.90	1.83	3.36	0.14	23.35	3.05	S
Outstanding	Good						
88.89	93.90	5.04	25.36	2.67	9.49	3.05	S
Very Good	Good						
90.90	93.90	3.20	10.26	2.72	3.78	3.05	S

APPENDIX J

Computation of One-way ANOVA and Scheffe's Test for Comparison of Student-Respondents Academic Performance with respect to DOST Qualifying Test Scores

Academic Performance Compared with respect to DOST Qualifying Test Result

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Interpret*	*Variance*
Scores (120-159)	7	649.34	92.76	Average	7.14
Scores (80-119)	53	4806.93	90.70	Average	4.04
Scores (40-79)	105	9310.53	88.67	Average	5.28

ANOVA

Source of Variation	*SS*	*Df*	*MS*	*F*	*F crit*
Between Groups	222.48	2	111.24	22.47	3.05
Within Groups	801.88	162	4.95		
Total	1024.36	164	Reject Ho.		

Test of Significance Using Scheffe's Test

Groups Compared		Mean Difference					
xi	Xj	xi-xj	(xi-xj)2	MSw x (1ni+1/nj)	Scheffe's F-value	Fcrit	Eval.
Scores (120-159)	Scores (80-119)						
92.76	90.70	2.07	4.27	0.80	5.34	3.05	S
Scores (120-159)	Scores (40-79)						
92.76	88.67	4.09	16.74	0.75	22.20	3.05	S
Scores (80-119)	Scores (40-79)						
90.70	88.67	2.02	4.10	0.09	43.49	3.05	S

CURRICULUM VITAE

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Name	:	BLANCA MARCO LABRO
Address	:	849 Mercedes, Catbalogan, Samar
Date of Birth	:	May 19, 1956
Place of Birth	:	Catbalogan, Samar
Civil Status	:	Married
Husband	:	Oscar A. Labro
Children	:	Ma. Rizza M. Labro Francis Glenn M. Labro Arianne Fedis M. Labro

EDUCATIONAL BACKGROUND

Elementary	:	Mercedes Elementary School Mercedes, Catbalogan, Samar 1967
High School	:	Samar National School Catbalogan, Samar 1971
College	:	BS Education Divine Word University Tacloban City 1976
		Certificate in Chemistry Regional Science Teaching Center Divine Word University Tacloban City 1986-1987

Graduate	:	MAT Chemistry Samar State Polytechnic College Catbalogan, Samar 2004
Present Position	:	Master Teacher II Samar National School Catbalogan, Samar

MEMBERSHIP IN ORGANIZATIONS

President	Science Advisers' Club Samar National School
Member	SNS Teachers-Employees Club Samar National School
Adviser	Mercedes Youth Organization Mercedes, Catbalogan, Samar

ELIGIBILITY

Career Service Sub Professional
December 1976

Civil Service Commission Teachers' Examination
July 1976

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