PERFORMANCE OF SCIENCE AND TECHNOLOGY STUDENTS

AND TEACHERS OF PUBLIC HIGH SCHOOLS

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A Thesis

Presented to

The Faculty of the Graduate School

Samar State Polytechnic College

Catbalogan, Samar

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In Partial Fulfillment

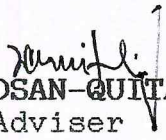of the Requirements of the Course in

Master of Arts in Education

major in Administration and Supervision

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RITA REYES-DIMAKILING
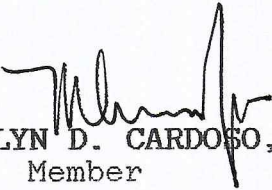
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APPROVAL SHEET

In partial fulfillment of the requirement for the degree, Master of Arts in Education, major in Administration and Supervision, this thesis entitled, "**PERFORMANCE OF SCIENCE AND TECHNOLOGY STUDENTS AND TEACHERS OF PUBLIC HIGH SCHOOLS**", has been prepared and submitted by **RITA REYES-DIMAKILING**, who having passed the comprehensive examination is hereby recommended for oral examination.
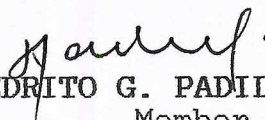
THELMA CABADSAN-QUITALIG, Ph.D.
Adviser

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Approved by the Committee on Oral Examination with a rating of **PASSED**.

RIZALINA M. URBIZTONDO, Ed.D.
Chairman

MARILYN D. CARDOSO, Ph.D.
Member
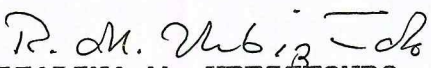
PEDRITO G. PADILLA, M.A.
Member

ESTEBAN A. MALINDOG, JR. M.A.T.
Member

===

Accepted in partial fulfillment of the requirements for the degree, **MASTER OF ARTS IN EDUCATION major in Administration & Supervision.**

February 5, 1998
Date of Oral Examination

RIZALINA M. URBIZTONDO, Ed.D.
Dean, Graduate School

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DEDICATION

This thesis is humbly dedicated

   to Ernesto, my beloved husband,
        who provided all the understanding,
        inspiration, and sacrifice in making
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        and encouragement; and

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        guides me in everything I do.

                              RITA

ABSTRACT

This study attempted to evaluate the performance of science and technology students in relation to their teachers in Calbayog City Division. As to the profile of seminars/training/workshops attended by science and technology teachers in Calbayog City Division, most of the teachers attended the seminar/training occasionally and the areas of concentration were on instructional materials development and on instructional facilities/apparatus/equipment utilization. In terms of performance of the high school students in Calbayog City Division in the division achievement test, the highest average Mean Percentage Score (MPS) by school category was 63.53 followed by 62.18 and 59.8; while the lowest was 41.14. By year level, the second year high school students got the highest average MPS of 64.56 followed by the fourth year, then the first year and lastly, the third year. In terms of experience, the teacher-respondents turned out to be experienced and were expected to have mastered the subject matter of their teaching loads. The performance of the high school students in the Division of Calbayog City in the division achievement test was "average" only and thus, improvement of their performance is the challenge that faces the Division. Preference must be given to teachers' majors or minors in science and technology in the giving of teaching loads in science and technology subjects.

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Chapter 1

THE PROBLEMS AND ITS BACKGROUND

Introduction

The world is fast changing. Scientific knowledge and technological knowhow rapidly spread throughout the world along the concept that such skills and sophistication are the basic capital of tomorrow's society (Coleman, 1985: 27).

Primarily, the trend of society today is to develop awareness of the political, religious, economic, social and environmental issues, including poverty and other catastrophies besetting the country, so that in the end, development strategies, structure, programs, projects and activities may be planned out (Marco, 1993: 1).

Demographers informed that in 1991, there were 5.4 billion people on the planet earth (Waak, 1991: 27). What has this fact to do with development planning?

This inquiry challenges the country's educational system, in order to enhance cooperative efforts at all levels of instruction directed towards a common goal to improve the quality of education.

The Congressional Commission on Education (EDCOM, 1991), points to the irrelevance and poor quality of education in the country. Performance gaps exist between what the educational system is doing and what the country

needs for national development.

Rama (1994: 4) mentioned the Senate report which showed that in periodic test for East Asia, Filipino students tended to place last in science and mathematics. This report shows that science and mathematics in Philippine schools are still behind, if compared to those of the neighboring East Asian Countries.

The Manila Bulletin, June 2, 1997 issue, reported that the government and the private sector joined forces in creating task force to find ways and means to improve the teaching of mathematics and science in the elementary and secondary levels in the country. The task force was made by experts from the Department of Education, Culture and Sports, Department of Science and Technology, Teachers Education Council, Commission on Higher Education, University of the Philippines, Ateneo de Manila University, and the Japan International Cooperating Agency.

Recently the task force reported that, initially, it has come up with proposals meant to address the dismal performance of students in mathematics and science subjects. And some of these measures are: 1) conducting an assessment of all science and mathematics scholars in the country, 2) inviting engineers and doctors to teach the subjects in public schools, and 3) adopting goals similar to those of

the Third International Mathematics and Science Study (Manila Bulletin, June 2, 1997).

The Secondary Education Development Program (SEDP) of 1989 was the response of the need to continue pupils development which was started by Program for Decentralized Education (PRODED). This need was evidenced by research findings indicating a need to improve student performance in science, mathematics and communication arts. These findings mean that ineffective teaching, inadequate facilities and instructional materials contribute to unsatisfactory student performance, hence there is a need to improve policy making and increase the internal efficiency of the secondary school system (Prudente, 1991: 32-33). Likewise, this program aims to improve the quality of secondary graduates and to expand access to quality secondary education.

All these needs are being addressed in the present educational system, particularly in our secondary schools. Yet, students' performance are still par below from what is expected in the different tests conducted in the school level, in the division level, in the regional level, and even in the national level.

In the recently conducted 1996 National Secondary Assessment Test (NSAT), the result of the public secondary schools in Calbayog City attested to the poor performance of

students in science and technology.

Being a science teacher in one of the public high schools in Calbayog City, the researcher realized the necessity to undertake this study to look into the real factors that affected the poor performance of students, especially in science and technology subject. Ultimately, students' academic performance in the aforesaid subjects will be improved.

Through this study, the researcher tried to determine whether the teacher-factor was related to students' academic performance in order that appropriate adjustment by the people concerned be provided to bring about the desired students' outcome.

Statement of the Problem

This study attempted to evaluate the performance in science and technology of students in relation to their teachers in Calbayog City Division. Specifically, it sought answers to the following questions:

1. What is the profile of teachers teaching science and technology in terms of:

      1.1 age?

      1.2 sex?

      1.3 civil status?

      1.4 educational qualification?

1.5   field of specialization?

1.6   teaching experience?

1.7   seminars/trainings/workshops attended?

2.   What is the average academic performance rating of the students in the division achievement test for science and technology in the public high schools in Calbayog City Division?

3.   What is the average performance rating of science and technology teachers in the public high schools in Calbayog City Division?

4.   Is there a significant relationship between the academic performance of students in science and technology and the performance of teachers teaching the subject?

5.   Is there a significant relationship between the performance of students in science and technology and the teachers' profile in terms of:

5.1   age?

5.2   sex?

5.3   civil status?

5.4   educational qualification?

5.5   field of specialization?

5.6   teaching experience?

5.7   seminars/trainings/workshops attended?

6.   What are the problems encountered by the teachers

teaching science and technology?

7. What are the implications of this study to supervisory and instructional redirections?

Hypotheses

Based on the specific questions posed in this study, the following hypotheses were tested:

1. There is no significant relationship between the academic performance of students in science and technology and the performance rating of teachers teaching the subject.

2. There is no significant relationship between the academic performance of students in science and technology and the teachers' profile in terms of:

2.1 age;

2.2 sex;

2.3 civil status;

2.4 educational qualification;

2.5 field of specialization;

2.6 teaching experience; and

2.7 seminars/trainings/workshops attended.

Theoretical Framework

This study is anchored on two basic principles, namely: 1) The principle that science and technology are essential to national development and progress according to Martin (1987: 759-760), and 2) The principle of teaching

effectiveness and efficiency according to Kast and Rosenzweig (1984: 2).

Section 10 of Article XIV of the 1987 Philippine Constitution provides: 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 system and national life.

In this same article of the New Constitution, the framers have not ignored science and technology as an essential and contributing factor to national development and progress. And so, they obligate the state to give priority to research and development, invention, innovation, and their utilization; and to science and technology education, training, and services.

The second principle is enunciated by Kast and Rosenzweig (1984: 2) who believe that performance is measured by one's effectiveness and efficiency. Effectiveness according to the authors is the successful accomplishment of a task regardless of cost, while efficiency is the accomplishment of a task with the least expense of time, money and effort.

Conceptual Framework

The conceptual model in Figure 1 shows that the subjects of the study on the research environment cover all the science and technology students and teachers of the nine (9) complete public high schools in Calbayog City as presented in the base frame. These schools are as follows: Mag-ubay National High School (MNHS); Malaga National High School (MNHS); Oquendo National High School (ONHS); Pilar National High School (PNHS); Rafael Lentejas Memorial School of Fisheries (RLMSF); San Joaquin National High School (SJNHS); San Policarpo National High School (SPNHS); Tarabucan National High School (TNHS); and Trinidad National High School (TRINHS).

Like other schools in the country, these schools have implemented the 1989 New Secondary Education Curriculum of which science and technology is among the subjects. The arrows pointing upward, represent the upward movement of the schema. The double arrowheads show correlational analysis which was undertaken between the two major variables which are the academic performance of students in science and technology represented by X, and the performance rating of teachers teaching the subject, as well as the different personal and professional characteristics of the science and technology teachers like their age, sex, civil status,

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                    Improved
                   Students and
              Teachers Performance
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Supervisory and Instructional Redirections

Analysis of Results

| Performance of Students in Science and Technology (X) | 1) Teachers' Performance in Science and Techno- logy
 2) Personal/Professional characteristics of the teachers: age, sex, civil status, educational qualification, field of specialization, teaching experience, and semi- nars/training/workshops attended.   (Y) |

| MNHS | MNHS | ONHS | PNHS | RLMSF | SJNHS | SPNHS | TNHS | TRINHS |

Science and Technology Students and Teachers of Public High Schools in Calbayog City Division

Figure 1. The schema showing the research environment and the subjects of the study, the major variables involved with their relationship as a result of statistical process, and the policy redirections towards the ultimate goal of the study.

educational qualification, field of specialization, teaching experience and seminars/trainings/workshops attended.

