

THE ELEMENTARY SCIENCE INSTRUCTION
OF CALBAYOG CITY DIVISION

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

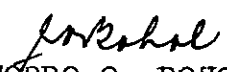
In Partial Fulfillment of the
Requirements for the Degree
Master of Arts in Education

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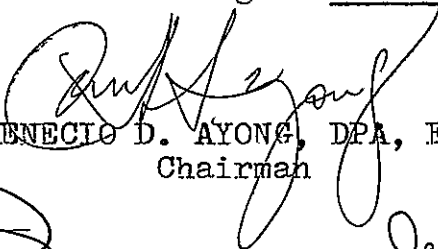
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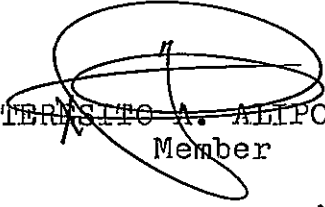
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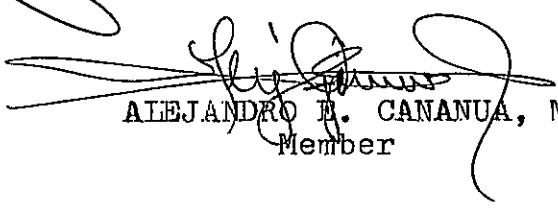
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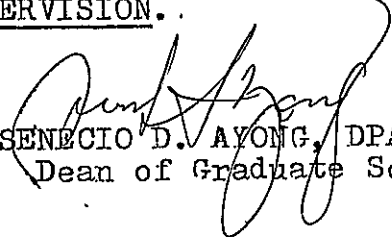

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ABSTRACT

This study attempts to evaluate the status of the elementary science instruction in the upper elementary level including grades four, five, and six of Calbayog City Division. It utilized the descriptive method of research, which was fact-finding in nature with adequate interpretation, utilizing an appropriate measuring instrument and statistical tools. The teachers' competence was perceived by the administrators as satisfactory with a weighted mean of 3.66 and by the science teachers also as satisfactory with a mean of 3.89. For the suggested solutions, five fall under "strongly agreed" and four under "agreed" and one under "undecided". The grand mean is 4.41 whose equivalent is "agreed". For the conclusion, the overall evaluation of elementary science is satisfactory. This implies that there is still a wide room for improvement as regards the four major components of the programs, namely: teacher competence, instructional facilities, teaching strategies, and evaluation techniques. As for evaluative techniques, at least the average mean of satisfactory was realized. The perception of the administrators and science teachers follow the same pattern. For the recommendation, expose administrators and science teachers to more in-service training and seminars allied to the science programs.

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CHAPTER I

THE PROBLEM

Introduction

Our future depends on our education. The more we learn and know, the better we can adjust and the more we can earn for a better and prosperous tomorrow.

Nowadays, manifold changes in our environment are due to the "miracles" of science and technology. Hence, there is a need to make our school children aware of and grow in science, to be in keeping with the vast advancement in the world today.¹ We must awaken in the Filipino youth the spirit of curiosity, creativity, and logical thinking. As teachers, we play the important role in moulding our youth who will be in the future directly involved in the field of science and technology of our country.

According to Vito², our country, inspite of the

¹ Josephine B. Cariaso, Status of Science Teaching in the Elementary Schools of Bacnotan and San Juan Districts: An Appraisal, Unpublished Master's Thesis, 1985, Osias Educ'l. Foundation, Balaoan, La Union, p. 14.

² Emilia S. Vito, "Step-Up of Science Teaching" Learning Science and Math. An Informative Material and Study Guide for Pupils and Teachers, Volume VIII, October 1970, No. 4, p. 5.

rapid progress in education, has remained quite behind in science and technology as compared with other developing countries.

She further asserts that it is the role of the schools then, to examine science programs in order to determine whether these are geared to the development of budding scientists and technologies. For science and technological know-how, when applied properly, contribute to economic and social progress, and this is the main goal in the inclusion of the science course in the school curriculum.³

To ensure better science teaching in the field, in-service training, seminars, and workshops have been conducted, so that teachers may be provided with a broader and deeper knowledge of the course and be able to adopt new methods and techniques that will be of help in the teaching of science.

In spite of all these efforts of up-grading teachers' competencies in teaching science, weaknesses and failures have been noted as reflected in the result of the Regional Achievement Test for the school year 1988-1989. Of the

3

Emilia S. Vito, "Science in the Classroom",
Learning Science and Math: An Informative Material and
Study Guide for Pupils and Teachers, Volume VIII
September 1970, No. 3, p. 7.

nine divisions in Region VIII, Calbayog City not the lowest in rank.

There is therefore an urgent need to have a systematic and purposeful assessment of the science program in the Division of Calbayog City, in order to know the causes of its failure and the corresponding ways and means of improving it. This can be initiated and determined primarily by a program of performance evaluation on both teachers and administrators.

Ruiz⁴ declares that evaluation in education is a part of the educational process and operates in the same way as in other professional activities. It implies data gathering and data analysis: it implies goals and pre-supposes the use of evaluative criteria. It plays a major role in the decision-making process. It involves measurement and test interpretation, diagnosis, and remediation.

We can infer from this statement that evaluation is needed to be certain that adequate and appropriate teaching is being continuously rendered to the pupils and it is only through systematic and continuous process of evaluation that an activity can improve and grow.

⁴
Macario B. Ruiz, Evaluation of Philippine Schools, (Q.C.R.P. Garcia Publishing Co., p. 7, 1988).

Current trends indicate that a teacher performance evaluation program makes teachers active partners in the evaluation process; holds administrators more accountable for conducting evaluation; provides improved training for evaluators, uses evaluation - identified teacher deficiencies as target for staff improvement; links evaluation system to research on effective teaching practices; and aims at improvement of instruction and knowledge acquisition.⁵

Therefore, the reason why educational programs should be evaluated lies in our need to know whether the changes we hope to effect do take place, and also what accounts for these changes, so that these programs can become a part of our regular educational experience in the future.

Theoretical Framework

This study was anchored on the theory that - evaluation should be continuous and be an integral part of the teaching and learning process. Since education is a continuous process and growth and change among learners,

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Samuel and Alice Go., "Teacher Evaluation Revisited," Philippine Journal of Education, Vol. LXVIII, No. 3, Aug. 8, p. 102, 1989.

evaluation should run parallel to the whole process.⁶
 Evaluation and education should go hand in hand.

Any form of educational innovations or thrusts should be conceived not just for the sake of change but rather for the sake of solving problems and of improving the total educational program. Change should be made only with the support of research as enunciated by Popham.⁷ Pertinent and reliable information should be the basis of administrative decisions to improve or reject an on-going project.

As viewed in this study, evaluation as an on-going process provides the necessary inputs which should guide change for the improvement of science instruction in Calbayog City Division.

Conceptual Framework

The schema in Figure 1 page 6 illustrates the conceptual framework of the study showing, among others, the research environment which includes DECS, Calbayog City

⁶ Macario B. Ruiz, Evaluation and Measurement for Philippine Schools, (Quezon City, Philippines: R.P. Garcia Publishing Co., 1988) p. 8.

⁷ W. James Popham, Educational Evaluation, Prentice Hall, Inc., Englewood Cliff, New Jersey, 1975, p. 8.

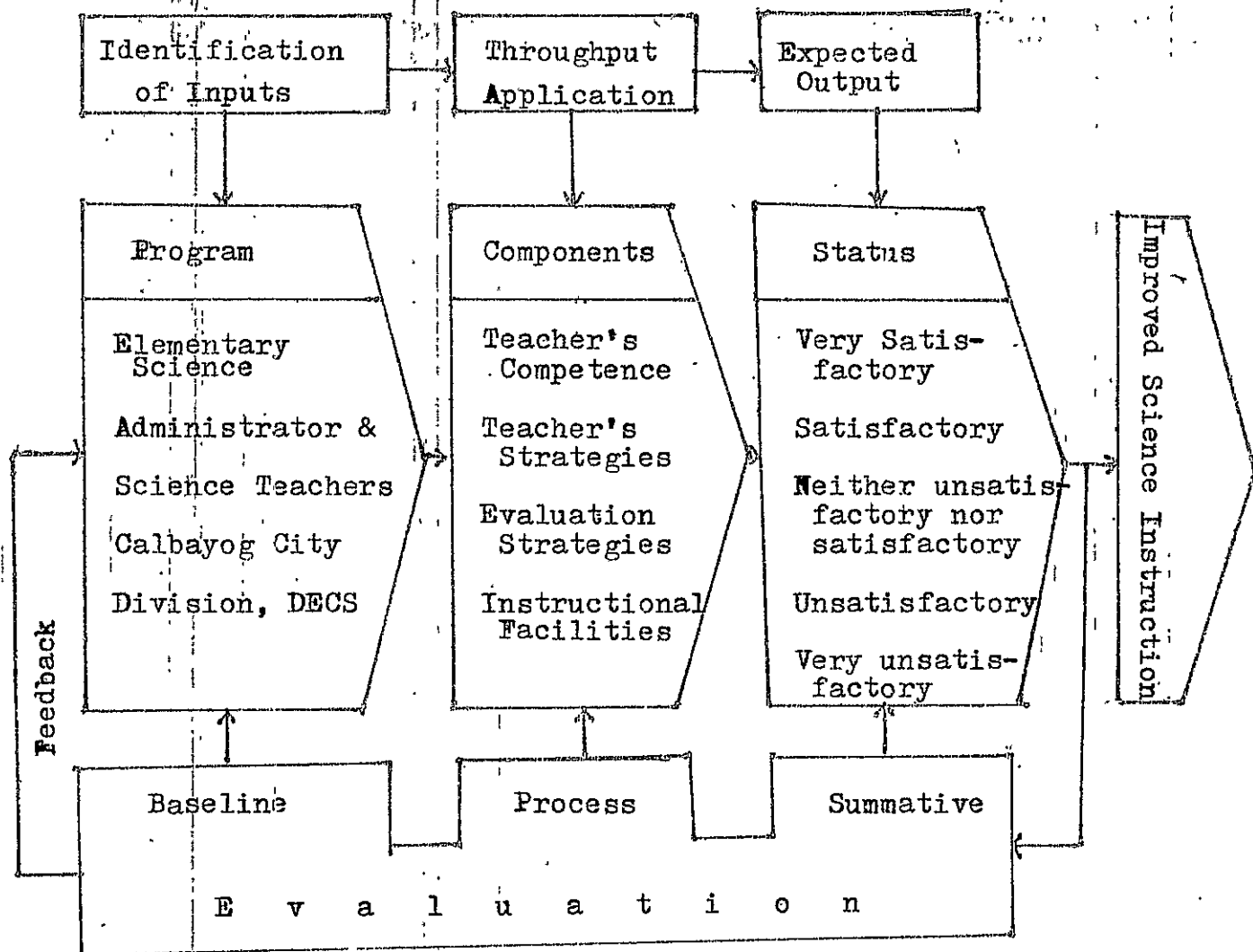


Figure 1. Schema of the Conceptual Framework showing the research environment, the program presented, the variables involved, and the expected output.

Division, the elementary science program as perceived by the administrators and the science teachers through baseline evaluation. Throughput application is the meat of the study in the form of process evaluation of the elementary science program components which include teaching competence, teaching strategies, evaluation strategies, and instructional facilities. The summative evaluation of the program may lead to the expected output of the study in the form of status of the elementary science program, thus providing inputs to future policy redirections towards the sustenance of the strong points of the science program and modification of the weaker aspects of science instruction, administration, and supervision. If the program is found to be very satisfactory, it should be sustained. If only average, fair, or poor, it should be improved.

Statement of the Problem

This study attempted to evaluate the status of the elementary science instruction in Calbayog City Division with the end in view of improving the science instruction. Specifically, it sought to answer the following questions:

1. What is the profile of the respondents involved in the study as to:

- 1.1 age
- 1.2 sex
- 1.3 civil status
- 1.4 teaching experience
- 1.5 civil service eligibility
- 1.6 educational qualification?

2. What is the status of elementary science instruction in Calbayog City Division as perceived by the administrators and the science teachers in terms of the following components:

- 2.1 teacher's competence?
- 2.2 instructional facilities?
- 2.3 teaching strategies?
- 2.4 evaluation strategies?