The result of this study is expected to provide inputs to supervisory and instructional redirections which in turn will facilitate the attainment of improved performance on the part of the teachers and students, which is shown in the apex of the schema.

Significance of the Study

This study was conducted because the researcher believes that up to this time no similar study has ever been conducted in the Division of Calbayog City.

The findings of the study are expected to benefit administrators, teachers, learners, curriculum planners, the community and other researcher as discussed comprehensively in the subsequent paragraphs.

The Administators. The findings of this study will give insights to administrators on the needs and problems of teachers, thus making them supportive to the curricular programs being implemented in their schools. It will make them aware of how their school teachers and students stand in relation to those of other schools based on performance of teachers and achievement of students.

The Science and Technology Teachers. The teachers will

derive factual information on the extent of their influence on the overall school performance of their students. Hence, they can make the necessary adjustments in their teaching to make them more relevant and meaningful to target learners.

The Learners. The result of this study will make the learners become aware of the status of their academic achievement, thus be challenged to do better and improve their performance. With such knowledge they can be motivated to strive harder and study more seriously to enable them to achieve excellence in science and technology.

The Curriculum Planners. This study may inspire curriculum planners to look into their present curricula and co-curricular program with the end in view of redirecting goal placing emphasis on the academic performance of students.

The Community. The community will be made aware that science and technology are dynamic factors that have been changing the quality of life on Earth. They are recognized as important tools in economic development and socio-cultural change, particularly in developing countries such as ours.

The Prospective Researchers. The results of this study maybe used by future researchers who are interested to

focus their investigation on science and technology as an anchorage for conceptualizing and undertaking a related study.

Scope and Delimitation of the Study

This study is focused on the academic performance of high school students in science and technology in the nine (9) public high schools in Calbayog City Division in the division achievement test for the school year 1996-1997.

The samples included all the students in every school who were involved in the division achievement test in the said school year, as presented in Table 1, on the following page. For the teachers group, all the teachers teaching science and technology in the nine secondary schools were considered (see Table 1) and that their performance rating as of last school year 1996-1997 was among the subjects of consideration in this particular study.

The nine secondary schools in the Division of Calbayog City which became the sources of data or information for this study were: Mag-ubay National High School (MNHS); Malaga National High School (MNHS); Oquendo National High School (ONHS); Pilar National High School (PNHS); Rafael Lentejas Memorial School of Fisheries (RLMSF); San Joaquin National High School (SJNHS); San Policarpo National High School (SPNHS); Tarabucan National High School (TNHS); and

Table 1

**Distribution of Respondents of the Study
According to School and Grouping**

SCHOOLS	Respondents		
	No. of Enrolment	No. of Students who took the Achievement Test	No. of Teachers
1. Mag-ubay National High School	155	153	3
2. Malaga National High School	442	160	3
3. Oquendo National High School	578	160	4
4. Pilar National High School	233	160	3
5. Rafael Lentejas Memorial School of Fisheries	538	160	4
6. San Joaquin National High School	635	160	3
7. San Policarpo Nat'l. School	951	160	6
8. Tarabucan National High School	218	160	3
9. Trinidad National High School	572	160	5
Total	4,322	1,433	34

Trinidad National High School (TRINHS).

Definition of Terms

For a better understanding of the study, the following terms are defined conceptually and operationally.

Academic performance. This term refers to some methods of expressing a student's scholastic standing expressed as

average for a group of students (Lewin, 1959: 8). In this study, it refers to the scores of the high school students in the achievement test in science and technology for the school year 1996-1997.

Achievement test. Generally, this term is a test given at the end of instruction to determine the level of mastery of the intended outcomes of teaching and learning (Palma, 1992: 51). In this study, it applies to the Division achievement test in science and technology.

Administrators. Persons who administer an institution (The New Lexicon Dictionary, 1996: 11). As used in this study, they are the secondary school principals, the secondary head teachers, and teachers in-charge.

Evaluation. This term means a systematic collection of the evidence of learning to determine whether certain desired changes are taking place in the learner as well as the amount or degree of change (Palma, 1992: 152). In this study, this term refers to the result of the division achievement test in science and technology.

Students. In this study, these were the high school students (males and females) who were selected through systematic random sampling employed by the testing team in the nine (9) public secondary schools in Calbayog City Division and were made to answer the division achievement test in science and technology last School

Year 1996-1997.

Science and Technology. This term refers to the basic subject taken by the high school students with the following areas, namely: general science, biology, chemistry and physics.

Science and Technology Teachers. This term refers to those teachers who are teaching science and technology subjects in the secondary level.

Supervisory and Instructional Redirection. Conceptually, and as used in this study, this refers to the policy in a specific area in a certain institution to enrich, modify, abolish or maintain, as the case maybe, towards achieving a common goal.

Teacher's qualification. Conceptually this term refers to the education, experience, physical, social and mental characteristics of a mentor which determine his fitness for educational position (Good, 1973: 90). As used in this study, it refers to the degree successfully earned from formal school, a finished course in college or other systems of upgrading one's professional growth.

Teacher's performance. This refers to the ratings of teachers indicated in the Performance Appraisal System for Teachers (PAST).

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

In this chapter, conceptual and research literature that relate in some aspects to this research were reviewed to give insights into the content of this study. Some literature and previous researches that have implications and relevance to this particular study are likewise presented.

Related Literature

This section presents the different theories, concepts and principles on 1) intelligence and learning, 2) student achievement and teacher factor, 3) the teacher factor in learning, 4) teacher's mastery of subject, and 5) The Education Act of 1992.

Isidro (1962: 9) stated that intelligence is one of the factors that affects the learning process. In fact, it has something to do with the learning abilities of the students, hence, the higher the intelligence, the greater is the ability to learn.

Gregorio (1976: 29) indicated that:

> . . . the different theories of intelligence pointed out the importance and functions of intelligence in gaining knowledge of the students and in teaching. Whatever technique of teaching is to be used by the teacher, the learner and his

characteristics must be considered for the true function of intelligence is what the child or pupil can do.

Ramirez (1971: 87-88) pointed out that as children enter school, their intellectual development depends much on the mental stimulation they have received from the classroom and to which they respond.

Another theoretical frame of reference is Atkinson´s (1966: 75) Model of the Dynamics of Cumulative Achievement. In this theory, academic achievement, as defined by the final grade in a course, is best predicted by previous performance. The final grade is reflective of the achievement in the academic subjects and in academic undertaking related to these subjects.

The teacher is one of the most important factors in the educative process, and could also be said, that in the access of a person, there is always a teacher involved. Thus, Gregorio (1976: 248) described teaching as follows:

> The teacher is the highest priest of the future. . while teaching is a great opportunity.. the noblest of all human endeavors, the greatest of all privileges, and the most sacred duty that one can undertake, no one should enter into this work without an appreciation of the great opportunity it offers for high services, gratifying achievement, and without the sense of the responsibilities involved in being a teacher or instructor of young children.

The Congressional Commission on Education (1991)

clearly defined the role of the teacher as the single most important factor in education. The profound influence the teacher has as an agent of change in society and the youth learning in the classroom situation is beyond question.

Today the Philippine society has critical demands for high performing teachers though they are the core and object of criticism from all sectors of society. They are as well looked up as the best hope for the reforms.

Kapunan (1974: 74) stated that there is now a need for reforms in the Philippine educational system. The reforms should be based on a careful study and analysis of the factors associated with quality education. Some factors believed to affect are: teacher's personality, physical condition of the learners, motivation, and environmental factors.

According to Cortes (1994: 153), there are many ways of ascertaining quality education. However, the most common measures of indicators of this education are: (1) pupils/students' scores in achievement test and (2) graduates' performance in national achievement examination, such as the NCEE (now NSAT) and other examinations.

Miguel (1994: 235-236) pointed out that there are some factors associated with academic achievements. The analysis of the educational system was done by determining the relationship between the input and the output factors and

the following are the results:

1.	The scores on the mental ability test correlate highly with scores in the achievement tests. The correlations are higher with science, language and reading. The general mental ability tests can be useful for predicting academic achievement scores among graduating elementary school pupils in the Philippines.

2.	The factor analysis of subject area test scores shows that the underlying common intellectual skill among elementary school graduates is one that is most similar to those learned in science and english.

3.	Females tended to score somewhat higher than males, especially in subject areas of language, pagbasa and wika. It was noted that the largest difference in scores between females and males are in the communication skills while they are about the same in mathematics, science and social studies.

4.	Regional variations in academic achievement are related with socio-economic factors which in turn are associated with geographical areas and characteristics. It is widely known that there are large regional gaps in the levels of socio-economic development across regions of the country. The data from SOUTELE seemed to lend credence to the hypothesis that variations in socio-economic conditions are systematically translated into variations in academic

The House of Education Committee added that the enrolment increase needed a corresponding increase in the number of classroom.

Based on the article of Miguel (1994: 200), the recommendation of the Monroe Survey Team pointed out the need to create in the then Bureau of Education, adequate budgetary provisions, a professional and supervisory staff composed of individuals properly qualified to provide leadership in teacher training, curriculum construction, academic education, rural education, industrial education, household arts education and health education and that the instructional materials developed by the members of this staff be regarded as government property. It also recommended the frequent and systematic inspection of the academic work of the various provinces through ocular inspection of these schools. In the selection of textbooks, the Director of Education, through the guidance of a professional board was to be directly responsible for the textbook used in the schools.

It was further noted by Aboy (1988: 11) that teachers with several teaching loads tend to hurry with the subject matter, leaving little time to allow reluctant students to participate. Those teachers that are taking charge of large classes barely have enough time to attend to the needs of individual students. The failure to recognize individual

differences, needs, and interest among the students are some factors affecting the learning situation. Clearly a strategy of teaching that would help solve this problem is needed.

Lardizabal, et.al. (1978: 323) pointed out that it is typical for a student to do better in one subject than in another. Some teachers are more skillful in teaching one subject than in teaching another, and this is reflected in the performance of their students. They also stressed that achievement test batteries are designed to determine the comparative performance of a student, a class or even a schoolsystem, in practically all areas of the school program and this performance in each area is compared with a national norm. They are commonly made up of sections, each covering an area such as science, mathematics, reading, social studies and health.

Medley's statement, as cited by Anderson (1990: 18), emphasized that:

> Teacher effectiveness will be used to refer to the result a teacher gets or to the amount of progress the students make towards some specified goals of education. One implication of this definition is that teacher effectiveness must be defined and can only be assessed in terms of behaviors of students, not behaviors of teachers.

It is a fact that quality education is the main focus of the educational system for the year 2000 as the theme states: "Quality Education for Philippines 2000". In

meeting such goal there is a need to be more effective and efficient in the utilization of resources towards a more productive teaching (Castro, 1994: 147). Also the accepted measure of quality education is the attainment of the following objectives: 1) To produce the best in an individual so that he may realize his full potential; 2) To assist the child in becoming a good citizen and a responsible adult able to assume responsibility as a member of his community; and 3) To prepare a person to be productive member of society, be it as an agriculturist, factory worker, or provider of service (Ordillas, 1993: 135).

Cortes (1994: 185), cited that there are several factors that affect the delivery of mastery learning towards quality education but the teachers, of course, are the most vital. It follows the general dictum that the quality of education cannot rise above the quality of teachers, and the quality of school that educate and train them.

The teachers must possess desirable patterns essential to the how's of quality teaching. Presumably, the desirable behavioral patterns observed to produce great impact on quality education include their many roles as a manager, counselor, motivator, leader, model, public relations specialist, parent surrogate and instructor (Cabudol, 1994: 182).

Aquino (1988: 545-546) pointed out that excellent performance is much needed today, and it can be applied to every degree or level of ability to every socially acceptable activity, but it is much more than that. According to a theorist, teaching always has been, is, and always will be, the primary means of human progress and survival. He further emphasized that not only does teaching provide service to humanity; it greatly influences students' social, economic, political, scientific and moral life for their society. These elements are basically pointing to economic development which according to economic experts, can be attained through scientific and technological knowhow.

Javier (1983: 48) made a study on the economic progress in a number of countries in Southeast Asia including the Philippines. His findings revealed that Japan, Taiwan, Singapore, and Hongkong are very resourceful, for they make up for their paucity of natural resources by the quality of science education given to their people. Therefore, in the ultimate analysis, the crucial factor for progress is the people who have mastered Science and Technology for attaining and sustaining progress. The findings of Javier, affirm the assumption that what the Science teachers do in the classroom are the key forces for promoting students' academic performance in Science, a field essential to

national development and progress.

It is also believed that to be an effective teacher, one must have adequate knowledge of the subject matter he/she is to teach. This calls for special preparation by taking major or specialization in the chosen field, like science. It is frustrating to expect the teacher to do the best if he/she has no adequate training in it (Camargo, 1994: 441). Says Highet (1965: 19), "The teacher who dislikes his subject or one who has not passed training, always runs the risk of becoming a hypocrite".

Espina (1988: 2) cited that in recent years, a teacher's growth in the desired content of a subject of his specialization has been impeded not necessarily by reason of lack of talent but by poor background. The teacher's inadequacy in matter of content has likewise been compounded with difficulty in the medium of instruction. Furthermore, his non-mastery of the required language for teaching complicates not only the interpretation of knowledge worded in a "non-familiar" language but also the transmission and articulation of the knowledge the teacher already possesses.

Zwoll (1964: 158) stated that some teachers are teaching subjects which are not related to their major or minor preparation. They are just forced to handle the subject due to lack of qualified teachers. Being ill-prepared, these teachers may have low level of aspiration,

undesirable teaching behavior, and poor attitude and low motivation toward their work. These negative manifestations lead to low student achievement. In addition, a teacher who has to work with insufficient facilities and inadequate instructional materials is deprived of the condition conducive to effective performance.

The educational provisions mandated in the 1987 Constitution have been articulated in the Education Act of 1982, Batas Blg. 232, (As cited by Sutaria et.al.: 1989), which provides that:

> The State shall promote the right of every individual to relevant quality education regardless of sex, age, creed, socio-economic status, physical and mental condition, racial as well as ethnic origin, political or other affiliation. The state shall promote equality of access to education as well as the enjoyment of the benefits by all its citizens.

One of the objectives for national development stated under Education Act of 1982 in the medium term plan (1987-1992) of the country is to promote science and technology, culture and sports.

In answer to the cited objective, the Secondary Education Development Program (SEDP) was formulated to systematically upgrade science education at all levels, provide for the training of high level scientific manpower, upgrade science equipment and equalize science training opportunities through new science instructions. Support was

extended to the development of science and technology manpower scholarships and program for science teachers and returning scientists.

Related Studies

Inquiry and thorough investigation were made in some graduate schools as to ascertain whether there were related studies made on the present study and are briefly described in this section for reference, as follows:

Ultra (1996), in her study, entitled "Determinants of the Academic Performance of Second Year Students in Biology in Secondary Schools in Northern Samar" cited that a significant relationship existed among the academic performance of the second year students and their mental ability, entry behavior related to biology, attitudes, parental authority, teachers' qualifications, teaching behavior, library facilities, and physical facilities. From the same study, it was found out, however, that laboratory facilities were not significantly related to the academic performance of the students.

Ultra added, that the variable which affected most the performance of the students in biology was their entry behavior related to biology. The variable which least affected their performance in such subject was teachers' qualifications.

The study of Ultra is similar to the present study since they both cited the academic performance of students in the secondary school. However, while Ultra's study focused on the determinants of academic performance of second year students in biology, the present study is concerned on the performance of high school students in all levels in science and technology and that of the performance of the teachers handling the subject.

Another study on students' performance was conducted by Perez (1987). Her study was about the relationship between mathematical ability and language ability of grade six pupils in the three central schools of the three districts in Catbalogan, Samar, during the school year 1984-1985. Her study revealed that there was a moderate or substantial evidence of significant relationship between the achievement score and the scholastic achievement in elementary mathematics, although there was a slight evidence of significant correlation between the achievement score and the scholastic achievement in communication arts english. It also showed that there was slight evidence of significant relationship between the achievement scores in the two subjects. Finally, the study revealed a substantial evidence of significant correlation between the scholastic achievement in elementary mathematics and in communication

arts english.

The study conducted by Perez has significant bearing with the present study because both are studies on pupils'/students' academic performance. On the other hand, the study of Perez focused on mathematics and language abilities of grade six pupils of the three central schools in Catbalogan, Samar, while the present study dealt on the performance of science and technology students and teachers of public high schools of Calbayog City.

Bacho (1991), in her study, dealt with the factors affecting the National College Entrance Examination (NCEE) performance of students of five selected coastal high schools in Samar. There were seven factors involved in her study, such as: the socio-economic status of the family, student factor, school facilities, geographical condition, weather condition, teacher factor and peace and order situation. Based on the findings and conclusion of Bacho's study, she recommended that in order to help students achieve better and acquire quality education, they should be provided with school buildings to house them in well structured rooms, fully equipped with adequate seats and other facilities, with competent teachers teaching their majors and minors only. It was further stressed in her study that thorough NCEE review classes should be conducted regularly. Furthermore, school administrators should regu-

of public high schools in Calbayog City Division.

Cinco's (1993) study was an investigation of some teacher variables in relation to achievement in mathematics of intermediate pupils in Carmen District, Cebu, cited that the educational attainment of teachers, teachers' training in mathematics, and teacher experience were significantly related to pupil achievement in mathematics.

This study bears similarities with the present study since both involved variables like educational attainment of teachers, teaching experience and teachers training. However, they differed in subject area and the year level of students respondents. The present study involved all the year levels in high schools of Calbayog City and the subject area was science and technology, while the study cited involved the intermediate pupils and the subject area was elementary mathematics.

Payos (1989) in her study "The Performance of PIT Instructor as it Relates to College Students' Scholastic Achievement," revealed that there was no significant relationship between the performance ratings of instructors and scholastic performance of the students. It then, implied that the instructors who where rated high in their performance did not necessarily yield high scholastic achievement among students.

The study conducted by Payos is related to the present study considering that both dealt with the teachers´/instructors´ performance and scholastic performance of students. The two differed in the sense that the study cited, concentrated on the performance of PIT instructors as it related to college students´ scholastic achievement, while the present study was concerned on the performance of science and technology students and teachers of public high schools.

Ynalbis (1994) in her study of educational qualifications and instructional competence of elementary grade teachers in the district of Zumarraga-Talalora in Samar, stated that there must be a systematic and periodic appraisal of teachers educational qualification and performance ratings for instructional competence. A good appraisal program from the division or district should be evolved, for this will provide information on up-graded professional growth through advanced formal schooling and instructional competence of teachers. Proper motivation and encouragement from administrators will give equal chance or opportunity to teachers to upgrade their education and consequently improve their skill in teaching.

The study of Ynalbis which dealt with educational qualification and instructional competence of teachers is

similar to the present study because both dealt with teachers qualification as one of the variables. They differed in the sense that the earlier study focused on the elementary grade teachers while the present study dealt with the performance of science and technology students and teachers of public high schools.

From the findings and conclusions of Jumadiao's (1997) study about factors associated with the problems of multigrade teachers in Northern Samar, he highly recommended that multigrade teachers should upgrade themselves professionally. They can do it by enrolling in graduate education and attending more trainings and workshops to improve their teaching competencies. Their lack of experience in teaching can be supplemented by their attendance in graduate classes and in trainings. In this way they can also maintain, if not improve, their very satisfactory work performance.

The above study is related to the present study since attending trainings and workshops are mentioned as a means of improving teaching competencies.

Nuñez' (1993) study, stressed the importance of attitudes towards chemistry in secondary schools. She stated that students' interests in the subject will be aroused if science teaching will become effective, meaningful and fascinating. The teacher should put more emphasis

on the lives of the students for them to appreciate chemistry as a curricular subject in the secondary education program.

She further contended that one of the factors that affected the attitude of the learner is an effective teacher. She should be competent in implementing teaching strategies that will make the students alert and awake in the chemistry classes. Teachers should be well-acquainted with the different teaching strategies in order that students will appreciate the lessons in chemistry. Based on the findings of the study, the students preferred the modern method of teaching chemistry rather than the traditional method.

This study gave the researcher insights on the importance of in-service trainings in upgrading the teaching competencies of teachers. The teacher is one of the factors that affects the teaching-learning process in the classroom. The performance of the teacher influences also the positive attitudes of the students towards the subject.

The study of Nuñez is related to the present study since both cited the performance of the teacher. They differed because while the former is focused only to a specific area in science, which is chemistry, the latter considered the four areas in science which are general

science, biology, chemistry and physics.

Dumaguing's (1987) study on the in-service training needs of college teachers in Visayas State of Agriculture, Baybay, Leyte, revealed the following: 1) A workshop on the methodologies would be well to include a look at students' performance, teacher-student interaction and material preparation, 2) Old teaching methodologies must be replaced with the new ones, 3) Specific areas that need revitalization are the following: a) upgrading course outline and laboratory guides, b) reduction of number of students in laboratory, classrooms and c) improvement of teaching methodologies through seminar-workshops.

The above study is related to the present study since it confirmed the significance of the in-service trainings to improve teachers' performance. They differed on the subjects because while the former is concerned with the college teachers, the latter is concerned with the high school teachers and students.