3. Is there a significant difference between the perception of administrators and that of the science teachers on the foregoing major components of elementary science instruction?

4. To what extent do the administrators and science teachers feel the problems relative to the four major components of elementary science instruction?

5. To what extent do the administrators and science teachers agree with the suggested solutions to the problems mentioned?

Hypotheses

1. There is no significant difference between the perception of the administrators and that of the science teachers in the four major components of the elementary science instruction which are as follows:

- 1.1 teacher's competence
- 1.2 instructional facilities
- 1.3 teaching strategies
- 1.4 evaluation strategies

Importance of the Study

It has been noted that in the Regional Achievement Test SY 1987-1988 the result in science was very low. This study was undertaken in an effort to identify the strong and weak points of elementary science instruction and to acquire empirical evidence that would be useful in sustaining the growth and development of the science program in the Division of Calbayog City. In particular, the result of this study is expected to be of great help to the following:

Parents. The findings of this study will serve as an awakening factor, so that they will be truly supportive of the studies of their children.

Science curriculum specialists. The findings of this study are expected to provide empirical evidence that will be useful in the preparation of the school science pro-

program plans and programs to be implemented in the division and in the different districts.

School administrators. The findings will prove useful in strengthening and reorienting the present science program. It is also anticipated that sound and objective bases for revitalizing the existing system will be identified and analyzed by using the result of this study as the baseline data.

Science teachers. The identification of the strong and weak points of the program will provide a sound basis for science teachers when they make adjustment in conformity with the desired quality of the program. It is also further expected that science teachers can apply remedial measures in teaching the subject. Hopefully, its findings may also help develop science talents who could be guided eventually in their choice of scientific careers.

Researchers. The empirical data will provide an insight into the problems that need further studies. Ultimately, this will also direct researchers toward the solution of problems that will further improve the implementation of elementary science instruction in the Division of Calbayog City.

Scope and Delimitation of the Study

The scope of the study was focused on the elementary science instruction in the Division of Calbayog City. It covered the school year 1991-1992. It was limited to the study of the following four major components:

1. teacher's competence
2. instructional materials
3. teaching strategies
4. evaluation strategies

The subjects of the study included the general education supervisor, district supervisors of the seven districts, the principals or head teachers of each complete elementary school of every district and the science teachers in grades IV, V and VI.

It surveyed the complete elementary schools of each of the seven districts in the whole division namely:

Calbayog District I - Calbayog Pilot School, Carayman, Nijaga and Obrero Schools: Calbayog District II - Calbayog East Central Schools, Capoocan, Carmen, Dagum, Matobato, and Tabawan Elementary Schools: Calbayog District III - San Policarpo Elementary School, Trinidad, Tomaligues, and Anislag Elementary Schools: Oquendo I - Oquendo Central School, Cabatuan, Mawacat, and Pilar Elementary Schools: Oquendo II - Tarabucan Central School, Cabacungan, Cagbayang, Mag-ubay Elementary Schools: Tinambacan I - Tinambacan

Central School, Malajo, Banti-an, Danao, and Binaliw Elementary Schools: Tinambacan II - San Joaquin Central School, Cagmanipis, Kagnipa, Kaglanipaw Sur, Malaga, and Peña Elementary Schools.

This study is limited to the science instruction on the upper elementary level, the grade IV, intermediate grades - five and six - since the academic content and skills of these grades are closely related to each other. This will also facilitate fast and accurate collection of data. The study does not include the elementary science instruction in the lower primary grades, which include grade three as well as the teachers not teaching science.

Definition of Terms

The following terms are here defined to serve as reference. The definitions given here are the meanings as used in this study.

Administrator. One who directs or manages, i.e. the officially designated district supervisors, principals, and head teachers of complete elementary schools of Calbayog City Division.

Complete elementary school. Elementary schools in the Division of Calbayog City which offer curricula from grades I to VI.

Elementary education. Public or private education beyond kindergarten and preceding secondary school dealing with the fundamentals of education.⁸ It refers to grades I to VI education.

Elementary science. Science taught in the elementary school in grades IV, V, and VI.

Evaluation. The process of determining the extent to which instructional objectives are attained.⁹ It refers to the appraisal of the science instruction, and the degree the educational objectives are attained.

Instruction. The kind of teaching that obligates the instructor to furnish the learner with some lasting direction. It is accountable for pupil performance commensurate with the precise statement of educational objectives.¹⁰ It refers to how science is imparted to the children in the elementary grades.

8

Good Carter V., Dictionary of Education, New York: McGraw-Hill Book Co., 1973.

9

Ruiz, Macario B., Evaluation and Measurement For Philippine Schools, R.P. Garcia Publishing Co., 311 Quezon Blvd., Quezon City, Philippines, p. 32, 1988.

10

Good, op. cit. p. 304.

Instructional materials. Anything used for teaching purposes, including textbooks, supplementary reading materials, visual aids, etc. such as the textbooks, reading materials, visual aids, apparatuses, and instruments used by the teachers in teaching science.

Perception. An observation, understanding, and apprehension by the mind through the senses.¹¹ The term is used to mean the understanding and insight of the administrators and science teachers on the present status of implementation of the science program in the division of Calbayog City.

Quality education. A national educational thrust which implies an upgrading of educational standards in process that is similar to the attainment of excellence in education as well as in life. Operationally 75% - 100% success per skill is expected of learners.¹²

11

The Reader's Digest and Encyclopedia Dictionary (London's Oxford University Press, 1979), p. 653.

12

Sutaria, Minda C., Dimensional of the Return to Basic Policy (Speech Delivered to the Third National Conference of Regional Chiefs and Assistant Chiefs of Elementary Education, Calino, Iloilo, March, 1988 Mimeographed).

Questionnaire. The form prepared and distributed for the purpose of securing responses to questions contained therein. It refers to the instrument used by the researcher in gathering data.

Research survey. An attempt to analyze, interpret, and report the present status of a social institution, group, or area,¹³ the methods employed in the research.

Science curriculum. A systematic organization of instructional materials designed to achieve the purposes of science teaching with maximum efficiency, specifically the programs designed to achieve the science program with maximum level.

Science instruction. The act of imparting knowledge, the act of teaching and giving directions in science.

Status. The standing or situation as regards the science instruction in the Division of Calbayog City.¹⁴

13

Webster's Comprehensive Dictionary International Edition, p. 1220, 1987.

14

Ibid. p. 1226.

CHAPTER II

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents relevant information pertaining to this study. The first part deals with the curriculum, objectives, teaching strategies, qualification of science teachers, the need for in-service training, adequate science facilities, textbooks and teaching devices and evaluation strategies. The second part cites related studies and researchers relevant to science instruction conducted in the Philippines.

RELATED LITERATURE

Our science program continuously aims to develop the young child into a citizen imbued with a scientific attitude towards life and problems, possessed of process skills essential in solving problems scientifically, and equipped with basic knowledge.

With regard to the science curriculum, MECS Order No. 6, s. 1982¹⁵ states:

The scope of the New Elementary School Curriculum (NESC) covers the general education of the child - as a

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Minimum Learning Competencies VI p. 68 PRODED Educational Reorientation Program.

human person, as a citizen, and as a productive agent. It emphasizes intellectual growth, through which human/civic/economic/cultural development is enhanced. It has the following new features:

1. Fewer learning areas and emphasis on the mastery learning.
2. More time allotted to the development of the basic skills specifically the 3R's, especially in the lower grades.
3. Greater emphasis on the development of intellectual skills which are as important as work skills.
4. Focus on the development of a sense of humanity and nationhood in all the learning areas.
5. Health values development infused into the whole curriculum, not to be limited only to the period for character - building activities and science and health.
6. The systematic development of competencies and values of social living.

Education at the elementary level is the country's major program for the delivery of mass and universal education to our people. It is society's main avenue for the development of civic and social values, particularly a

sense of humanity and nationhood.

Objectives of Science Teaching. The objectives of science teaching range from the general to specific goals. These set the direction of all kinds of science instruction to their desired learning outcome in their daily lessons. The general goals are translated into instructional objectives which guide the teacher in planning the appropriate learning activities.

The New Elementary School Curriculum (NESC) states that Science and Health aim to:

. . . help the Filipino child gain a functional understanding of science concepts and principles linked with real life situations, acquire science skills as well as scientific attitudes and values to health and sanitation, nutrition, food production, and the environment and its conservation.¹⁶

The elementary science education is geared towards the following general objectives:

1. Science teaching should enable the children to acquire knowledge which they can use to explain, predict, and interpret natural phenomena in their environment.

2. Science instruction should assist children in developing scientific and systematic habits of work.

3. Science teaching should help the children learn to think critically and develop scientific attitudes.

4. Daily science experiences should develop desirable social attitudes among children.

5. Reading in science should make children learn to appreciate and feel grateful for the contribution of science and technology.

6. The study of science should arouse and sustain among children further interest in science which may lead to the pursuit of science careers and lifelong science - based undertakings.¹⁷

Methods and Teaching Strategies. After clearly defining the instructional objectives and selecting the proper content, the next important concern of a science teacher is to determine and choose the methods that will be most effective in presenting the lesson.

According to Lardizabal¹⁸ et. al., methods refer to the teacher's systematic procedure of getting the lesson

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Gloria G. Salandanan, Rosita G. Santos and Eden C. Diaz, *The Teaching of Science and Health, Mathematics, Home Economics and Practical Arts*, Q.C. Katha Publishing Co., Inc. p. 3-4, 1988.

18

Amparo S. Lardizabal, Alicia S. Bustos, Luz C. Bucu and Maura G. Taneco, *Principle and Method of Teaching*, Q.C. Phoenix Press, Inc., 1977) p. 25.

across to the child. A method facilitates learning and is considered effective if it - 1) makes use of the principles of learning; 2) utilizes self-activity; 3) considers individual differences; 4) stimulates thinking and 5) provides for growth and development.

Salandanan and her associates recommend the following approaches which would make science teaching enjoyable and effective. 1) Discovery Approach -

Problem Solving	<input type="checkbox"/>	ups and downs
	<input type="checkbox"/>	trial-and-error
	<input type="checkbox"/>	"messaging about"
facts, concepts, principles		

It starts with a problem or a situation that is puzzling. The learners get through a series of ups and downs, trial-and-error, "messaging about." As a result of all these activities, the learner arrive at a pattern of thought - which could be a concept or a principle.

2. Inquiry Approach: Its teaching Strategy

Problem Solving	<input type="checkbox"/>	discrepant event
	<input type="checkbox"/>	asking questions
	<input type="checkbox"/>	testing thesis, hypothesis
	<input type="checkbox"/>	inquiring, investigating

theories, hypotheses, concepts

It starts with a discrepant or inconsistent event or an inquiry problem which aims to stimulate thinking in the learners. Discussion of the discrepant event follows involving question asking and generating theories. These theories are tested freely. The expected result of the test is an active inquiry and investigation of the problem.

3. Process Approach: Its Teaching Strategy

Problem Solving

Elements for Process Approach

Characteristics of Process Approach

<input type="checkbox"/> terminal task	<input type="checkbox"/> "smoothly guided tour" of a constructed learning hierarchy
<input type="checkbox"/> sub-tasks of the terminal task	<input type="checkbox"/> highly structured and organized learning
<input type="checkbox"/> pre-requisites of sub-tasks arranged in a systematic way from simple to complex	

facts, concepts, principles

It starts with pre-requisites from the easiest to the hardest. The learner goes through a highly structured and organized sequence of learning. The learner is guided all along until he ends up in the performance of the

terminal task or skill in problem solving.¹⁹

Salandanan²⁰ presents some other strategies that would also help teachers in teaching science, for instance -

1. Experimenting - experimenting is a method of teaching which actively involves every pupil in the class in manipulating materials and any simple equipment to find answers to questions or solve problems.

2. Demonstrating - a demonstration is a classroom methodology wherein the learning activity is performed by a pupil, teacher, or a small group while the rest of the class observe.

3. Field trip - a field trip is an out-of-door classroom activity whereby children study things in their natural setting. It provides students a useful experience in the study of real things and real places.

4. Discussion - as a technique it provides the best opportunity for the children to express their opinions and share ideas with their classmates.

5. Inviting Resource Person - a person who is

19

Potenciana C. Cruz, Archibold Peterson C. Sia, Modernizing Science Instruction in the Elementary School, Rex Printing Co., Q.C. 1980.