Based on the findings of the study of Radam (1995), entitled "The In-Service Training and Teaching Strategies of Chemistry Teachers and Their Relationship to Academic Achievement of Students in Technical Vocational Schools in Biliran," the following conclusions were drawn:

1. The chemistry teachers in vocational schools of Biliran were young. Majority were married, had average

teaching experience and possessed the degree required for Chemistry teaching.

2. The in-service trainings for the teachers were made available to chemistry teachers in various levels and with all types of trainings.

3. The chemistry teachers were exposed to various approaches and methods in the trainings attended.

4. The teaching strategies used by the teachers were based on applicability and effectiveness. The strategies oftentimes used were: laboratory, conceptual approach, discovery method, lecture discussion and process approach.

5. The achievement level of students in chemistry in the vocational schools in Biliran was average.

6. There was significant relationship between age of teachers and students academic achievement in majority of the schools.

7. Sex did not relate significantly to students' academic achievement in majority of the schools.

8. All the schools had contrasting opinions regarding the influence of civil status to academic achievement.

9. All schools had contrasting opinions about the relationship of teaching experience to students academic achievement.

10. Educational qualifications did not relate

significantly to students´ academic achievement as evaluated by majority of the schools.

11.   All the schools had contrasting opinions regarding the relationship of professional characteristics of teachers and students´ academic achievement.

12.   The teaching strategies had significant relationship in majority of the schools while others did not.

13.   The achievement level of students in chemistry in the areas identified: classification, observation, description and problem solving, was satisfactory.

14.   The achievement level of students by schools and areas differed significantly.

Radam´s study relates to the present study because it deal with the academic achievement of students which was the basis in identifying the performance of students.   They differed on the location of the study and the type of schools because while the former was intended for vocational schools, the latter was for the general secondary schools.

Gabat (1987) in her study entitled "the Management Practices in Relation to Teachers Performance", affirmed that the administrative practice significantly correlated to teachers´ performance on the aspects of 1) orienting, train-ing and developing in staffing functions; 2) delegating,

motivating and managing differences in directing functions; and 3) measuring results, and rewarding in controlling functions.

Gabat´s study is related to the present since both involved teachers performance. The difference lies in the fact that the former were concerned not only of the teachers performance but also its relation to management practices.

Tobes (1988) in her study about employability and productivity of the graduates of the three-year technical education in Tiburcio Tancinco Memorial Institute of Science and Technology (TTMIST), cited that educational qualification and in-service training, and retraining of teachers enhanced significant inputs to productivity of teachers, as well as the students. This study is similar to the present study since it deal with the educational qualification and in-service trainings of teacher. They differed because Tobes study was after the graduates employability from the technical education while the present study was concerned on the first year to fourth year high school students´ performance in Science and Technology.

The study of Joaquin (1988) on the comparative analysis of pre-service and industrial mechanical draftsman, recommended that teachers should undergo a continuous training in their field of specialization in order to keep

them abreast with the latest development trends in education and industry.

Joaquin's study is related to the present study because both involved training of teachers in their field of specialization as one of the variables in the present study.

On the study of Montejo (1989), about the educational qualification and job performance of public school teachers in Catbalogan Central School, she cited in her conclusion that there was a significant relationship between educational qualification and job performance of teachers. As teachers upgrade themselves professionally, they likewise improve their competencies in the teaching-learning process.

Montejo further recommended that teachers should endeavor to grow professionally. They should not depend too much on the privileges given by the school but should spend their own time, money and efforts to upgrade themselves and thereby improve their skills and competencies in the teaching-learning process. She also recommended that the administration in the Division should encourage their teachers to attend weekend and summer classes in the graduate and doctoral level.

This study conducted by Montejo is similar to the present study because it dealt with educational qualification and performance of teachers to improve

competencies in the teaching-learning process. They differed on the subjects of study because while the former was only about teachers' performance, the latter included the students' performance aside from the teachers' performance.

Based on the findings of the study of Conise (1991), entitled "The Teacher Competence in Relation to Pupil Achievement in Health and Science; Its Implication to Science and Health Instruction", it was pointed out that the teacher competence ratings, specifically the science and health teachers in the District of Sta. Rita, must be based on a comprehensive evaluation of teacher performance to rule out doubts that a teacher is fully competent or incompetent and is able or unable to help his pupils achieve optimally.

Conise further stated that high performance ratings given to science and health teachers in the District of Sta. Rita run counter to the low academic achievement level of the Grade VI pupils in the District. This gave rise to related implications that ratings on teacher competency in the Performance Appraisal Report were not enough guarantees that teacher-ratees were truly competent in science and health instruction for they did not measure specific competencies of a teacher.

Conise also cited that, one way of arriving at a fair

rating for a teacher would be regular and objective supervision of actual teaching performance of science and health teachers so as to focus on the academic aspect of instruction rather than on the community and related services. The overall result of the academic achievement of Grade VI pupils in the District of Sta. Rita in terms of science and health performance was very low. This pointed to an implication that poor test items in an achievement test can result in low scores among examinees. Although many factors were believed to influence school achievement, it was known that the teacher played a crucial role in improving pupils´ achievement. The poor academic achievement of the pupils implied that the teachers were quite remiss in their basic duties as classroom teachers. Be that as it may, a pupils´ intelligence must be the factor that guarantees that he should be a high achiever regardless of the type of teacher he is under.

The study of Conise was related to the present study in the sense that both dealt with performance of teachers and students achievement level. The difference lies on the curriculum, for the former was for elementary and the latter was for secondary.

Aguilar (1995) in her study, on the selected factors related to academic achievement of students in science in selected secondary schools in the Division of Leyte, re-

vealed that young science teachers dominated the larger schools in the Division of Leyte. Moreover, they had adequate preparation in teaching science, a fact which appeared inconsistent with the low performance of students. Therefore, it was seen that there was a need for upgrading the teachers' competence by offering more scholarships and other relevant trainings, open to both public and private school teachers.

Aguilar recommended that heads of schools should be science and technology oriented and trained so as to be of help to their teachers. They cannot recommend for better instruction if they themselves do not know what to supervise. She further stressed that there is a pressing need to put up a Regional Science Training Center in charge of developing/improving science instruction/program in Leyte and Samar.

This study has semblance with the present study because both dealt with performance of students and teachers. They differed on the coverage of respondents because while the present study was intended for all complete secondary schools in the Division of Calbayog City, the former was concerned with the selected secondary schools in the Division of Leyte.

On the study of Siguan (1986), which dealt with the

Instructional Management of School Administrators and Pupils´ Performance in the District of Salcedo Eastern Samar, he recommended that the teaching competencies of teachers should be improved through effective classroom supervision. Administrators must see to it that they visit the classrooms to effectively help the teachers. As a help for teachers, well-defined constructive criticism from their administrators must be given along with psychological, practical and logical considerations. The weak points of the teachers in teaching must be known and the ways to improve them should be discussed and handled with tact and persuasive diplomacy to maintain rapport at all times. He further recommended the following: faculty development should be encouraged through workshops; summer institutes and in-service trainings for professional growth and development of administrators, teachers and employees in the Bureau of Elementary Education. It is during workshops and summerinstitutes when new trends, techniques and methods are introduced and disseminated to the field. Likewise, it is during in-service trainings when new approaches in teaching are being introduced for implementation in the field. So, teachers should be given these opportunities for better teaching outcomes. Equitable distribution of these opportunities must be followed together with the

sufficient provisions available to qualified ones in the school system.

The abovementioned study is related to the present study because both cite in-service training as one of the variables used. The difference lies in the fact that while the former study is concerned on the instructional management of school administrators, the latter is simply studying the performance of the students and teachers.

Chapter 3

METHODOLOGY

This chapter presents a comprehensive discussion of the methods and procedures used in the conduct of the study, including the research design, the instrumentation, the validation of the instrument, the data gathering procedure, and the treatment of data, including the statistical measures used in hypotheses testing with their corresponding formulas. It also includes the level of significance (α) at which the hypotheses were tested.

Research Design

This study on the performance of science and technology students and teachers in public high schools in Calbayog City Division, had employed the descriptive-correlational research method using documentary analysis and survey questionnaire, as the main instruments in gathering the needed data. It was supplemented by occasional personal interviews to verify or crosscheck the initial information gathered from office records, particularly the results of the division achievement test in science and technology last SY 1996-1997, as well as the performance ratings of the teachers per records in the Performance Appraisal System for Teachers (PAST) in the same school year.

Instrumentation

The research instruments that were used in the collection of pertinent data for this study were: educational survey questionnaire; documentary analysis, and unstructured interview. These three were the ones that had helped the researcher in finding answers to the specific problems of the study.

Educational Survey Questionnaire. The questionnaire was the tool used in gathering information about the teacher respondents as to their age, sex, civil status, educational qualification, field of specialization, teaching experience, and seminars/trainings/workshops attended, which comprised the first part of such instrument, marked A. The second part, marked B, contained the possible problems encountered by teachers in teaching science and technology in the high school or those which they thought were detrimental to the teaching effectiveness of teachers teaching science and technology. Meanwhile, the second part solicited possible solutions to the problems identified by the respondents.

Documentary Analysis. This technique was used in scrutinizing the records in the Division Office of Calbayog City Division and in the school heads offices as regards to the academic performance of students in the division

achievement test in science and technology from first year to fourth year, last school year 1996-1997 and that of the performance rating of teachers, in the Performance Appraisal System for Teachers, handling science and technology in the high school of the same school year.

Unstructured Interview. In order to validate information brought by some questions in the questionnaire, the unstructured interview was employed. Also, to augment and cross-check the responses and/or information made by the respondents and that found on records, unstructured interviews were undertaken on a case-to-case basis.

Validation of the Instruments.

Before the questionnaire was made final, it was tried through a dry-run to teachers handling subjects like english, social studies, mathematics, filipino and values education in Tarabucan National High School where the researcher is teaching. Comments and suggestions were solicited from the teachers mentioned earlier.

Some revisions done on the questionnaire were the manner of stating the directions in each part, the items listed in the problems as in the suggested solutions. Final draft of the questionnaire was prepared and submitted to her adviser for approval. The final revised questionnaire was

then reproduced in sufficient number of copies for distribution to the respondents of the study.

Sampling Procedure

In the selection of the student-respondents, total enumeration was utilized by the researcher. This means that all the students who were chosen to participate in the division achievement test from first year to fourth year were taken as respondents of the study. In the nine secondary schools, the 40 selected students per year level participated in the study. There were 40, because these 40 students per year level were the ones involved during the conduct of the division achievement test last school year 1996-1997. In this study, this same number was considered in determining the Mean Performance Score of the concerned students in science and technology.