20

Salandanan, op. cit. p. 10.

considered an expert or a specialist on a topic in science may be invited to come to school to assist the children in learning a special subject matter.

Ong²¹ suggests that teaching science "in full color" via instructional technology, should be through the use of various media such as, oral presentation, audio; recording, slide film, etc.

Another idea is presented by Dumas.²² She concluded that modules are effective in the teaching of concepts in science. Pupils using the modules achieve better than pupils who are taught by the conventional method. The modules are relevant to the needs of the pupils. Finally, the children react favorably to the modules as a teaching learning device. With the favorable results given in the study of Dumas, the researcher is convinced that module makes teaching science effective.

Qualification of science teachers. Qualified and competent instructors for science can bring about situations conducive to learning. Teachers, therefore, should have

21

Elizabeth Ong, "Teaching Science in Full Color", The Philippine Teacher, January 1985, pp. 264-266.

22

Maria Dumas, "Modular Approach in Teaching Science for Grade Four Pupils," Unpublished Master's Thesis, Divine Word University of Tacloban, 1981.

the necessary qualifications and skills to become effective teachers of science.

To attain the goals of education, the teacher, must possess these following professional qualities:

1. Mastery of the subject-field one teaches
2. Understanding of the learner
3. Understanding of teaching principles and skills in the use of techniques for their implementation
4. General understanding of other branches of knowledge
5. Understanding and appreciation of the teaching profession.²³

Teachers may have the necessary educational qualification and may also possess all qualities but still prove a failure as a teacher. Lardizabal²⁴ further states that a teacher must understand the importance of his profession as a socially useful work and recognize its satisfaction as well as its restriction and trials. He must be aware of the value of professional organization to

²³
Lardizabal, op. cit. 4-5.

²⁴
Ibid.

himself and to education in general. Lastly, he must be aware of the need for keeping abreast with changes in education through various in-service education program.

Gregorio²⁵ recognizes that the teacher is the key factor in the student learning. He should therefore possess outstanding qualities like:

1. a scientific attitude - a teacher must plan his work carefully; he must be receptive to new educational ideas and prepared to apply the best psychological principles of learning to his teaching.

2. Altruism - a teacher should have a heart yearning for the good of others.

3. Ambition - a teacher must not be satisfied with his achievements. He must have ideals and ambitions which alone give zest to life.

Divina²⁶ enumerates the teacher's varied responsibilities as a classroom manager, namely: (1) plans learning activities to achieve minimum objectives;

25

Herman C. Gregorio, Principles and Methods of Teaching (R.P. Garcia Publishing Co., 1976) p. 485.

26

Remedios O. Divina, "Strengthening the Instructional Personal and Social Competencies: A Must for Teachers," The Filipino Teacher, March 1985, pp. 334-335.

(2) reviews and drills pupils everyday for mastery;
 (3) administers tests and returns corrected papers and projects promptly; and (4) manages routine activities smoothly.

Nievera²⁷ claims that "the greatest element in the progress of both the students and the school is the teacher; his influence is greater than that of the curriculum, the principal, the supervisor, or other school officials.

Furthermore, according to Nievera,²⁸ the success of a teacher instruction depends on several factors: professional training, personality, knowledge of the subject he is teaching, his methods and techniques of presenting it, classroom management and his educational qualification.

Zamora²⁹ speaks of "showmanship" as a priceless teaching asset, an essential ingredient that will ensure success in a teacher's work. Showmanship catches the

²⁷ Marcelino L. Nievera. "What Makes Effective Classroom Instruction," Philippine Journal of Education, Vol., August 1971), 161.

²⁸ Ibid.

²⁹ Generoso D. Zamora, "Portrait of a Teacher as a Showman," The Philippine Journal of Education, 58, 1982.

attention of students and arouses their keen interest. Science teachers are showmen when they perform laboratory demonstrations to illustrate and dramatize various scientific principles so that students become deeply involved in their lessons and stimulated for serious and creative thought.

As a conclusion, mastery of subject matter can be achieved when the teacher teaches the subject matter which is her specialization. To be more efficient, every teacher should be a subject matter specialist because one cannot become a master of everything. The complexities of modern life demand specialists who are successful in their line of work.³⁰

The need for in-service training. Yarcia³¹ states that teachers need in-service training to be able to cope with their primary task of providing basic education to the children and to implement current educational reforms and innovations. Through in-service training activities, the teacher keeps abreast of current curriculum innovations

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"Some Proposals for Improving Rural Education," The Philippine Journal of Education, 58 (March 1980), p. 513.

31

Romeo J. Yarcia, "The Professional Teacher and Service Education", The Philippine Journal of Educational, 58, October 1979), p. 267.

and approaches as well as recent orders and policies of the DECS.

The need for teacher improvement in the service is necessary, especially when teaching has become professionalized. Preparation for science teaching is never complete, if one considers the fast rate of progress in science and technology and the continuing explosion of knowledge.³² Divina further states that there is a need for strengthening the desirable instructional, personal, and social competencies of teachers because good teachers make good and well-adjusted pupils.³³

The need for adequate science facilities, textbooks and teaching devices, Erickson³⁴ concluded that audio visual aids are vital in the teaching-learning process. They perform some superhuman tasks for the teacher for they can:

1. Extend human experience
2. Provide meaningful information
3. Stimulate interest

³² Ibid.

³³ Ibid.

³⁴ Carlton W. H. Erickson, David H. Curl, Fundamental in Teaching with Audio Visual Technology, (Macmillan Publishing Co., New York, 1989) p. 333.

4. Guide student response
5. Overcome physical limitation
6. Stimulate problem solving
7. Provide diagnostic and remedial tools.

Rosendo³⁵ supports that visual aids and devices are needed to reinforce the theories and to maintain the children's interest throughout the lesson period.

Furthermore, adequate laboratory space is essential for effective science instruction. Blades and Miller³⁶ describe what a desirable science room should be. It is one provided with enough number of tables and chairs, and equipped with water, gas and electricity connections for special purposes. The teacher's table should be placed higher for demonstration purposes.

Evaluative Strategies. Salandanan³⁷ asserts that there is no "best" single technique with which a teacher can compile a comprehensive and adequate information about

³⁵

Rosendo, "Practices That Cause Teaching Failures," *The Philippine Journal of Education*, 56, No. 3 (August 1977) p. 126.

³⁶

Glen W. Blades and Daniel Miller, Methods and Materials for Teaching Biological Science (New York: McGraw Hill Book Company, 1972.) p. 139.

³⁷Salandanan op. cit. p. 100.

the total achievement of a child. He likewise recommends the following evaluative techniques which science teachers can try in order to arrive at a fair judgment of pupil performance. 1) Administering pencil and paper test, checklists and rating scales; 2) Assessing completed work produce-example recorded data and generalization, apparatus set-up as required for a particular experiment, assignment notebook, clippings, collections, projects constructed, written special reports, an invention and simple research. 3) Measurement of oral responses; 4) Observation of behavior, both formal and informal; 5) Conducting interviews and small group conferences; 6) Case study.

The opinions and insights presented by the authors in line with a teacher's competence, instructional facilities, teaching strategies and evaluation strategies in science instruction were considered in the construction of the research instrument.

RELATED STUDIES

The following are some of the related studies which show similarities to the present investigation.

The study entitled "An Evaluation in the Elementary

Science Teaching in Area III City School, Baguio City,"³⁸ revealed that fifty percent of the teacher respondents are BSEED degree holders with some M.A. units. The teachers earned only from 7 to 12 units of science while in college, eighty nine of the 100 teachers used the inductive method in Science teaching. The status of elementary science knowledge among the teachers was fairly adequate. Therefore, there was a need to update and upgrade the teachers' competencies on the subject. She also found out that many science teachers have not attended any seminar or workshop in elementary science. The evaluation was done mostly with paper-pencil test of the problems met. The most serious was the lack of laboratory room.

Based on her findings, Quiyugan recommended the following:

1. Science teachers should upgrade competencies by enrolling in science subjects to broaden knowledge.
2. Teachers should continue using inductive method because it is very effective in

learning science concepts.

3. Study sessions should also be encouraged.

Her study and this present study are alike in that both dealt with qualification of science teachers, different methods and techniques, evaluation of results of science teaching and problems encountered in the teaching of science. They differ in venue and time. Her study was in Baguio City, while the present investigation is in Calbayog City Division, Calbayog City, Western Samar.

A review of Quiyugan's study helped this present investigation pinpoint what part of the Science Program needs in-depth study.

Another relevant study that steered this present study is the one conducted by Umipig.³⁹ Her study probed into the status of Science teaching in public secondary school. From her findings she recommended that:

1. There be a continuous program of upgrading and updating teaching competencies of all science teachers by conducting in-service trainings in science on the different levels, involving new textbooks, and evaluative

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Erlinda M. Umipig, "Status of Science Teaching in the Public Elementary School of Ilocos Sur." (Master's Thesis, Osias Educational Foundation, Balaoan, La Union, 1983).

instruments.

This study is similar with the present work on content area which is Science but differs in respondents, venue, and time. She utilized the secondary teachers, whereas the present dealt with the elementary teachers.

The former study gave the present researcher a deeper insight into her investigation on the competencies of the science teachers.

Santos⁴⁰ conducted a research which focused on the difficulties in teaching elementary science in the District of Santa Maria, Division of Pangasinan. In her study she found out that the teachers' main difficulties in the teaching of science were:

1. Lack of teaching aids and curricular materials to implement the process approach.
2. Lack of laboratory facilities, equipment, instructional materials and instrument for science teaching and experiment.
3. Lack of ways and means of pupil participation in science class activities.

With these findings she recommended that science

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Maedalená O. Santos, "Difficulties in Teaching Elementary Science in the District of Sta. Maria, Division of Pangasinan 1975-1976.

teachers be creative and innovative in making up for the lack of instructional materials, aids, equipment. She further stated that there should be coordination between science and English teachers in order to overcome difficulty of children in expressing themselves. She further recommended that teachers put much emphasis on the paper-pencil test and classroom recitation for evaluating pupil performance, as many pupils were handicapped by the language problem.

This study bears relevance with the present investigation as both involved the teachers on the elementary level and used the normative descriptive survey with questionnaire as the primary instrument in collecting data. But they differ in area of concentration. Santos limited her study on the difficulties in teaching science in the elementary grades, whereas the present study evaluates the status of the science program as a whole.

The study of Santos was useful to the present research in determining the statistical treatment used in her research. Some of the recommendations were adopted by the present research because they were found out to be relevant.

There is another study which in some ways is related

to the present work, and somehow useful. Caster⁴¹ in her study found out that teaching efficiency was positively related to the length of teaching experience, educational qualification and salary range. Furthermore, teachers were found to be proficient in the knowledge of the subject matter, classroom management creativeness, teaching techniques, the use of English language, professional growth and cultural reading growth.

The teachers found to have stayed longer in the service were better teachers than those new in the field. Similar findings were given for educational qualification and salary. Those with high educational qualification and enjoying better salary were found to be better teachers, thus, producing better quality outputs. This study in some aspect has a relationship with the present investigation and is somehow very useful to the present investigation, especially in the framing of the questionnaire.

The foregoing study is related to this present study, since both are concerned with evaluation of teacher performance, but differ in scope and content area.

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Fe P. Caster, "The Teaching Efficiency of the Public Elementary School Teachers of the Division of Cebu, 1963-1964 (Unpublished Master's Thesis, USC, Cebu City, 1964) p. 36-37.

Another research conducted by Ramirez⁴² recommended the following: 1) Teachers and administrators should study more carefully the socio-economic needs of parents and pupils and should plan to make the curriculum and instruction related to their needs. 2) Negative reactions of parents and pupils to the curriculum and instruction should serve as basis for teachers and administrators in identifying problems and remedying deficiencies, and the problems identified should be subjected to action research, and 3) more humanistic techniques of discipline should be used in schools which commensurate with the dignity of man. The study of Ramirez is related to the present research because both focus on the factors affecting teacher performance.

Casurao⁴³ attested that the level of aspiration of the teachers and teaching performance showed significant relationship. This means that teachers' high aspiration serves as a factor in improving teaching performance. Therefore, in order to maintain and improve their level of aspiration, school administrators should always provide

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Shirley Y. Ramirez, "Problems of Manoyans in Relation to Their Economic, Social and Educational Needs and Their Implication to Education." (Unpublished Master's Thesis, Philippine Women's University, Manila, 1976), p. 31.

43

Erlinda J. Casurao, Relationship Among Socio-Economic Status and Level of Aspiration of the Teachers of Calbayog II, (Unpublished Master's Thesis, Leyte Institute of Technology, Tacloban City, 1986).

encouragement such as giving incentives and promoting them through merit or performance. Her study bears a relationship with the present investigation, because the focus of her study was on evaluation of teachers' competence which is also a target of this study.

Destura⁴⁴ cited these following recommendations:

Administrators and faculty members should take a more discerning appraisal of the quantity, quality, and relevance of instruction facilities and resources in their respective institutions. Maximum efforts should be exerted to provide the appropriate kind and number of instructional supplies and materials, facilities and equipment to ensure quality instruction in the program. Perhaps, it would be desirable to conduct an annual or biennial inspection or inventory of such instructional resources by school officials concerned if only to determine their status.

Some sort of better incentives should be provided by the administrators or the policy makers, if the program is to encourage faculty members to grow professionally in the service. A fair and workable faculty development pro-

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Destura, Leticia V., "The Home Economics Teachers Education Program of State Colleges and Universities in Eastern Visayas," (Unpublished Doctoral Dissertation, Divine Word University, Tacloban City, 186, 1987).

gram conceived on a long range basis should be formulated with the joint efforts of the faculty members and administrators. The provisions of NCC 33 and NCC 47 should be strictly followed, so that the more efficient and effective members benefit from the recurring investment year after year our government has consistently provided our state colleges and universities.

The aforecited related literature and studies enabled the writer to gain background information on the evaluation of science program. The conclusion, recommendations, and suggestions of the previous studies indicated in this chapter were taken in consideration of the structuring of the questionnaire, identifying variables, and treatment of data.

CHAPTER III

METHODOLOGY

The chapter deals with the methods and procedures used to answer the problems of this study. It discusses the method of research, the locale of the study, the respondents of the study, the research instruments, pre-testing and administration of questions.

Research Design

This study attempted to evaluate the status of the elementary science instruction of Calbayog City Division. It utilized the descriptive method of research, which was fact-finding in nature with adequate interpretation, utilizing an appropriate measuring instrument and statistical tools.

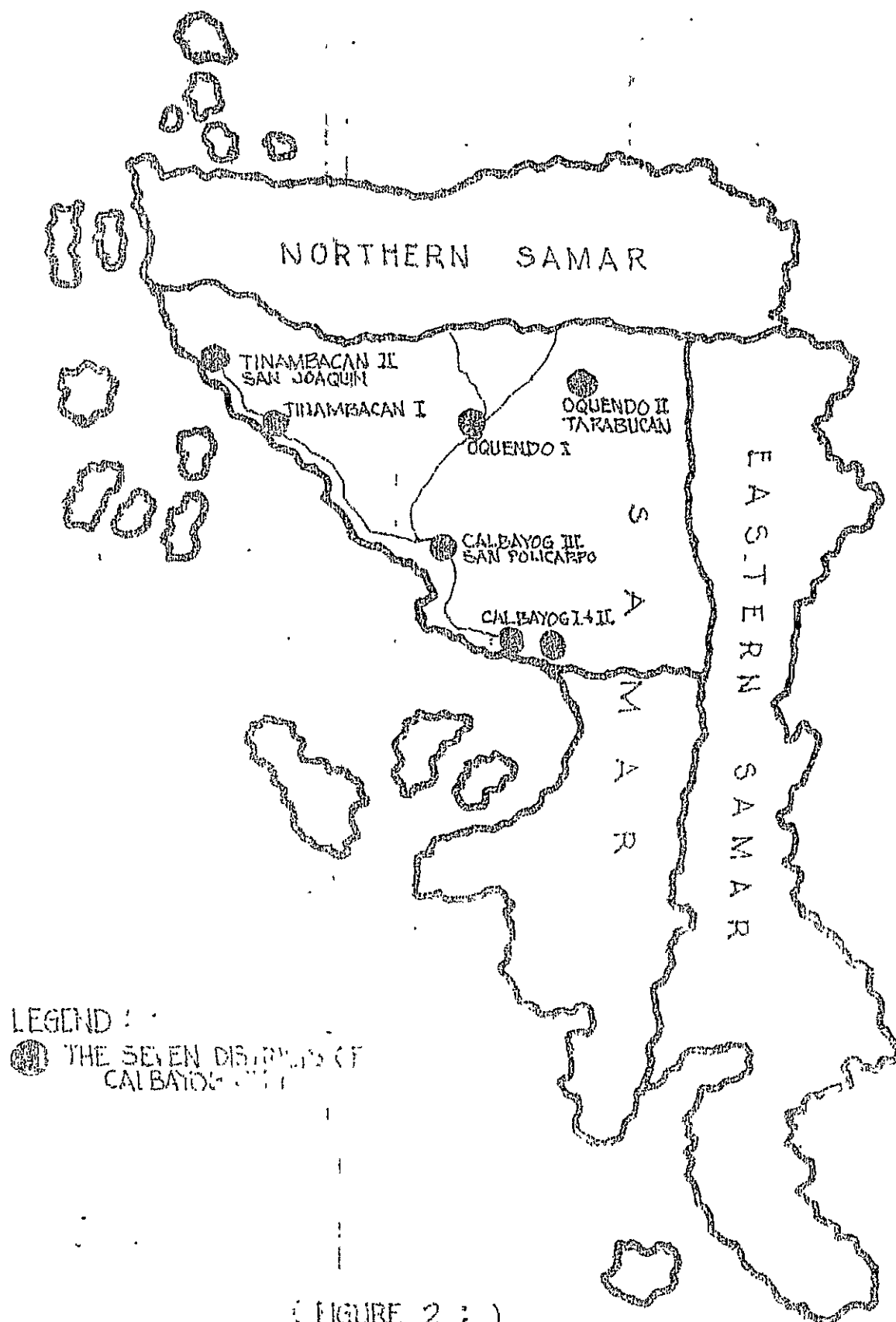
Sampling Procedure

There were 107 respondents to this study, 50 of which are administrators and 57 are science teachers, teaching science in grades IV, V, and VI in the entire Calbayog City Division for SY 1991-1992 shown on table 2. Of the 57 science teachers, 52 or 91.22 percent are (E.G.T.) elementary grades teachers, 5 or 8.77 are master teachers.

Table 2

The Districts and the Corresponding Number of Respondents,
Percentage of Returns of Questionnaires

District	Administrators			Science Teachers			Total		
	Actual	Res-	%	Actual	Res-	%	Actual	Res-	%
	: :dent	: :pon	: :	: :dent	: :pon	: :	: :dent	: :pon	: :
Calbayog I	5	4	8	10	9	15.80	15	13	12.14
Calbayog II	7	7	14	10	9	15.80	17	16	14.95
Calbayog III	6	6	12	8	7	12.28	14	13	12.14
Oquendo I	4	4	8	9	8	14.03	13	12	11.21
Oquendo II	6	6	12	8	6	10.50	14	12	11.21
Tinambacan I	7	7	14	8	8	14.03	15	15	14.01
Tinambacan II	7	6	12	10	10	17.54	17	16	14.95
Division Office	12	10	20				12	10	09.39
Total	54	50	100	63	57	100	117	107	100



(FIGURE 2 :)
• MAP OF SAMAR •

While the 50 administrators 15 or 30 percent are head teachers, 14 or 28 percent, principal I teachers, 5 or 10 percent, principal II teachers, 6 or 12 percent, district supervisors, 10 or 20 percent, general education supervisors. (See appendix LO

All supervisors, principals, and head teachers of the district involved in the study were made respondents.

The findings and general conclusions were derived from the total number of returned questionnaires from the administrators and science teachers.

Instrumentation

Interview Guide. The open interview guide was utilized to gather supplementary information from the administrators and science teachers.

Observation Guide. This instrument was used to counter check information indicated in the questionnaire, particularly on teaching strategies, instructional facilities, science equipment and supplies, teaching aids and devices.

Questionnaire. This was the major instrument used in gathering the data needed to answer most of the specific questions of this study. It contained the four major components of the study, namely: Teacher's competence,

teaching strategies, evaluative techniques, science facilities/equipment/supplies/teaching aids and devices. For every component, ten or more relevant conditions or practices were used to measure the perception of the two groups of respondents on the status of the elementary science instruction. The respondents encircled the number representing their perception about a particular condition or practice. They also gave their perception regarding the problems and recommendations along science teaching. The perceptions or opinions of the respondents were categorized into five number symbols, and were defined as follows:

- 1 less - 1.50 Very Unsatisfactory. The condition or practice is totally missing.
- 2 1.51 - 2.50 Unsatisfactory. The condition or practice is present but limited.
- 3 2.51 - 3.50 Neither unsatisfactory nor satisfactory. The practice or condition is present but neither limited nor moderate.
- 4 3.51 - 4.50 Satisfactory. The condition or practice is present but moderate.
- 5 4.51 - 5.00 Very Satisfactory. The condition or practice is extensively functioning well.

Part I of the questionnaire served as the framework for the general information and personal data of the respondents, while Part II measured the opinions and perceptions of the two groups of respondents.

Pre-testing and administration of the questionnaire.

Before the questionnaire was administered to the respondent of the study, it had been pre-tested with some science teachers and administrators of Santa Margarita District, Division of Samar, who were not involved in the study. These teachers and administrators accomplished the said questionnaire. Based on their responses and reactions, the questionnaire was further revised. It was subsequently presented to the Dean, and with his approval, the final form was evolved.

Data Gathering

After securing permission and approval to conduct the study from the adviser and Dean of the Graduate School, SSPC, Catbalogan, Samar, the researcher made a request letter addressed to the Division Superintendent of Schools, Calbayog City, seeking his permission and his whole hearted cooperation in conducting the study.

One set of questionnaire was used for both administrator and science teacher respondents in as much as they

will evaluate the same aspect of the science program.

The questionnaire was fielded personally by the researcher to facilitate its distribution and to ensure a high percentage of retrieval. She also requested some of her trusted friends to help her in the distribution and retrieval of questionnaire especially those respondents from four districts.

Treatment of Data

The data gathered were tallied, collected, presented, analyzed, and interpreted statistically. The frequency count and percentage measure were used to analyze the data in Part I of the questionnaire, the profile of respondents. This was done by dividing the number of respondents involved in the study by the number of frequency. To determine the status of elementary science instruction as perceived by the respondents on the four identified components, the weighted mean was used.

For the data that were gathered from Part II of the questionnaire, five descriptive ratings were used, namely: very satisfactory, satisfactory, neither unsatisfactory nor satisfactory, unsatisfactory and very unsatisfactory, the assigned weights of 5, 4, 3, 2, and 1 were respectively given.

The frequency of each item was multiplied by the weights of the respective columns to obtain the weighted frequencies which were added to get the total weighted frequency. This in turn was divided by the total frequency so as to arrive at the weighted average which was then interpreted by using the arbitrary scale to be adopted for this purpose which is as follows:

Scale/assigned weight:

5	4.51 - 5.00	Very Satisfactory
4	3.51 - 4.50	Satisfactory
3	2.51 - 3.50	Neither Unsatisfactory nor Satisfactory
2	1.51 - 2.50	Unsatisfactory
1	1.00 - 1.50	Very Unsatisfactory

To find out whether there was a significant difference in the perceptions of the two sets of respondents, the t-test for independent samples at .05 level of significance was used with the following formula:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{x_1^2}{n_1} + \frac{x_2^2}{n_2} - \frac{1}{n_1} \times \frac{1}{n_2}}}$$

where:

t = the computed statistical value

\bar{X}_1 = the mean of the items under X_1 variable

\bar{X}_2 = the mean of the items under X_2 variables

Σ = stands for summation

x_1 = the difference between X_1 and \bar{X}_1

x_2 = the difference between X_2 and \bar{X}_2

The weighted average was used to determine the problems felt by the respondents in the implementation of the science program. Five descriptive ratings were used - very much felt, much felt, felt, not much felt, and not felt at all - each assigned a weight of 5, 4, 3, 2, and 1 respectively. This, in turn, were divided by the total frequency in order to arrive at the average weight which was interpreted by using the attitude scale adopted for this purpose as follows:

Scale/Assigned weight:

5	4.51 - 5.00	Very much felt
4	3.51 - 4.50	Much felt
3	2.51 - 3.50	Felt
2	1.51 - 2.50	Not much felt
1	1.00 - 1.50	Never felt

To determine the degree of agreement of the respondents on the suggested solutions to the identified problems and recommendations, the weighted mean was also used. Five descriptive ratings used were-strongly agreed, agreed, undecided, disagreed, and strongly disagreed, with the assigned weights of 5, 4, 3, 2, and 1 respectively.