Likewise, in getting the data for the performance rating of the teachers, total enumeration was employed where all teachers handling science and technology from first year to fourth year levels were considered.

Therefore, the total number of respondents for the students' group, reached to 1,433, while the teachers, 34 of them who were actually teaching science and technology were involved in this study. All these students and teachers representing the two groups came from the following

secondary schools: 1) Mag-ubay National High School; 2) Malaga National High School; 3) Oquendo National High school; 4) Pilar National High School; 5) Rafael Lentejas Memorial School of Fisheries; 6) San Joaquin National High School; 7) San Policarpo National High School; 8) Tarabucan National High School; and 9) Trinidad National High School.

Gathering of Data.

Before going out to get the division achievement test result in science and technology for School Year 1996-1997 and distributing the questionnaire for teachers, a Letter of Introduction from the Dean of Graduate Studies to the Superintendent and to the Administrators of each respondent school was sought. The researcher requested the teachers involved, through the principals, head teachers and teachers in-charge of the nine (9) public secondary schools, to answer the questionnaire. This was done personally by the researcher herself, including the retrieval of the said questionnaire.

When all the questionnaires were in the position of the researcher, the data/information were organized, tallied, analyzed and interpreted with the use of appropriate statistical measures.

Statistical Treatment of Data

Frequency count and percentage were used to present the data relative to the profile of the teachers. The performance ratings of science and technology teachers were recorded individually and the means were computed by school. The teachers' mean performance constituted the data for (Y) variable. The Mean Percentage Score (MPS) of the students performance in the division achievement test was computed using the following formula:

$$MPS = \frac{Mean}{No.\ of\ Items/Highest\ possible\ Score} \times 100$$

The average MPS of the male and female students by year level and by school were recorded which constituted the data for (X) variable.

The data were casted in two columns under X for the students MPS and under Y for the teachers' mean performance rating.

To associate or correlate the X and Y variables, the Pearson Product-Moment Correlation Coefficient (Pearson r) was used, using the following formula (Downie & Heath, 1984: 199).

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

where:

r = is the computed statistical value

X = is the students performance in Science

Y = is the teachers' performance

N = is the number of cases

E = stands for summation

To determine the extent of correlation between X and Y, the following legend of interpretation was used:

.00 - .20   - negligible correlation

.21 - .40   - low correlation

.41 - .70   - substantial correlation

.71 - 1.00   - high to very high correlation

To test the significance of result of the r, the Fisher's t-test (Downie & Heath, 1984: 193) was used wherein the level of significance set at .05. As a rule, if the computed r value is equal or greater than the table r value, the H_O is rejected. On the other hand, if the computed r value is less than the table r value, the H_O is accepted.

The formula used was:

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

Where:

r = computed Pearson r value

N = No. of pairs

Chapter 4

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter presents the findings on the performance of science and technology students and teachers of public high schools in Calbayog City Division based on the responses of the teachers and the result of the achievement test in science and technology for SY 1996-1997 under study. It likewise presents the corresponding analysis and interpretation of data revealed in this study.

Profile of Science and Technology Teachers in the Division of Calbayog City

Age and Sex. The data in Table 2 provide the information relative to the age and sex profile of the teacher-respondents. Of the 34 teacher-respondents, 14 or 41.2 percent belonged to 40-49 years age bracket. This was followed by ten teachers or 29.4 percent who belonged between 30-39 years old. Only one teacher or 2.9 percent was between 50-59 years of age. On the average, the female group turned out older than the male group as evidenced by the fact that the former pegged a mean age value of 37.5 years with a standard deviation of 8.2 years while the latter posted a mean age of 33.1 years with a

Table 2

Age and Sex Profile of Science and Technology Teachers in Calbayog City Division

Age Bracket (in years)	Sex		Total	Percentage
	Male	Female		
50 - 59	0	1	1	2.9
40 - 49	3	11	14	41.2
30 - 39	0	10	10	29.4
20 - 29	4	5	9	26.5
Total	7	27	34	100.0
Percentage	21	79	100	-
Average Age	33.1	37.5	36.6 years	
Standard Deviation	10.7	8.2	8.8 years	

standard deviation of 10.7 years. On the whole, the average age of the teacher-respondents was 36.6 years. This implies that the science and technology teachers in Calbayog City Division were in their middle-age, hence they can be considered as physically fit and on their prime.

Meanwhile, it can be gleaned from the same table that the females dominated the teacher-respondents with 27 out of 34 teachers or 79 percent and only seven or 21 percent were

male. This means that in general, the teaching profession is more attractive and appealing among females. This finding concurs with the general observation that more females are into teaching profession than their male counterparts.

Civil Status. As shown in Table 3, most of the science and technology teachers who were involved in the study were married inasmuch as 25 out of the 34 teacher-respondents or 73.5 percent were of this category. Eight teachers who comprised 23.5 percent were single and only one or 2.9 percent was widow/widower. The dominance of married teachers could be attributed to the fact that their age profile suggests that they were already in their middle-age and are, therefore, expected to have families of their own.

Table 3

Civil Status Profile of Science and Technology
Teachers in Calbayog City Division

Civil Status	:	Number	:	Percentage
Single		8		23.5
Married		25		73.5
Widow/Widower		1		2.9
Total		34		100.0

Educational Qualification. The respondents´ profile in terms of their educational qualification is summarized in Table 4. As shown in the said table, all respondents have earned at least a BS degree. A total of 22 or 64.7 percent respondents had finished Bachelor of Science in Education (BSE), four or 11.6 percent was Bachelor of Science in Industrial Education (BSIE), three or 8.8 percent was Bachelor of Science in Biology, one or 2.9 percent was Bachelor of Science in Fishery Education (BSFEd), one or 2.9 percent was Bachelor of Science in Education (BSEd), and three or 8.8 percent have graduated the masteral degree courses.

These data indicate that the science and technology teachers in Calbayog City Division are qualified to teach science and technology subjects and have manifested their desire to pursue professional advancement.

Field of Specialization. Among the important aspects of teaching science and technology subject, is the field of specialization of teachers actually teaching the subject.

What could be inferred from the data in Table 5 is the reality that a significant majority of the respondent-teachers were majors in biology with 16 or 47 percent of the teacher-respondents, followed by general science with four or 11.8 percent teacher-respondents. There were

Table 4

Educational Qualification Profile of Science and Technology Teachers in Calbayog City Division

Educational Qualification	Number	Percentage
BSE	22	64.7
BSIE	4	11.8
BS-Bio	3	8.8
BSFEd	1	2.9
BSED	1	2.9
MAEd	3	8.8
Total	34	100.0

also majors in mathematics and home economics with the same number of respondents, that is, three or 8.8 percent. In physics, there were two or 5.9 percent teacher-respondents while physical science, english, filipino, food technology, industrial arts and natural science had only one each or 2.9 percent teacher-respondents.

These data on major field of specialization of the science and technology teacher-respondents further strengthened the implications derived from their educational qualification that in general, they were capable and

Table 5

Field of Specialization Profile of Science
and Technology Teachers in Calbayog
City Division

Field of Specialization :	Number :	Percentage
Biology	16	47.1
General Science	4	11.8
Physical Science	1	2.9
Physics	2	5.9
Mathematics	3	8.8
Home Technology	3	8.8
English	1	2.9
Filipino	1	2.9
Food Technology	1	2.9
Industrial Arts	1	2.9
Natural Science	1	2.9
Total	34	100.0

qualified to teach science and technology subjects. However, the same data seem to suggest the need for science and technology teachers major in chemistry inasmuch as among the 34 teacher-respondents, none of them had this major field of specialization.

Teaching Experience. As shown in Table 6, the highest

number of teachers with 12 or 35.3 percent had been teaching for only 0 - 5 years. This was followed by nine teachers who comprised 26.5 percent of the respondents who had served for 11-15 years as teachers. The least number, one teacher who corresponded to 2.9 percent served along the bracket of 26-30 years as teacher. The data presented showed indication that the teacher-respondents were relatively experienced in the service inasmuch as they posted an average of 10.2 years in the teaching profession with a standard deviation of 6.7 years.

Table 6

**Teaching Experience Profile of Science and
Technology Teachers in Calbayog
City Division**

Teaching Experience	:	Number	:	Percentage
1 - 5		12		35.3
6 - 10		5		14.7
11 - 15		9		26.5
16 - 20		7		20.6
21 - 25		0		0
26 - 30		1		2.9
Total		34		100.0
Average		10.2	Standard Deviation: 6.7	

<u>**Seminars/Training/Workshops Attended.**</u> Table 8 provides data on in-service trainings or seminars attended by the teacher-respondents. As revealed by the said table, on instructional competency, 20 teachers signified that they "occasionally" attended seminars on this area, followed by ten and three teachers for "seldom" and "often", respectively.

On instructional materials development and utilization, 16 teachers responded that they "occasionally" attend seminars or trainings along this area, ten said they "seldom" attend, six said they "often" attend and two teachers signified that they have never attended any training/seminar/workshop along this area.

Meanwhile, 14 teachers responded that they "occasionally" attend seminars/trainings/workshop on instructional facilities/apparatuses/equipment utilization, while 11, seven and two teachers said that they "seldom", "often", and "never" attended, respectively.

Finally, on science and technology classroom management, 13 teachers said they "seldom" attend, followed by 11 teachers who "occasionally" attend, five teachers who have never attended and four teachers who "often" attended.

The responses of the respondents in this aspect showed the general trend of attendance of the teachers to be only "occasional". This could be attributed to the fact that

Table 7

Profile of Seminars/Trainings/Workshops Attended by Science and Technology Teachers in Calbayog City Division

Areas	Frequency in Attendance to Training				Total
	Often	Occasionally	Seldom	Never	
1. On Instructional Competency	3	20	10	0	33
2. On Instructional Materials Development and Utilization	6	16	10	2	34
3. On Instructional Facilities Apparatuses/ equipment utilization	7	14	11	2	34
4. On Science and Technology classroom management	4	11	13	5	33

while they believed that attendance to seminars/workshop/trainings related to science and technology would enhance their capability to teach science and technology subjects, budgetary constraint could be a deterring factor. Perhaps, these teacher-respondents only attended to those where their attendance or participation has funded by the government. Another significant information revealed by the table was that a total of nine teachers were not able to attend trainings or seminars on

instructional materials development and utilization, instructional facilities / apparatuses / equipment utilization and on science and technology classroom management. This implies that the training needs of the science and technology teachers in Division of Calbayog are along these areas.

Average Academic Performance Rating of Students in the Division Achievement Test for Science and Technology in Calbayog City Division

Table 8 presents the performance of students in the division achievement test for science and technology in Calbayog City Division, School Year 1996-1997.