The frequency of each item was multiplied by the weights of the respective columns to obtain the weighted frequencies which were added to get the total weighted frequency. This, in turn, was divided by the total frequency so as to arrive at the average weight which was interpreted by using again an attitude scale adopted for this purpose, as follows:

Scale/Assigned weight:

5	4.51 - 5.00	Strongly agreed
4	3.51 - 4.50	Agreed
3	2.51 - 3.50	Undecided
2	1.51 - 2.50	Disagreed
1	1.00 - 1.50	Strongly Disagreed

CHAPTER IV

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter deals with the presentation of data obtained as a result of the survey on the elementary science program. It presents the profile of respondents, the extent of the implementation of the science program by utilizing four major components as variables of the study, namely: teachers' competence, instructional facilities, teaching strategies, evaluative techniques. To be precise in the evaluation process, ten conditions or practices per major variable have been identified as indicators of the status of the program as of the school year 1991-1992. These conditions or practices have been used to measure the perceptions of the two groups of respondents with respect to the implementation of the science program in the Division of Calbayog City. It also presents the problems encountered in the implementation of the program and the suggested solutions to these problems.

The discussion of findings on the four major components is preceded by the presentation of the profile of the respondents so as to provide a synoptic view on the sources of data for this study.

Table 1
Age of Respondents

Age-range	Adminis-		Teacher		Grand Total	
	F	%	F	%	F	%
20 - 30 years	1	2%	8	14%	9	8.40
31 - 40 years	3	6	10	18	13	12.15
41 - 50 years	19	38	30	53	49	45.80
51 - 60 & above	27	54	9	15	36	33.65
Total	50	100%	57	100%	107	100%

Table 1 shows that there are two groups of respondents in this study. The group of administrators consist of persons older than the teacher respondents. About twenty seven or 34 percent of the administrators are beyond fifty years of age. Those classified under the administrators' category are the general education supervisors, district supervisors, principals, and head teachers. While the group of the second respondents consist of the science teachers who are younger than the administrators. There are thirty or 53 percent within the age range from forty-one to fifty years. The rest of the teachers are still 40 years and below. These comprise about 18 percent.

As shown in Table 2, there are thirty six female administrators or 72 percent and only fourteen or 28

Table 2
Sex of Respondents

Sex	: Adminis- : trator : F : %		: Teacher : F : %		: Grand Total : F : %	
Male	14	28	9	15.7	23	21.49
Female	36	72	48	84.2	84	78.50
Total	50	100	57	100%	107	100%

percent are male administrators. It is a common fact that the females often outnumber the males in any organization. This is also the same with the teacher respondents, forty eight or 84.2 percent are females and only nine or 15.7 percent are males.

Table 3
Civil Status

Civil Status	: Adminis- : trator : F : %		: Teacher : F : %		: Grand Total : F : %	
Single	11	22	9	15.80	20	18.69
Married	35	70	46	80.70	81	75.70
Widow	3	6	2	3.5	5	4.67
Separated	1	2			1	.93
Total	50	100%	57	100%	107	100%

Majority of the administrators thirty five or about 70% are already married, there are eleven or 22 percent who are still single, 6% are widow and one separated or .93 percent.

While most of the teacher respondents are also married, forty six or 80.70 percent of the total number of respondent, only nine or 15.7% are still single and 3.5 percent are widows and widowers..

Table 4-A
Teaching Experience of Administrators

Years in teaching science	Adminis-		Teacher		Grand Total	
	F	%	F	%	F	%
0 - 1 year	26	52			26	24
1 - 10 years	14	28	40	70	54	50
11 - 20 years	6	12	8	14	14	13
21 - 30 years	3	6	9	16	12	11
31 - 40 years & above	1	2			1	.93
Total	50	100%	57	100%	107	98.93%

Table 4-B
Teaching Experience of Science Teachers

Years in the service	Adminis-		Teacher		Grand Total	
	F	%	F	%	F	%
1 - 10 years	1	2%	17	30%	18	16.82
11 - 20 years	6	12	16	28	22	20.56
21 - 30 years	24	48	23	40	47	43.92
31 - 40 yrs. and above	19	38	1	2	20	18.70
Total	50	100%	57	100%	107	100%

The teaching experience of the administrators is presented in Table 4-A. The data show that most of the administrators, twenty six or 52 percent, do not have science teaching experience. There are fourteen or 28 percent with 1-10 years teaching experience. There are six or 12 percent with 11 - 20 years teaching experience and only four or 8 percent with twenty-one to forty above teaching experience. Though they have few years in teaching science, they have already stayed long in the service. The majority of the administrators, 24 or 48 percent, have a length of service between 21 - 30 years. There are nineteen or 38 percent between 31 - 40 and above. There are only six with the length of service between 11 - 20

years and only one who has the teaching experience between 1-10 years.

The Table 4-B shows that most science teachers have only 1 - 10 years experience in teaching science. Eight or 14 percent have science teaching from 11 to 20 years, and only nine or 16 percent with 21-30 years in teaching science. Both administrators and science teachers claim that the majority of them have little exposure to science. However, the majority of these teachers have stayed long in the service. There are twenty or 40 percent who have stayed between 21 - 30 years in the service. Sixteen or 28 percent between 11 - 20 years, seventeen or 30 percent between 1 - 10 years in the service and only one or 2 percent who have the longest years in the service.

Table 5

Civil Service Eligibility of Administrators and Teachers

Civil Service Eligibility	: Adminis- : trators		: Teacher		: Grand Total	
	: F	: %	: F	: %	: F	: %
none			2	4	2	1.90
RA 4670			3	5	3	2.80
PBET	39	78	52	91	91	85.00
Junior	6	12			6	5.60
Senior	5	10			5	4.70
Total	50	100%	57	100%	107	100%

Table 5 shows the civil service eligibility of the respondents. The data show that most of the administrators and teacher respondents are Philippine Board Examination for Teachers passers (PBET). There are ninety one or 85 percent out of the 107 respondents. It is from the administrators' groups that six or 12 percent are Junior eligibles and five or 10 percent are Senior eligibles. From the teachers' group two or 4 percent are none-eligibles and three or 5 percent got their eligibility under RA 4670.

Educational Qualifications

The educational qualifications of the respondents are presented in Table 6. It shows that only the administrators' group fall under Ph.D. degree holders representing two or 4 percent of the total number of administrators. Most of them however, have either Master of Arts degrees or M.A. (CAR) with twenty or 40 percent and only six or 12 percent BSE/BSEED degree holders. From the teacher respondents only one or 1.75 percent is a Masteral Degree holder and the majority of the teachers are BSE/BSEED degree holders and some have units in M.A. and only two or 3.50 percent are ETC- ETC.H.E. teachers and do not aspire for higher educational attainment.

Table 6
Educational Qualification of Respondents

Educational Qualification	Adminis- trator		Teacher		Grand Total	
	F	%	F	%	F	%
Ph.D. degree	2	4			2	1.90
M.A. degree	22	44	1	1.75	23	21.50
M.A. (CAR)	20	40	2	3.50	22	20.55
BSEED/BSE equivalent	6	12	52	91.22	58	54.20
ETC-ETC.H.E.			2	3.50	2	1.85
Total	50	100%	57	100%	107	100%

Status of the implementation of the science program
in the Elementary Grade

The status of the implementation of the Science Program in the Division of Calbayog City was evaluated by the two groups of respondents, namely, the administrators and science teachers. Included in their evaluation processes were the teachers' competence, instructional materials, teaching strategies, and evaluative techniques.

Teachers' Competence. The data presented in Table 7 show that the administrators and science teachers have almost the same pattern of evaluation. The former have a mean score rating of 3.66 and the latter 3.89.

Table 7
Adm.

Am.	:	:	:	:	:	20.02
	:	:	:	:	:	(3.66)
Tea.	:	:	:	:	:	38.89
	:	:	:	:	:	(3.89)

Legend:

4.51	-	5.00	---	VS	-	Very Satisfactory
3.51	-	4.50	---	S	-	Satisfactory
2.51	-	3.50	---	NUS	-	Neither Unsatisfactory nor satisfactory
1.51	-	2.50	---	UN	-	Unsatisfactory
1.00	-	1.50	---	VUS	-	Very Unsatisfactory

Both are satisfactory indicating that the condition or practice is present but moderate. However, two conditions were both rated (NUS) neither unsatisfactory nor satisfactory by the administrators and science teachers. This indicates that the conditions are neither unsatisfactory nor satisfactory.

It shows that administrators are fully aware that science teachers have limited knowledge and exposure to science and technology. They seldom have the chance to attend in-service training, seminars, conferences or study grants specifically on science wherein they can be acquainted with the modern approaches and trends in teaching this subject.

Instructional Facilities. The data presented in Table 8 shows that the administrators have rated all the conditions and practices (NUS) with the weighted mean of 2.92. While science teachers have also the weighted mean of 2.99 (NUS) which means that the condition is neither unsatisfactory nor satisfactory. It proves that both the administrators and science teachers have the same degree of perception on the condition and quality of instructional facilities actually existing in the Division of Calbayog City. It shows also that the instructional facilities, science room, science equipment and apparatuses are inadequate and inappropriate for science lessons. The

Table 7.1

									2.92	NUS
									:29.90:	
									2.99	NUS

Legend:	4.51	-	5.00	---	VS	-	Very Satisfactory
	3.51	-	4.50	---	S	-	Satisfactory
	2.51	-	3.50	---	NUS	-	Neither Unsatisfactory nor satisfactory
	1.51	-	2.50	---	US	-	Unsatisfactory
	1.00	-	1.50	---	VUS	-	Very Unsatisfactory

:Tea.	:135	: 243	: 105	: 52	: 32	: 567	:
:Adm.	:	:	:	:	:	:	:34.53: NUS
							3.45
:Tea.	:	:	:	:	:	:	:36.93: S
							3.69

Grand Mean

Legend:	4.51	-	5.00	---	VS	-	Very Satisfactory
	3.51	-	4.50	---	S	-	Satisfactory
	2.51	-	3.50	---	NUS	-	Neither Unsatisfactory nor satisfactory
	1.51	-	2.50	---	US	-	Unsatisfactory
	1.00	-	1.50	---	VUS	-	Very Unsatisfactory

utilization of available instructional materials to enhance the effectiveness of instruction was resorted to by the teachers. They are limited however to what is available. Teachers should use their initiative and resourcefulness, considering the availability of supplies and instructional materials for the science program is not much.

Teaching Strategies. Table 7-B clearly shows that there is no significant difference between the responses of the respondents on the teaching strategies employed. There were three conditions having the same rate of (NUS). The administrators have a weighted mean of 3.45 (NUS) and the teachers have 3.69 (S). The data prove that teachers are not using modules, cassette, radio as their instructional devices. Teachers do not invite resource persons to talk on special topics and do not conduct investigatory projects which will make science lively and interesting to the pupils.

Evaluative Techniques. The data show how teachers assess the pupils' performance and behavior in the class. The conditions or practices that are commonly employed were rated (S) satisfactory, indicating that condition is present but moderately used, while two conditions were rated (NUS) neither unsatisfactory nor satisfactory. These practices are never or seldom used by the teachers like the

Total frequency										
Grand Mean	:Tea.	:166	: 254	: 107	: 24	: 16	: 567	:	:	:
	:Adm.	:	:	:	:	:	:	:	:36.75:	S
									(3.67)	
	:Tea.	:	:	:	:	:	:	:	:32.30	S
									(3.93)	

Legend:	4.51	-	5.00	---	VS	-	Very Satisfactory
	3.51	-	4.50	---	S	-	Satisfactory
	2.51	-	3.50	---	NUS	-	Neither Unsatisfactory nor satisfactory
	1.51	-	2.50	---	US	-	Unsatisfactory
	1.00	-	1.50	---	VUS	-	Very Unsatisfactory

Table 8
Summary of Perceptions of the Status
of the Elementary Science Program

Areas	Perceptions		computed t value	tabular at t value at .05 level
	by Teachers	by Respondents Administrators		
Teachers' Competence	3.89	3.66	1.09 ^{ns}	2.101
Instructional Facilities	2.99	2.93	0.14 ^{ns}	2.101
Teaching Strategies	3.69	3.45	.99 ^{ns}	2.101
Evaluative Techniques	3.93	3.67	1.47 ^{ns}	2.101

ns - not significant

the use of rating scale, interviews and conferences (Table 7-C). These clearly show that teachers do not use varied and appropriate evaluative instruments in assessing pupils' performance.

Table 8 illustrates the summary of perceptions of the status of the elementary science program. The areas involved are the teachers' competence, instructional facilities, teaching strategies, and evaluative techniques. Under teachers' competence, the weighted mean has the rating score of 3.89 for the teacher but for the administrator it is 3.66. The computed t value of 1.09 is less than the table value of 2.101 at 0.05 level of significance. This evidence

was sufficient to warrant acceptance of the null hypothesis. The instructional facilities as perceived by the teachers have a weighted mean of 2.99, while the administrators, 2.93. The level of significance for a two-tail test under .05 level at 14 degrees of freedom on the tabular value of t is 2.101. Since the computed value of t is 0.14, being less than the tabular value, the null hypothesis that "there is no significant difference in the degree of their perceptions is accepted." This means that perception of teachers is the same as the perception of the administrators. In the teaching strategies, the weighted average was used to measure the administrators' perception which is 3.45 and the teachers' perception, 3.69. Since the absolute computed t value of 1.135 is lesser than the tabular value of 2.101 at .05 level and 14 degrees of freedom, the null hypothesis that "there is no significant difference between the perception of the administrators and that of the science teachers" is accepted.

For the evaluative techniques the weighted average mean is 3.67 for the administrators and 3.93 for the science teachers. The computed t value is 1.47 and is lesser than 2.101, therefore the null hypothesis is accepted.

The data show that the perceptions on the status

Legend:

	Scale/assigned weight:	
5	4.51 - 5.00	Very much felt
4	3.51 - 4.50	Much felt
3	2.51 - 3.50	Felt
2	1.51 - 2.50	Not much felt
1	1.00 - 1.50	Never felt

of the science program of the teacher and administrator respondents in the division of Calbayog City are not significantly different. This indicates that they have the same degree of percieving teachers' competence, instructional facilities, teaching strategies and evaluative techniques.

Problems in the Implementation of
the Science Program

The problems experienced by the school administrators and science teachers in the implementation of the science program are shown in Table 8. There are ten problems identified by the respondents. The weighted average was also used to determine the extent to which the problems were felt by the school personnels. Six out of the ten problems were rated felt by both administrators and teachers; three problems were rated by the administrators (VMF) very much felt, while the teachers rated (F) as felt. But one problem, rated (NMF) not much felt is the indifferent attitude of school administrators towards the science program. The data show that these problems are the pressing problems met by the school administrators and teachers in the implementation of the science program in the Division of Calbayog. It is therefore suggested that the administrators help science teachers work together to solve these problems, if effective teaching and quality outputs is to be achieved.

Grand Mean Table 9

Adm.	:	:	:	:	:	47.02: (4.36) A
Tea.	:	:	:	:	:	44.60: (4.46) A

Legend:

5	4.51 - 5.00	Strongly agree
4	3.51 - 4.50	Agree
3	2.51 - 3.50	Undecided
2	1.51 - 2.50	Disagree
1	1.00 - 1.50	Strongly Disagree

Suggested Solutions to the Problems

Table 9 on page 67 shows the suggested solutions to the problems discovered by the school personnel in the implementation of the science program. There are ten suggested solutions given by the respondents. The weighted average was also used to determine the degree of agreement of the respondents on the suggested alternatives. Five descriptive ratings were also used - strongly agreed (SA), agreed (A), undecided (U), strongly disagreed (SD), with an assigned weight of 5, 4, 3, 2, and 1 respectively.

Out of the ten suggested solutions to the problems in implementing the science program, five were rated strongly agreed. They strongly agreed to the following suggestions: There should be a science room; there is a great need to conduct more in-service trainings and workshops to acquaint teachers with the modern approaches in teaching science and last, teachers should have initiative and must be resourceful in securing indigenous instructional materials that will make science teaching lively and interesting.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study attempts to evaluate the status of the elementary science instruction on the upper elementary level including grades four, five, and six of Calbayog City Division.

Findings

This study is composed of two parts: the profile of the respondents and the implementation of the school Science Program in the Division of Calbayog City. The findings are herewith presented in accordance with the order of the specific questions:

1. What is the profile of the respondents in terms of age involved in the study of the elementary science?

- 1.1 The administrators appear to be older than the teacher respondents. About 54 percent of the administrators are beyond 51 - 60 years of age; they are just about to retire. While one half of the teacher

respondents are still 41 - 50 years of age.

- 1.2 The majority of the respondents, eighty one or 75.70 percent, are married. There are eleven or 22 percent female single administrators and nine or 15.7 percent single teachers.
- 1.3 Most of the respondents are females comprising 84 or 78.50 percent and the males are only 25 or 21.49 percent.
- 1.4 Both administrators and teachers have little exposure to science. 26 or 52 percent do not have science teaching experience. Likewise, the teachers forty or 70 percent have science teaching experience from 1-10 years and fourteen or 28 percent of the administrators. There are eight or 10 teachers with experience from 11-20 years and 9 or 16 percent from 21-30 years. These findings imply that the respondents have stayed long in the service but have only few years of teaching science.
- 1.5 There are ninety one or 85 percent of the

respondents who are PBET eligibles, six or 12 percent, Junior eligibles, five or 10 percent, senior eligibles. It is from the teachers' group that three or 5 percent are eligibles under RA 4670, and only two or 4 percent are non-eligibles.

- 1.6 There are two administrators with doctoral degree, twenty two with masteral degree, twenty MA (CAR), three with Bachelor degree with advance units in masteral degree, and three purely Bachelor degree without units in masteral degree. Among the teachers, only one is a Masteral degree holder, two M.A. (CAR) fourteen Bachelor degree holders with some units in Masteral degree, thirty eight Bachelor degree holders and two teachers who have elementary science certificate. These data imply that the school personnel were qualified to be involved in the program. It is further noted that some of the administrators are already Doctoral degree holders but the others are masteral degree holders, while among the teachers,

only one or 1.75 percent are on the masteral level and the rest do not

aspire for a higher educational attainment.

2. What is the status of the elementary science instruction in Calbayog City Division as perceived by the administrators and the science teachers in terms of the following components:

- 2.1 The teachers' competence was perceived by the administrators as satisfactory with a weighted mean of 3.66 and by the science teachers also as satisfactory with a mean of 3.89.
- 2.2 Instructional facilities were perceived by the administrators as neither unsatisfactory nor satisfactory with a weighted mean of 2.93, and were appraised by the teachers as neither unsatisfactory nor satisfactory or with a weighted mean of 2.99.
- 2.3 Teaching strategies were perceived by the administrators as neither unsatisfactory nor satisfactory with a weighted mean of 3.45, whereas they were viewed by the teachers as satisfactory with a weighted

mean of 3.69.

- 2.4 Evaluative techniques obtained from the administrators a perception of satisfactory with a mean of 3.67 and from the science teachers a perception of satisfactory with a mean of 3.93.

3. Is there a significant difference between the perception of the administrators and that of the science teachers on the foregoing major components of elementary science instruction?

- 3.1 The summarized perception of the school administrators and science teachers on the teachers' competence shows an absolute computed t value of 1.09 which is less than the tabular value of 2.101 at .05 level at 18 degrees of freedom. Hence, the null hypothesis that "there is no significant difference between the perception of the school administrators and that of the science teachers on the major components of the elementary science instruction," is accepted.

- 3.2 As for the instructional facilities, since the absolute computed t value which is

.14 is less than the tabular t value of 2.101 at .05 level at 18 degrees of freedom; hence, the null hypothesis as mentioned above has also been accepted.

3.3 As for the teaching strategies, since the absolute computed t value which is 1.135 is less than the tabular t value of 2.101 at .05 level at 18 degrees of freedom, therefore the null hypothesis is accepted.

3.4 As for the evaluative techniques, since the absolute computed t value which is 1.47 is less than the tabular t value of 2.101 at .05 level at 18 degrees of freedom, the null hypothesis is also accepted.

4. To what extent do the administrators and the science teachers feel the problems as relative to the four major components of elementary science instruction?

4.1 Out of the ten problems encountered by the school administrators in the implementation of the science program, three were "much felt" and seven as "felt". The grand mean is 3.18 whose equivalent is "felt".

5. For the suggested solutions, five fall under "strongly agreed" and four under "agreed" and one under "undecided". The grand mean is 4.41 whose equivalent is "agreed".

Conclusion

The findings of this study serve as the basis for the following conclusions.

1. The overall evaluation of the elementary science is satisfactory. This implies that there is still a wide room for improvement as regards the four major components of the programs, namely: teacher competence, instructional facilities, teaching strategies, and evaluative techniques.

2. The perception of the two groups of respondents on the four major components of the science program do not vary significantly. This means that their views and opinions with respect to the status of the elementary science instruction in Calbayog City Division are almost of the same degree.

3. Administrators and science teachers, both perceive the teachers' attendance in seminars, conferences and scholarship or study grants as neither unsatisfactory nor satisfactory. There are two possibilities which may shed light on these findings: firstly, only few teachers

were given the opportunity; and secondly, the teachers might have deliberately refused to go on training or study leave and preferred instead to teach some course during summer classes or to attend to their private interests. Anyway, the obvious implication is that school administrators should encourage teachers to keep abreast of the advancements in education and technology.

4. The administrators as well as the science teachers gave low mean score ratings to the instructional facilities available in the schools of every district. The best solution is to have a science room in every complete elementary school. If no science room is available, it is most unlikely that there would be adequate instructional facilities, supplies, equipment and apparatuses.

5. Teaching strategies have the average mean rating of 3.57 satisfactory. This implies that the present strategies employed by the teachers are limited and still need improvement. Different techniques and approaches must reach the maximum utilization in teaching science.

6. As for evaluative techniques, at least the average mean of satisfactory was realized. The perception of the administrators and science teachers follow the same

pattern.

Recommendations

Based on the foregoing conclusions, the following recommendations are made.

1. Expose administrators and science teachers to more in-service trainings and seminars allied to the science program.

2. Teachers must be given the chance to avail themselves of study or scholarship grants intended to improve their teaching competencies which in turn will improve the quality output.

3. Teachers should be provided with necessary encouragement to bolster up their morale and professional commitment to education by giving them due recognition for a job well done.

4. Administrators and teachers should take a more discerning appraisal of the quantity, quality, and relevance of instructional facilities and resources in their respective schools. Maximum effort should be exerted to provide the appropriate kind and number of instructional supplies and materials, facilities and equipment to insure quality instruction in the science program. Perhaps, it would be desirable to conduct

annual inventory of such instructional resources by school administrators concerned if only to determine their status.

5. Science teachers should be provided with textbooks, guides, reading and instructional materials for their guidance and information on the science program.

6. Teachers must grow professionally by taking major subjects or by pursuing masteral degree to keep abreast with the changes in education and technology.

7. Finally, other forms of research studies should be conducted to determine the effectiveness of self-learning kit in the elementary grades.

BIBLIOGRAPHY

A. BOOKS

Aquino, Gaudencio V. *Essential of Research and Thesis Writing*,
Quezon City Philippines: Alexander Phoenix Publishing, Inc.,
1982.

Baldes, Glen W. and Daniel Miller, *Methods and Materials for
Teaching, Biological Science*. New York: McGraw Hill Book
Company, 1972.

Bustus, Alicia S. and Socorro C. Espiritu, *Psychological,
Anthropological and Sociological Foundations of Education*
(Quezon City, Katha Publishing Co., Inc., 1985.

Cruz, Potenciano C., Archibald Peterson C. Sia, *Modernizing Science
Instruction in the Elementary School*, Quezon City, rex Printing,
1980.

De Roche, Edward, *An Administrator's Guide for Evaluating Program
and Personnel*, Boston Allyn and Bacon, Inc., 1981.

Erickson, Carlton W.H. and David H. Curl, *Fundamentals of Teaching
with Audio Visual Technology*, New York: McMillan Publishing
Co., 1989.