As depicted by the said table, the highest grand mean obtained by school category was 63.53 followed by 62.18 and 59.8. Meanwhile, the lowest grand mean by school category was pegged at 41.14. In relation to the year level, the highest grand mean was posted at 64.56 for the second year, then by 53.54 for the fourth year, 50.32 for the first year and 48.86 for the third year. The data imply a relatively average performance of the high school students in the division achievement test for science and technology. Significantly, it can be noted that the least performer among the four year levels was the third year which reinforced the need for chemistry major in the Division of Calbayog City.

Table 9

Average Performance Rating of Science and Technology Teachers in Calbayog City Division for School Year 1996–1997

School Code	Average Performance Rating of Teachers
1	9.12
2	8.85
3	8.87
4	8.55
5	8.38
6	8.84
7	7.72
8	8.36
9	8.30
Grand Mean	8.55

The data on Table 9 show that as regards the average performance of science and technology teachers in Calbayog City Division, the highest performance rating was posted at 9.12 followed by 8.85 and 8.84. Meanwhile, the lowest performance rating was 7.72. On the average, the grand mean of the performance rating of the science and technology teachers was 8.55 which indicated that based on their

obtained performance rating the assessed performance of these teachers was "very satisfactory."

Relationship of Teachers' Average Performance Rating and Students' Achievement (MPS) in Science and Technology

Table 10 reveals the average performance ratings of teachers and students' achievement (MPS).

As presented in Table 10, the computed correlation coefficient is 0.701 and the corresponding Fisher's t-value is 2.60. This value turned out to be greater than the critical t-value of 1.895 at .05 level of significance. Therefore the hypothesis which states that "there is no significant relationship between the performance of students in science and technology and the performance of Teachers teaching the subject is rejected." This implies that those teachers with higher performance rating produced higher MPS in the division achievement test. On the other hand, teachers who obtained lower performance rating correspondingly produced lower MPS for their students.

Relationship Between Students' Achievement (MPS) and the Teacher's Profile

It was hypothesized that there is no significant relationship between the performance of students in science and technology and the teachers' profile in terms of age, sex,

Table 10

Comparative Table of Teachers' Average Performance Rating and Students' Achievement (MPS)

===

School Code	: Teachers' Average : Performance Rating	: Students' : Achievement (MPS)
1	9.12	63.53
2	8.85	62.18
3	8.87	59.80
4	8.55	59.78
5	8.38	57.45
6	8.84	53.07
7	7.72	47.51
8	8.36	44.50
9	8.30	41.14

Computed Correlation Coefficient	0.701
Fisher's t-value	2.60
Critical t-value	1.895
Decision	Reject H_o

===

civil status, educational qualification, field of specialization, teaching experience and seminars/trainings and workshops attended.

Table 11

Computed Correlation Coefficient Between
Students´ Achievement (MPS) and the
Teachers´ Profile

==

Teachers´ Profile	Computed Pearson r	Fisher´s t-value	Evaluation
1. Age	0.315	2.073	Reject H_O
2. Sex	0.030	0.187	Accept H_O
3. Civil Status	-0.264	1.709	Reject H_O
4. Educational Quali- fication	0.159	1.006	Accept H_O
5. Field of Speciali- zation	0.118	0.742	Accept H_O
6. Teaching Experience	0.339	2.250	Reject H_O
7. Seminars/Trainings/ Workshops attended	-0.079	0.495	Accept H_O

Critical t-value   1.684

==

Specifically, one sub-hypothesis states that there is
no significant relationship between the performance of
students in science and technology and the age of teachers.
The computed Pearson r for the age variate is 0.315.   With
this value, the computed t-value is 2.073.   This shows that
the computed t-value is very much greater than the critical
t-value of 1.684 which consequently rejects the   null

hypothesis. The rejection of the hypothesis means that there is a significant relationship between the achievement of students (MPS) and the age of the teachers. This implies that older teachers are indicated raise to the average MPS of their students as compared to their younger counterparts. This could be attributed to the fact that they have attained a maturity level to assess, evaluate and utilize teaching strategies that could affect higher performance on their students.

In another aspect which is the sex variate, the result of the computed r is 0.030. With this value, the computed t-value is 0.187. This shows that the computed t-value is less than the critical t-value of 1.864, which means that the null hypothesis is accepted. This result proves that the sex of the teachers does not affect the performance of the students.

For civil status, the computed r-value is -0.264 and the t-value is 1.709. This shows that the computed t-value is greater than the critical t-value of 1.684 which consequently rejects the null hypothesis. The rejection means that there is a significant relationship between the performance of students in science and technology and the civil status of the teacher. This result implies that teachers who are single tend to have students with higher

MPS compared to those who are married. This can be attributed to the fact that married teachers in general have more concerns compared to those who are single such as family concerns which might affect their concentration in teaching.

For educational qualification of teachers, the result of the computed r of 0.159 has a computed t-value of 1.006. With this, the computed t-value is less than the critical t-value of 1.684. The null hypothesis which states that there is no significant relationship between the performance of students in science and technology and the educational qualification of the teachers is accepted. This means that there is no enough evidence that educational qualification affects students' performance. After thorough review on the educational qualification of the teachers, it was found out that there were only two major classification of educational qualification hence, this factor was not adequate to provide enough information in this aspect.

Based on the statistical analysis of teachers' field of specialization the results of the computed r is 0.118 with a t-value of 0.742 at 1.684 critical t-value. Since the computed t-value is less than the critical t-value, the null hypothesis is accepted. This means that field of speciali-zation did not affect the performance of the students. This could be attributed to the fact that in the Division of

Calbayog City, most of the teachers have major fields of specialization related to science and technology.

The hypothesis which states that there is no significant relationship between the performance of students in science and technology and teaching experience of teachers was rejected. This is because the computed r is 0.339 with a t-value of 2.250 proved to be higher than the critical t-value of 1.684. The rejection of the hypothesis means that there is significant relationship between the performance of students in science and technology and the teaching experience of their teachers. This means further that the teachers who have been teaching for a long period of time have already attained mastery of the subject they are teaching. Longer teaching experience in the subject, will result to a better performance of the students.

Under the seminars/trainings/workshops attended, the computed r is -0.079 with a t-value of 0.495 at 1.684 critical t-value. This result shows that the computed t-value is less than the critical t-value which resulted to the acceptance of the corresponding hypothesis. This result implies that seminars/trainings/workshops attended by the teachers do not affect the performance of students in science and technology. Meaning, even if the teachers have attended several trainings, this does not guarantee that he will become a good teacher.

the 11 problems encountered by the teachers in teaching science and technology subject. They are presented in the order as to the most felt problems down to the least. The ranks of the problems encountered are as follows: Poor study habits of students as rank one (1); negative attitudes of students towards the subject as rank two; tardiness and absenteeism of students as rank three; rank four is absence of laboratory apparatuses and equipment; five is lack of instructional aids and devices; non-major/minor of the teacher handling the subject being taught, as rank six; lack of textbooks as rank seven; inability of the administrator to influence positively is rank eight;rank nine is inadequate knowledge and skill of teacher about the subject; rank ten is the non-supportive school administrator; and impersonal attitude of school administrator, as the last rank, which is 11th.

The least problem encountered by the teachers in the teaching of science and technology was the impersonal attitude of school administrator which got 2 responses or 5.88 percent. This finding could be attributed to the fact that the administrators manifest good/harmonious relationship among their teachers, in general. Non-supportive school administrator as a problem is rank 10 with 4 responses or 11.76 percent. This result brings to focus the idea that only few of the teachers, encountered a non-supportive

school administrator. Higher in rank than these problems were poor study habits of students which got 31 responses or 91.18 percent. Such problem could be traced to the fact that the students found the lessons not interesting to them. This may be due to poor teacher's motivation.

Implications of the Study

From the significant findings of the study, the following implications are presented with the hope of having them considered for policy redirections especially addressing to supervision and monitoring of classroom instruction.

In classroom instruction and supervision to help strengthen the teaching effectiveness of teachers, male and female, both young and old, school administrators and subject area supervisors must come up with a supervisory plan where all schools/teachers shall be included in the schedule of visitation/supervision/monitoring, for them to be oriented of current innovations, strategies, trends and techniques in teaching.

Since civil status has significant effect on the teaching effectiveness of teachers, school administrators and supervisors must see to it that special attention should be directed to the married ones in terms of intensive supervision where improved techniques to teaching shall be

given emphasis.

For educational qualification and/or field of specialization, in this study it has not affected significantly in the teaching effectiveness of the teachers teaching Science and Technology. An implication of this to instructional supervision, is for the school administrators and supervisors to give equal attention to their teachers teaching the subjects, which means that even if they are majors or minors to the subjects they are teaching; is not a sure guarantee that they are doing the business of teaching correctly/properly. Hence, frequent supervision and monitoring to these teachers is necessary.

From this study, it was found out that majority of the teachers teaching science and technology are majors and minors of the subject, but still produce a low academic performance in their students in the division achievement test conducted last school year 1996-1997. The implication of this is for our school administrators and supervisors to make an assessment and, better still, come up with an evaluation of their supervisory techniques and strategies whether they are effective or not. From there, a plan to improve such should be devised and implemented seriously in their teaching-learning instruction and supervision.

The findings between the teachers' performance which is very satisfactory and the students' academic performance

which is very low as compared with the targets set, show a discrepancy between what is and what it should be. This simply implies that much are needed to be done to improve students' performance in science and technology.

With respect to the many problems encountered by the teachers teaching science and technology, necessitates that supervision and monitoring of instruction by school administrators and supervisors be given topmost priority. In this aspect, there really is a need for school administrators and supervisors to look into these concerns by devising a plan of action for the improvement of teaching-learning outcomes.

Effective supervisory techniques and approaches should be the prime concern of school administrators and supervisors during their supervision and monitoring. The school administrators should be trained how to supervise classes through team supervision where education supervisors of each subject area shall be the partners of this school administrator who will do the supervision while being observed by the education supervisor.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the findings of this study as well as the subsequent conclusions based on the analysis undertaken. Furthermore, corresponding recommendations are herein presented with the end-in-view of improving students' performance in science and technology.

Summary of Findings

The following were the major findings revealed by this study which served as the basis for drawing up implications for the performance of science and technology students and teachers in the Division of Calbayog City:

1. It was found out that the age profile of the teachers teaching science and technology in the Division of Calbayog City was: 1) for ages 20-29, 9 teachers or 26.5 percent; 2) ages 30-39, 10 teachers or 29.4 percent; 3) ages 40-49, 15 teachers or 41.2 percent; and 4) for ages 50-59, only one teacher or a percentage of 2.9. The average age of the teacher-respondents was posted at 36.6 years old and a standard deviation of 8.8 years.