Good, Carter V., Dictionary of Education, New York Appleton-Century Crafts Inc., 1975.

Haney, Richard E. Juanita Sorenson, Individual Guided Science (London, Addison-Wesley Publishing Co., 1977).

Popham, James W., Educational Evaluation, New Jersey, Prentice-Hall, Inc., 1977.

Lardizabal, Amparo S., Alicia S. Bustos, Luz C. Bucu, Maura G. Tangco, Principle and Methods of Teaching (Quezon City Phoenix Press Inc.) 1977.

Rossie, Peter H., et al. Evaluation a Systematic Approach, London: SAGE Publication, 1978.

Ruiz, Macario B., Evaluation and MEasurement for Philippine Schools, Quezon City, Philippines, R.P. Garcia Publishing Co., 1988.

Salandanan, Gloria G. et al. The Teaching of Science and Health, Quezon City, KATHA Publishing Co., Inc. 1988.

Webster Comprehensive Dictionary, International Edison, Vol. I, J.G. Ferguson Publishing Co., Chicago, 1987.

B. PERIODICALS

Divina, Remedios O., "Strengthening the Instructional Personal and Social Competencies: A Must for Teachers," *The Filipino Teacher*, March, 1985.

Go, Samuel and Alice Go., "Teacher Evaluation Revisited, *Philippine Journal of Education*, Vol. LXVIII, No. 3, August 1988.

Minimum Learning Competencies VI (PRODED) Educational Reorientation Program.

Ong, Elizabeth, "Teaching Science in Full Color," *The Filipino Teacher*, January 1985.

Rosendo, Jose, "Practices that Cause Teaching Failures," *Philippine Journal of Education*, August 1977.

Vito, Emilia S., 'Set-up of Science Teaching," *Learning Science and Math, (An Informative Material and Study Guide for Pupils and Teachers)*. Volume VIII October 1970, No. 4.

Yarco, Romeo J., "The Professional Teacher a Science Educational," *Philippine Journal of Education*, 1979.

Zamora, Generoso D., "Portrait of a Teacher as a Showman," *Philippine Journal of Education*, 1982.

C. UNPUBLISHED WORK

Bohol, Socorro O., The Graduates Education Program in Eastern Visayas: An Assessment. Unpublished Ph.D. Dissertation, DWU, Tacloban City, 1991.

Cariaso, Josephine B. Status of Science Teaching in the Elementary Schools of Banotan and San Juan Districts: An Appraisal (Unpublished Master's Thesis) 1985.

Caster, Fe P., "The Teaching Efficiency of the Public Elementary School Teachers of the Division of Cebu, 1963-1964 (Unpublished Master's Thesis, USC, Cebu City, 1964) p. 36-37.

Casurao, Erlinda J., Relationship Among Socio Economic Status and Level of Aspiration of the Teachers of Calbayog II (Unpublished Master's Thesis, Leyte Institute of Technology, Tacloban City, 1986).

Destura, Letecia V., The Home Economics Teacher Education Program of State Colleges and Universities in Eastern Visayas (Unpublished Ph.D. Dissertation, DWU, Tacloban City, 1987.

Dumas, Maria. "Module Approach in Teaching Science for Grade VI Pupils" (Unpublished Master's Thesis, Divine Word University of Tacloban, 1981.

Quiyugan, Paciencia P., "An Evaluation in the Elementary Science TEaching in Area III, City Schools, Baguio," Unpublished Master' Thesis, Baguio Central University 1980.

Ramirez, Shirley Y. ``Problems of Mangyans in relations to Their Economic, Social and Educational Needs and Their Implication to Education," (Unpublished Master'sThesis, Philippine Women's University, Manila, 1976), p. 31.

Umipig, Erlinda M., "Status of Science Teaching in the Public Elementary School of Ilocos Sur," Master's Thesis, Osias Educational Foundation, Balloon, La Union, 1983.

Tuazon, Yunita B. "The School Nutrition Program of the Division of Samar: A Model," A Master's Thesis, SSPC, Catbalogan, Samar, 1989.

Appendix A

SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar

September 17, 1990

The Dean of Graduate Studies
Samar State Polytechnic College
Catbalogan, Samar

S i r :

In my desire to start writing my thesis proposal, I have the honor to request approval of one of the following problems for my thesis, preferably problem No. I.

1. EFFECTIVENESS OF SELF-LEARNING KIT IN ELEMENTARY SCIENCE, GRADE VI. (Interdependence Among Living Organism).
2. EVALUATION OF ELEMENTARY SCIENCE INSTRUCTION IN CALBAYOG CITY DIVISION.
3. DISCOVERY APPROACH IN ELEMENTARY SCIENCE TEACHING.

I hope for your early favorable action in this request.

Very truly yours,

(SGD.) FE F. LLARENAS
Researcher

APPROVED:

(SGD.) SENECIO D. AYONG, DPA/Ed.D.
Dean of Instruction & Related Services

Appendix B

Republic of the Philippines
 SAMAR STATE POLYTECHNIC COLLEGE
 Catbalogan, Samar

SCHOOL OF GRADUATE STUDIES

APPLICATION FOR ASSIGNMENT OF ADVISER

NAME: Llarenas Fe Fua
 Surname First Name Middle Name

CANDIDATE FOR DEGREE: Master Degree in Education

AREA OF SPECIALIZATION: Administration and Supervision

TITLE OF PROPOSED THESIS/DISSERTATION: EVALUATION OF
ELEMENTARY SCIENCE INSTRUCTION IN CALBAYOG CITY DIVISION

(SGD.) FE F. LLARENAS
 Applicant

SOCORRO O. BOHOL
 Name of Designated Adviser

APPROVED:

CONFORME:

(SGD.) SENECIO D. AYONG, DPA/ED.D.
 Dean

(SGD.) SOCORRO O. BOHOL
 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
 Department of Education, Culture and Sports
 Region VIII
 Division of Calbayog City
 Calbayog District II
 CALBAYOG EAST CENTRAL SCHOOL
 Calbayog City

November 18, 1991

The Dean Graduate Studies
 Samar State Polytechnic College
 Catbalogan, Samar

S i r :

I have the honor to request that I be scheduled on November 25, 1991 to defend my thesis proposal entitled "THE ELEMENTARY SCIENCE INSTRUCTION IN THE DIVISION OF CALBAYOG CITY AN EVALUATION."

In this connection, I am submitting herewith four copies of my thesis proposal for distribution to the Dean and the panel members.

I hope for your favorable action on this matter.

Very truly yours,

(SGD.) FE F. LLARENAS
 Researcher

Recommending Approval:

(SGD.) SOCORRO O. BOHOL, Ed.D.
 Adviser

APPROVED:

(SGD.) SENECIO D. AYONG, DPA/Ed.D.
 Dean of Graduate Studies

Appendix D

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar

December 12, 1991

The Schools Division Superintendent
Calbayog City

S i r :

I have the honor to request your good office that I be allowed to field my questionnaires on the study, The Elementary Science Instruction in Calbayog City Division: An Evaluation, to all science teachers and administrators. This study is for the completion of my Master of Arts degree at Samar State Polytechnic College, Catbalogan, Samar.

Your utmost preferential attention on this regard is highly appreciated.

Very truly yours,

(SGD.) FE F. LLARENAS
Researcher

APPROVED:

(SGD.) AMADO A. YANGZON
Schools Division Superintendent

Appendix E

Republic of the Philippines
SAMAR STATE POLYTECHNIC COLLEGE
Catbalogan, Samar

March 2, 1992

The Dean
School of Graduate Studies
Samar State Polytechnic College
Catbalogan, Samar

S i r :

I have the honor to request that I be scheduled on March 9, 1992 to defend my thesis entitled "Elementary Science Instruction of Calbayog City Division: An Evaluation."

In this connection, I am submitting herewith six copies of my thesis for distribution to my adviser, the Chairman and the members of the panel of examiners.

I hope for your early favorable action on this request.

Very truly yours,

(SGD.) FE F. LLARENAS
Researcher

Recommending Approval:

(SGD.) SOCORRO O. BOHOL, Ed.D.
Adviser

Approved:

(SGD.) SENECTION D. AYONG, DPA/Ed.D.
Dean of Graduate Studies

Appendix F

COMPUTATION OF t VALUE BETWEEN THE PERCEPTION OF THE
ADMINISTRATORS AND THE SCIENCE TEACHER ON THE
EXTENT OF IMPLEMENTATION OF SCIENCE PROGRAM

Teachers' Competence

	<u>Administrators</u>			<u>Teachers</u>		
1.	3.84	.18	.0324	3.78	.11	.0121
2.	3.75	.09	.0081	4.07	.18	.0324
3.	3.79	.13	.0169	4.10	.21	.0441
4.	4.06	.4	.16	4.32	.43	.1849
5.	4.20	.54	.2916	4.35	0.46	.2116
6.	3.69	.03	.0009	4.15	.26	.0676
7.	3.26	.4	.16	3.66	.23	.0529
8.	2.72	.94	.8836	2.56	1.33	1.7689
9.	3.73	.07	.0049	4.17	.28	.0784
10.	3.58	.08	.0064	3.82	.07	.0049
	$\bar{X}_1 = 3.66$	$x_1^2 = 1.5648$		$\bar{X}_2 = 3.89$	$x_2^2 = 2.4578$	

$$\begin{aligned}
 t &= \frac{3.89 - 3.66}{\sqrt{\left(\frac{2.4578 + 1.5648}{10 + 10 - 2}\right) \left(\frac{1}{10} + \frac{1}{10}\right)}} \\
 &= \frac{0.23}{\sqrt{(.2234700) (.2)}} \\
 &= \frac{0.23}{\sqrt{0.0446955}}
 \end{aligned}$$

$$t = \frac{0.23}{0.2114132} = 1.0879 \text{ or } 1.09 \text{ not significant}$$

Appendix F (Cont'd.)

$$df = n_1 + n_2 - 2$$

$$df = 18$$

at 5% level of significance = table value is 2.101

Interpretation:

The computed t value of 1.09 is less than the table value of 2.101 at 0.05 level of significance and 18 degrees of freedom (18 df), the hypothesis is accepted.

Appendix G

COMPUTATION OF t VALUE BETWEEN THE PERCEPTION OF THE
ADMINISTRATORS AND SCIENCE TEACHER ON THE
INSTRUCTIONAL FACILITIES

Instructional Facilities

	<u>Administrators</u>			<u>Teachers</u>		
1.	3.20	.27	.0729	3.33	.34	.1156
2.	3.23	.3	.09	3.42	.43	.1849
3.	3.36	.43	.1849	3.38	.39	.1821
4.	2.91	.02	.0004	3.10	.11	.0121
5.	2.87	.66	.0036	2.96	.03	.0009
6.	3.10	0.17	.0289	2.94	.05	.0025
7.	2.63	.3	.09	2.80	0.19	.0361
8.	2.32	.61	0.3721	2.36	0.63	.3969
9.	2.87	.06	.0036	2.75	.24	0.0576
10.	2.85	.08	<u>.0064</u>	2.89	.01	<u>0.01</u>
	$\bar{X} = 2.93$.8528	$\bar{X} = 2.99$		0.9687

$$\begin{aligned}
 t &= \frac{2.99 - 2.93}{\sqrt{\left(\frac{.9687 + .8528}{10 + 10 - 2}\right) \left(\frac{1}{10} + \frac{1}{10}\right)}} \\
 &= \frac{0.06}{\sqrt{(.1011944) (.2)}} \\
 &= \frac{0.06}{\sqrt{.0202388}} \\
 &= \frac{0.06}{\sqrt{0.1422634}}
 \end{aligned}$$

Appendix G (Cont'd.)