2. As to sex profile of the teachers, it was revealed that of the 34 science and technology teachers, majority

that is, 27 teachers or 79 percent was female, and of seven teachers or 21 percent was male.

3. It was revealed in this study, that of the 34 science and technology teachers, majority of them, 22 teachers or 64.7 percent was BSE degree holders, followed by BSIE holders, then the Master of Arts in Education and the last group of teachers, represented the BSFEd and the BSED.

4. In the field of specialization of science and technology teachers in the Division of Calbayog City showed that the highest number - 16 teachers or 47.1 percent was biology major. The least number was composed of teachers major in physical science, english, filipino, food technology, industrial arts, and natural science with one teacher each or 2.9 percent. It was found out that none of them was chemistry major.

5. As to the length of service of science and technology teachers, it was revealed that majority of them or 35.3 percent had rendered service in their profession from 1-5 years. This was contrasted by the years ranging 21-25 where there was none and only one between 26-30 years in the service. Generally, the teacher-respondents posted an average length of service at 10.2 years with a standard deviation of 6.7 years.

6. As to the profile of seminars/trainings/workshops

attended by science and technology teachers in Calbayog City Division, most of them had attended the trainings/seminars occasionally and the area of concentration was on instructional materials development and on instructional facilities/apparatus/equipment utilization.

7.   In terms of the performance of the high school students from Calbayog City Division in the division achievement test, the highest average MPS by school category was 63.53 followed by 62.18 and 59.8 while the lowest was 41.14. By year level, the second year high school students got the highest average MPS of 64.56 followed by the fourth year, then the first year and lastly, the third year.

8.   The grand mean of the performance ratings of the science and technology teachers was posted at 8.55 or "very satisfactory".

9. The computed correlation coefficient between the average performance ratings of science and technology teachers and students' achievement in the division achievement test expressed in MPS was 0.701 with the corresponding fischer's t-value of 2.60. This value turned out greater than the critical t-value of 1.895 at α = .05, hence, the hypothesis that "There is no significant relationship between the performance of students in science and technology and the performance of science and technology teachers" was rejected.

10. The computed correlation coefficient for the three variates – age, civil status and teaching experience were 0.315, -0.264 and 0.339 respectively. Meanwhile, the corresponding Fischer's t-value of 2.073 for age, 1.709 for civil status and 2.250 for teaching experience proved to be greater than the critical/tabular t-value of 1.684 which led to the rejection of the hypothesis that "There is no significant relationship between the academic performance of students in science and technology and the teachers' profile in terms of age, civil status and teaching experience".

11. Meanwhile, the computed correlation coefficient for the four variates; sex, educational qualification, field of specialization and seminars/trainings/workshops attended were 0.030, 0.159, 0.118 and -0.079, respectively with corresponding Fisher's t-value of 0.187, 1.006, 0.742 and 0.495, respectively. These computed t-values were lesser than the critical/tabular t-value of 1.684, hence, the hypothesis that "There is no significant relationship between the academic performance of students in science and technology and the teachers' profile in terms of sex, educational qualification, field of specialization and seminars/trainings/workshops attended" was accepted.

12. The first five ranked problems encountered by the teachers in the teaching of science and technology

were:.

1) poor study habits; 2) negative attitude of students the subject; 3) tardiness and absenteeism of students; 4) absence of laboratory apparatuses; and 5) lack of instructional aids and devices.

Conclusions

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

1. The science and technology teachers in the Division of Calbayog City were in their middle age and were considered physically fit to discharge effectively their teaching functions and responsibilities.

2. The dominance of females among the teacher-respondents further confirm the general notion that the teaching profession is dominated by and are attractive more to the females.

3. The data on educational attainment, major fields of specialization and attendance to seminars / trainings / workshops of the Science and Technology teachers in Calbayog City Division indicate their capability to teach science and technology subjects although the need for chemistry major was evident.

4. In terms of experience, the teacher-respondents turned out to be experienced and were expected to have

mastered the subject matter of their teaching loads.

5. The performance of the high school students in the Division of Calbayog City in the division achievement test was "average" only and thus, improvement of their performance is the challenge that face the Division.

6. The teachers' performance was already deemed "very satisfactory" by their ratings based on their performance rating which implies that they have met the expectations from them by their superiors.

7. The performance of the science and technology teachers and the students' performance in science and technology are directly related which means that those teachers who performed better produced higher MPS on their students and those who obtained lower performance correspondingly produced lower MPS on their students.

8. Students performance were found to be significantly related to science and technology teachers' age, civil status and teaching experience.

9. The sex, educational qualification, field of specialization and seminars/trainings/workshops attended of the science and technology teachers in Calbayog City division turned out to have no effect on the students' performance.

10. The major problems encountered by the teachers in the teaching of science and technology were poor study

habits of students, negative attitude of students towards the subject, and tardiness and/or absenteeism of students. All these were indicators that the students were not motivated well by their teachers in science and technology.

Recommendations

From the findings and conclusions of this study, the following recommendations are advanced to improve the performance of science and technology students and teachers of public high schools in Calbayog City Division.

1. Preference must be given to majors or minors in science and technology in the giving of teaching loads in science and technology subjects.

2. The heads of schools should motivate and encourage teachers to attend trainings which are relevant to science and technology teaching-learning competencies by giving their incentives such as traveling expenses, and the like.

3. It is highly recommended that some science and technology teachers should upgrade themselves professionally. They can do it by enrolling in graduate education, attending more trainings and workshops to improve their teaching competencies. Their lack of experience in teaching can be supplemented by their attendance in graduate classes and in trainings. In this way, they can also maintain if not improve their very satisfactory work

performance.

4. The training of science and technology teachers on content, teaching strategies, and assessment techniques is imperative to improve their teaching skills and competencies.

5. The selection of participants to the training program should give priority to teachers teaching science and technology subjects who are not science major.

6. In the recruitment and selection of teachers, priority must be given to chemistry majors since this is the identified need in Calbayog City Division.

7. New entrants to the teaching profession should be given more time and attention during supervision and monitoring activities by the school administrators.

8. Married teachers teaching science and technology need as well a close supervision. They should be made to understand that time management is one crucial concern of a teacher.

9. Team teaching should be encouraged in the teaching of science and technology where those teachers who have been in the service for quite a number of years should be paired with teachers who are just new in the service.

10. Researches should be conducted to identify other factors aside from teachers' performance and characteristics that significantly affect and influence teaching-learning

effectiveness in science and technology education.

11.   Similar study should be conducted but must focus on other learning areas to find out how teachers and students in these areas are performing.

12.   A parallel study on the cause-effect relationship of students' academic performance and teachers' performance be conducted in another place.

13.   An in-depth study be conducted on the root causes of low performance of science and technology students.

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APPENDICES

APPENDIX A

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar

October 23, 1996

The Dean
Graduate Studies Department
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 number one.

1. PERFORMANCE OF SCIENCE AND TECHNOLOGY STUDENTS AND TEACHERS OF PUBLIC HIGH SCHOOLS IN CALBAYOG CITY DIVISION

2. TEACHERS' COMPETENCIES: ITS RELATIONSHIP TO STUDENTS PERFORMANCE IN SCIENCE AND TECHNOLOGY

3. EDUCATIONAL QUALIFICATION AND PERFORMANCE OF PUBLIC AND PRIVATE SECONDARY SCHOOL TEACHERS IN CALBAYOG CITY

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

Very truly yours,

(SGD.) RITA R. DIMAKILING

Approved:

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

APPENDIX B

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar

SCHOOL OF GRADUATE STUDIES

APPLICATION FOR ASSIGNMENT OF ADVISER

NAME ___ DIMAKILING, _____ RITA _____ REYES ___
           Surname   First Name   Middle Name

CANDIDATE FOR DEGREE: ___Master of Arts in Education___

AREA OF SPECIALIZATION: ___Administration & Supervision___

TITLE OF PROPOSED THESIS/DISSERTATION: ___PERFORMANCE OF___

___SCIENCE AND TECHNOLOGY STUDENTS AND TEACHERS OF___

___PUBLIC HIGH SCHOOLS IN CALBAYOG CITY DIVISION___

                   (SGD.) RITA R. DIMAKILING
                        Applicant

___THELMA C. QUITALIG, Ph.D.___
  Name of Designated Adviser

          APPROVED:

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

COMFORME:

___(SGD.) THELMA C. QUITALIG, Ph.D.___
          Adviser

In 3 copies: 1st copy - for the Dean
              2nd copy - for the Adviser
              3rd copy - for the Applicant

APPENDIX C

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar
Graduate & Post-Graduate Studies

July 19, 1997

The Dean
Graduate School
Samar State Polytechnic College
Catbalogan, Samar

Madam:

I have the honor to apply for Pre-Oral Defense of my thesis entitled __**PERFORMANCE OF SCIENCE AND TECHNOLOGY**__

__**STUDENTS AND TEACHERS OF PUBLIC HIGH SCHOOLS IN**__

__**CALBAYOG CITY DIVISION**__

on the date convenient for your Office.

Very truly yours,

(SGD.) RITA R. DIMAKILING
Graduate Student

Recommending Approval:

(SGD.) THELMA C. QUITALIG, Ph.D.
Adviser

APPROVED:

(SGD.) RIZALINA M. URBIZTONDO, Ed.D.
Dean, Graduate & Post-Graduate Studies

Date: __July 29, 1997__
Time: __3:00 P.M.__

APPENDIX D

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar
Graduate & Post-Graduate Studies

January 12, 1998

The Dean
Graduate School
Samar State Polytechnic College
Catbalogan, Samar

Madam:

I have the honor to apply for Final Defense of my

thesis entitled __PERFORMANCE OF SCIENCE AND TECHNOLOGY__

__STUDENTS AND TEACHERS OF PUBLIC HIGH SCHOOLS__

on the date convenient for your Office.

Very truly yours,

(SGD.) RITA R. DIMAKILING
Graduate Student

Recommending Approval:

(SGD.) THELMA C. QUITALIG, Ph.D.
Adviser

APPROVED:

(SGD.) RIZALINA M. URBIZTONDO, Ed.D.
Dean, Graduate & Post-Graduate Studies

Date: __Feb. 5, 1998__
Time: __1:00 P.M.__

APPENDIX E

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar
Graduate & Post-Graduate Studies

August 5, 1997

The Schools Division Superintendent
DECS, Division of Calbayog City
Calbayog City

Madam:

The undersigned is conducting a study entitled PERFORMANCE OF SCIENCE AND TECHNOLOGY STUDENTS AND TEACHERS OF PUBLIC HIGH SCHOOLS.

In this connection therefore, your approval in the conduct of the Educational Survey Questionnaire to the teachers in this Divison is earnestly requested.

Thank you very much in advance for the favorable action you will be extending on this behalf.

Very truly yours,

(SGD.) RITA R. DIMAKILING
Researcher

Recommending Approval:

(SGD.) THELMA C. QUITALIG, Ph.D.
Adviser

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

APPROVED:

(SGD.) ALICE Q. ENGAY, Ed.D. CESO V
Schools Division Superintendent

APPENDIX F

EDUCATIONAL SURVEY QUESTIONNAIRE

Dear Respondents:

This present decade poses us to dilemma on the status of "quality education" in our educational system. To help our educational planners visualize the scene on whether or not we are progressing or attaining our objectives for excellence in classroom instruction, a study entitled: The Performance of Science and Technology Students and Teachers of Public High Schools in Calbayog City Division, is being conducted.

In connection with the abovementioned concern, please help the researcher finds answers to specific problems relative to the study by filling up the following information below. Rest assured that all responses you will provide in this questionnaire will solely be used for this study and will be treated confidential.

Thank you very much.

The Researcher

===

A. Respondent's Profile

Direction: Please fill-in all the blanks with the information called for.

1. Name (Optional) _____ 2. Age: ____ 3. Sex: ____

4. Civil Status: _____ 5. Educational Qualification _____

6. Field of Specialization (Major): _____ (Minor) _____

7. Teaching Experience (No. of years in the service): _____

8. Frequency in attendance to trainings/seminars conducted at all levels.

    Please specify the number of trainings you have attended in line with Science and Technology for the

following specific concerns:

8.1 On Instructional Competency:

    8.1.1 Often . . . . . . / /

    8.1.2 Occasionally . . / /

    8.1.3 Seldom . . . . . / /

    8.1.4 Never . . . . . . / /

8.2 On Instructional Materials Development and
    Utilization:

    8.2.1 Often . . . . . . / /

    8.2.2 Occasionally . . / /

    8.2.3 Seldom . . . . . / /

    8.2.4 Never . . . . . . / /

8.3 On Instructional Facilities/Apparatuses/Equipment
    Utilization and Operation:

    8.3.1 Often . . . . . . / /

    8.3.2 Occasionally . . / /

    8.3.3 Seldom . . . . . / /

    8.3.4 Never . . . . . . / /

8.4 On Science and Technology Classroom Management:

    8.4.1 Often . . . . . . / /

    8.4.2 Occasionally . . / /

    8.4.3 Seldom . . . . . / /

    8.4.4 Never . . . . . . / /

B. Problems Encountered in the teaching of Science and
    Technology in the high school.

Direction: Please consider the following possible problems
encountered by teachers in teaching Science and
Technology. Check those which are true to you or which
you think are detrimental to the teaching effectiveness
of teachers teaching Science and Technology in the high
school.

1. Lack of textbooks . . . . / /

2. Lack of Instructional aids and devices. . . . . / /

3. Absence of laboratory apparatuses and equipment / /

4. Tardiness and absenteeism of students . . . . . / /

5. Poor study habits of students . . . . / /

6. Inadequate knowledge and skill of the teacher
    about the subject . . . . / /

7. Inability of the administrator to influence
    positively . . . . / /

8. Impersonal attitude of school administrator . . / /

9. Negative attitude of students toward the
    subject . . . . / /

10. Non supportive school administrators. . . . . . / /

11. Non-major/non-minor of the teacher handling
     the subject being taught . . . . / /

Thank you very much . . .

APPENDIX G

PERFORMANCE RATING SHEET FOR TEACHERS

Name _____ School _____
Rating Period _____ District _____
(School Year) _____ Division _____

I t e m s	Rating	Weight	Weighted Rating
A. PUPIL/STUDENT ACHIEVEMENT (Skills and knowledge)			
Achievement of knowledge and skills objective	---------	4.00	----------
Target/s			
_____			
_____			
_____			
_____			
Actual Achievement:			
_____			
_____			
_____			
_____			
A. TEACHER COMPETENCE			
1. Development of national consciousness and desi-rable values and habits: _____		2.00	_____
Support statement for rating given:			
_____			
_____			
_____			
_____			

2. Preparation and utili-   :   :   :
   zation of instructional   :   :   :
   materials   :_____: 1.00   :_____

   Support statement for   :   :   :
   rating given: :   :   :

3. Pupils Evaluation   :_____: 1.00   :_____

   Support statement for   :   :   :
   rating given: :   :   :
   _____   :   :   :
   _____   :   :   :

4. Professional Growth   :   :   :
   given: :_____: .25   :_____
   _____   :   :   :
   _____   :   :   :
   _____   :   :   :
   _____   :   :   :

5. Records and Report   :   :   :
   Management   :_____: .25   :_____

   Support statement for   :   :   :
   rating given: :   :   :
   _____   :   :   :
   _____   :   :   :
   _____   :   :   :

6. Community and Allied   :   :   :
   Services   :_____: .25   :_____

   Support statement for   :   :   :
   rating given: :   :   :
   _____   :   :   :
   _____   :   :   :
   _____   :   :   :
   _____   :   :   :

7. Punctuality and Atten-   :   :   :
   dance   :_____: .25   :_____

   Support statement for   :   :   :
   rating given: :   :   :
   _____   :   :   :
   _____   :   :   :
   _____   :   :   :

C. TEACHER PERSONALITY AND : :   :
   HUMAN RELATIONS   :_____: .25 :_____
              : :   :
    Support statement for : :   :
    rating given: : :   :
    _____ : :   :
    _____ : :   :
    _____ : :   :

   Overall weighted rating - - - - - - - - - - -_____
   (sum of column under weighted rating)

   Average weighted rating - - - - - _____
   (overall weighted rating divided by 10)

D. PLUS FACTOR (total not to exceed 1.00)

   Enter here whatever activities or accomplishments
   may be credited under plus Factors and the Corres-
   ponding credit points.

      Items   Points Credit

   Total for credit under Plus Factor - - - - - - _____

   Final Numerical Rating - - - - - - - - - - - - _____

   Descriptive equivalents of Numerical Ratings:

   9.3 - above - Outstanding (O)
   7.5 - 9.2 - Very satisfactory (VS)
   5.0 - 7.4 - Satisfactory (S)
   3.0 - 4.9 - Unsatisfactory (US)
   2.0 - 2.9 - Poor   (P)

        S U M M A R Y

     Final Numerical Rating   _____
     Descriptive Rating   _____

       Rated by:

      (Sgd.) _____
          Name & Designation

Shown to me and concurred in: Reviewed by:

(Sgd.) _____   (Sgd.) _____
              Teacher   Name & Designation

Note: All signature should be above printed name.

Any additional remarks:

                                 _____
                                 Signature of Rating Official

CURRICULUM VITAE

CURRICULUM VITAE

NAME	:	**RITA REYES – DIMAKILING**
DATE OF BIRTH	:	March 20, 1964
PLACE OF BIRTH	:	Project 4, Quezon City
ADDRESS	:	Calbayog City
CIVIL STATUS	:	Married
SPOUSE	:	Ernesto A. Dimakiling
CHILDREN	:	Ernest, Ma. Clare and Alfred
Name of Father	:	Alfredo C. Reyes
Name of Mother	:	Reperata P. Reyes

EDUCATIONAL BACKGROUND

Elementary . . . . . . Jacinto Zamora Elementary School
Pandacan, Manila
Grade I – Grade II
1971 – 1973

Balocawe Elementary School
Balocawe, Tagapul-an, Samar
Grade III – Grade VI
1973 – 1977

Secondary . . . . . . Tiburcio Tancinco Memorial Instittute
of Science and Technology
Calbayog City
1979 – 1983

College . . . . . . Tiburcio Tancinco Memorial Instittute
of Science and Technology
Calbayog City
1987 – 1991

Graduate Studies. . . Tiburcio Tancinco Memorial Institute
of Science and Technology
Calbayog City
1991 – 1992
12 MA Units

Samar State Polytechnic College
Catbalogan, Samar
1998
Master of Arts in Education
Major in Administration & Supervision

CIVIL SERVICE ELIGIBILITY

Professional Board Examination for Teachers (PBET), 1992

Presidential Decree No. 907, as amended by Presidential Decree No. 993

ACADEMIC AND SPECIAL AWARDS

Academic Award . . . . Cum Laude
Tiburcio Tancinco Memorial
Institute of Science and
Technology
Calbayog City
SY 1990-1991

Special Awards . . . . Outstanding College Student
Leadership Awardee
Certificate of Recognition
as Editor-In-Chief
Tiburcio Tancinco Memorial
Institute of Science and
Technology
Calbayog City
SY 1990 - 1991

PROFESSIONAL EXPERIENCE

Secondary School Teacher . . . La Milagrosa Academy
Calbayog City
1991-1995

Secondary School Teacher . . . Tarabucan National High
School, Oquendo II
Calbayog City
1995 to date

MEMBERSHIP IN PROFESSIONAL/CIVIC ORGANIZATION

Philippine Association of Graduate Education (PAGE)
Region VIII
Samar State Polytechnic College
Catbalogan, Samar

Science Club Advisers Association of the Philippines (SCAAP)
Calbayog City

IN-SERVICE TRAININGS/SEMINARS ATTENDED

REGIONAL

Seminar-Workshop on Progressive
Teaching Strategies

Divine Word University
Tacloban City
March 14, 1992

Regional Seminar-Workshop on
Vitalization and Mobilization
of Science Clubs

Eastern Samar National
Comprehensive High
Schools (ESNCHS)
Borongan, Eastern Samar
Sept. 30 - Oct. 2, 1993

Regional Conference and General
Assembly of PAGE (Philippine
Association of Graduate
Education) Region VIII

Samar State Polytechnic
College
Catbalogan, Samar
November 20, 1993

Seminar-Workshop on How to
Conduct Science Investigatory
Project

Leyte National High
School
Tacloban City
September 24-25, 1994

Seminar -Workshop on Science
and Technology

Divine Word University
Tacloban City
February 18, 1995

Regional Youth Science and
Technology Camp

Alang-alang National
High School
Alang-alang, Leyte
March 7-9, 1996

Coach, 5th Philippine Society
of Youth Science Clubs, Regional
Quiz Show

Leyte National High
School
Tacloban City
September 30, 1996

Facilitator, 3-day Echo Seminar-
  Workshop in Earth Science,
  Biology and Chemistry

San Policarpo National
  High School
Calbayog City
September 23, 1998
September 30, 1998
October 2, 1998

DISTRICT

First Youth Science and
  Technology Camp

Mag-ubay National
  High School
Oquendo II,
Calbayog City
September 19-20, 1997

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