$t = 0.14226$ or 0.14 not significant

$df = 18$

at .05 level of significance table value is 2.101

Interpretation:

0.14 is $<$ than 2.101

therefore: H_0 is accepted

Appendix H

COMPUTATION OF t VALUE BETWEEN THE PERCEPTION OF THE
ADMINISTRATORS AND SCIENCE TEACHER ON THE
TEACHING STRATEGIES

Teaching Strategies

	<u>Administrators</u>			<u>Teachers</u>		
1.	3.43	.02	.0004	4.10	.41	.1681
2.	3.73	.28	.0784	4.01	.32	.1024
3.	3.55	.1	.01	4.10	.41	.1681
4.	3.75	.3	.09	4.01	.32	.1024
5.	3.64	.19	.0361	3.87	.18	.0324
6.	2.73	.72	.5184	2.82	.87	.7569
7.	2.96	.45	.2401	2.92	.77	.5929
8.	4.18	.73	.5329	4.14	.45	.2025
9.	3.58	.13	.0169	3.78	.09	.0081
10.	3.08	.37	.1369	3.21	.48	.2304
$\bar{X} = 3.45$			<u>1.6601</u>	$\bar{X} = 3.69$		<u>2.3642</u>

$$\begin{aligned}
 t &= \frac{3.69 - 3.45}{\sqrt{\left(\frac{2.3642 + 1.6601}{10 + 10 - 2}\right)\left(\frac{1}{10} + \frac{1}{10}\right)}} \\
 &= \frac{.24}{\sqrt{(.2235722)(.2)}} \\
 &= \frac{.24}{\sqrt{.0447144}} \\
 &= \frac{.24}{.2114577} = 1.1349 \text{ or } 1.135
 \end{aligned}$$

Appendix H (cont'd.)

df = 18

at 0.05 level of significance table value is 2.101

Interpretation:

1.135 is less $<$ than 2.101

therefore: H_0 is accepted

Appendix I

COMPUTATION OF t VALUE BETWEEN THE PERCEPTION OF THE
ADMINISTRATORS AND SCIENCE TEACHERS ON THE
EVALUATIVE TECHNIQUES

Evaluative Techniques

	<u>Administrators</u>				<u>Teachers</u>		
1.	4.32	.65	.4225	4.43	.5	.25	
2.	4.14	.47	.2209	4.32	.39	.1521	
3.	3.76	.09	.0081	3.94	.01	.0001	
4.	3.50	.17	.0289	3.87	0.06	.0036	
5.	3.70	.03	.0009	4.03	.1	.01	
6.	3.94	.27	.0729	4.26	.33	.1089	
7.	3.50	0.17	.0289	3.96	.03	.0009	
8.	3.30	0.37	0.1369	3.47	.46	.2116	
9.	3.51	.16	0.0256	3.50	.43	.1849	
10.	3.08	.59	.3481	3.52	.41	.1681	
$\bar{X} = 3.67$			<u>1.2937</u>	$\bar{X} = 3.93$			<u>1.0902</u>

$$\begin{aligned}
 t &= \frac{3.93 - 3.69}{\sqrt{\left(\frac{1.0902 + 1.2937}{10 + 10 - 2}\right)\left(\frac{1}{10} + \frac{1}{10}\right)}} \\
 &= \frac{0.24}{\sqrt{(.1324388) (.2)}} \\
 &= \frac{.24}{\sqrt{.264877}} \\
 &= \frac{.24}{0.1627506}
 \end{aligned}$$

Appendix I (Cont'd.)

$$t = 1.4746 \text{ or } 1.47 \text{ (ns)}$$

$$df = 18$$

at 0.05 level of significance table value is 2.101

Interpretation:

1.47 is less $<$ than 2.101

therefore: H_0 is accepted

Appendix J

Distribution of Administrators and
Science Teacher Respondents

Position	: Actual	: Res- : pon- : dent	: %	: Actual	: Res- : pon- : dent	: %
(E.G.T.) Elementary Grade Teacher	: 58	: 52	: 91.22	:	:	:
Master Teacher I	: 5	: 5	: 8.78	:	:	:
Head Teacher	:	:	:	: 15	: 15	: 30
Principal I	:	:	:	: 15	: 14	: 28
Principal II	:	:	:	: 5	: 5	: 10
District Supervisor	:	:	:	: 7	: 6	: 12
(G.E.S.) General Education Supervisor	:	:	:	: 12	: 10	: 20
Total	: 63	: 57	: 100	: 54	: 50	: 100

Appendix K

THE QUESTIONNAIRE

ELEMENTARY SCIENCE INSTRUCTION OF THE DIVISION
OF CALBAYOG CITY: AN EVALUATION

Sir/Madam:

As a science teacher/administrator, you have been chosen as a respondent to the study, Elementary Science Instruction of the Division of Calbayog City: An Evaluation. Please give your honest and sincere answer to the questions to make this study a reliable one. Be assured that your responses will be highly confidential.

Thank you for your valuable cooperation.

Very truly yours,

FE FUA LLARENAS
Researcher

DIRECTION: Please write the corresponding response/
information regarding your personal data on
the blank spaces provided for.

Part I Profile of Respondents

Name _____ Age _____ Sex _____

Civil Status _____ Position _____

Civil Service Eligibility _____

School/District _____

Highest Educational Qualification _____

No. of years experience in teaching science _____
(for science teachers only)

Total number of years in the service _____

Part II Elementary Science Instruction of the Division
of Calbayog City: An Evaluation

A. Instructions to the Respondents:

The following statements are practices and conditions which maybe found in your school science program in the elementary grades. Please estimate the extent or degree of attainment of the conditions as you perceive them. Encircle the number found on the right of each statement which corresponds to your estimates. The numeral symbols are defined as follows:

- 5 - Very Satisfactory (VS) - indicating that the practice or condition is extensively functioning well.
- 4 - Satisfactory (S) - indicating that the practice or condition is present and fairly functioning well.
- 3 - Neither Unsatisfactory nor Satisfactory (NUS) - indicating that the practice or condition is present but neither limited nor moderate.
- 2 - Unsatisfactory (US) - indicating that the practice or condition is present but very limited.
- 1 - Very Unsatisfactory (VU) - indicating that the practice or condition is totally missing.

1- Teachers' Competence	VS (5)	S (4)	NUS (3)	US (2)	VU (1)
1.1 Teachers demonstrate competence/scholarship in their area of specialization	5	4	3	2	1
1.2 Teachers make and use well-crafted and appropriate instructional materials to facilitate learning.	5	4	3	2	1

	VS (5)	S (4)	NUS (3)	US (2)	VU (1)
1.3 Teachers implement modern approaches in teaching the subject.	5	4	3	2	1
1.4 Teachers demonstrate mastery of subject matter and language of instruction.	5	4	3	2	1
1.5 Teachers follow the new MLC or course of study and show efforts to enrich and improve them.	5	4	3	2	1
1.6 Teachers use well designed syllabi, teaching guides, manuals and other professional books.	5	4	3	2	1
1.7 Teachers attend in-service training, conference in all levels.	5	4	3	2	1
1.8 Teachers attend scholarship training or obtain study grants.	5	4	3	2	1
1.9 Teachers accomplish and submit reports promptly.	5	4	3	2	1
1.10 Teachers set high but attainable standards as shown in the quality of students performance outputs.	5	4	3	2	1
2- Instructional Facilities					
2.1 The size of the science room is adequate for the class.	5	4	3	2	1
2.2 It is well ventilated and well lighted.	5	4	3	2	1

	VS (5)	S (4)	NUS (3)	US (2)	VU (1)
2.3 The environment in the science room is stimulating, pleasant and conducive to learning.	5	4	3	2	1
2.4 Ceiling and walls are painted for good light reflection in the room.	5	4	3	2	1
2.5 It has sufficient number of working tables, stools or chairs for the students.	5	4	3	2	1
2.6 Blackboard and teachers' table are elevated for effective interaction.	5	4	3	2	1
2.7 There are enough cabinets for science equipment and projects.	5	4	3	2	1
2.8 It has electrical and water connection.	5	4	3	2	1
2.9 There are adequate science supplies for the class activities.	5	4	3	2	1
2.10 There are adequate science books laboratory manuals, magazines and periodicals in the library.	5	4	3	2	1

3- Teaching Strategies

3.1 Teachers adopt varied methods in teaching the subject.	5	4	3	2	1
3.2 Teachers use the modern technique in teaching science.	5	4	3	2	1
3.3 Teachers use varied visual aids to facilitate learning.	5	4	3	2	1
3.4 Teachers structure science bulletin board/science corner to arouse interest.	5	4	3	2	1

	VS (5)	S (4)	NUS (3)	US (2)	VU (1)
3.5 Teachers make/use improvised apparatus and teaching aids.	5	4	3	2	1
3.6 Teachers use modules, cassette, radio in teaching science.	5	4	3	2	1
3.7 Teachers invite resource persons to talk on special topics.	5	4	3	2	1
3.8 Teachers organize science clubs.	5	4	3	2	1
3.9 Teachers perform experiments or have field trips.	5	4	3	2	1
3.10 Teachers conduct investigatory projects.	5	4	3	2	1

4- Evaluative Techniques

Teachers assess students performance and behavior through varied and appropriate evaluative instruments:

4.1 By the use of paper and pencil test.	5	4	3	2	1
4.2 Through pupils' recitations.	5	4	3	2	1
4.3 By analysis of pupils' work product.	5	4	3	2	1
4.4 By rating pupils' proficiency in handling science equipment/apparatus.	5	4	3	2	1
4.5 By rating pupils' performance in experiment.	5	4	3	2	1
4.6 By observing the in pupils' behavior.	5	4	3	2	1
4.7 By the use of rating scale.	5	4	3	2	1

	VS (5)	S (4)	NUS (3)	US (2)	VU (1)
4.8 By the use of interview and conference.	5	4	3	2	1
4.9 By the use of checklist.	5	4	3	2	1
4.10 By the use of interest inventory.	5	4	3	2	1
B. Please evaluate the problems that maybe present in the science program. Check under the appropriate column the extent or degree you feel it.					

<u>Descriptive Terms</u>		<u>Points</u>				
Very Much Felt	(VMF)	5				
Much Felt	(MF)	4				
Felt	(F)	3				
Slightly Felt	(SF)	2				
Never Felt	(NF)	1				
	VMF (5)	MF (4)	F (3)	SF (2)	NF (1)	
1. Teachers have no science room.	_____	_____	_____	_____	_____	
2. Teachers are unskilled to perform the activities suggested in the MLC or PRODED Text.	_____	_____	_____	_____	_____	
3. Teachers have difficulties in following changes in the curriculum.	_____	_____	_____	_____	_____	
4. Teachers have heavy extra curricular/non-science activities.	_____	_____	_____	_____	_____	
5. Teachers have big science classes.	_____	_____	_____	_____	_____	

	VMF (5)	MF (4)	F (3)	SF (2)	NF (1)
6. Time allotment for science is too short.	_____	_____	_____	_____	_____
7. Pupils have negative attitude towards science activities.	_____	_____	_____	_____	_____
8. Administrators are indifferent to the science program.	_____	_____	_____	_____	_____
9. Pupils have poor reading ability.	_____	_____	_____	_____	_____
10. Pupils have difficulty to communicate orally.	_____	_____	_____	_____	_____

Other Problems Felt _____

Suggestions/Recommendations _____

C - Suggestions/Recommendations to the above problems.
Check under appropriate column the extent or degree you agree with it.

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

	SA (5)	A (4)	U (3)	D (2)	SD (1)
1. Science teachers should be given a science room.	_____	_____	_____	_____	_____
2. Seminar workshop/conference about recent innovations should be conducted in District/division level.	_____	_____	_____	_____	_____

	SA (5)	A (4)	U (3)	D (2)	SD (1)
3. Science teachers should be sent to attend regional/national workshop on science.	_____	_____	_____	_____	_____
4. Science teachers should be offered study leaves or scholarships.	_____	_____	_____	_____	_____
5. Science teachers should be free and exempted from extra curricular activities.	_____	_____	_____	_____	_____
6. Science classes should be in the minimum level.	_____	_____	_____	_____	_____
7. Science period should be increased to 50 minutes.	_____	_____	_____	_____	_____
8. Science teaching should be lively and interesting.	_____	_____	_____	_____	_____
9. Administrators should be science conscious.	_____	_____	_____	_____	_____
10. English lessons should have more science content.	_____	_____	_____	_____	_____

Other Suggestions or Recommendations _____

CURRICULUM VITAE

Name : FE FUA LLARENAS
 Birthdate : October 17, 1943
 Place of Birth : Calbayog City
 Address : Cajurao St., Calbayog City
 Present Position : Elementary Grade Teacher
 Station : Calbayog East Central School
 Civil Status : Married

EDUCATIONAL BACKGROUND

Elementary Education : Milagrosa Academy
 Calbayog City, 1950-1956
 Secondary Education : Milagrosa Academy
 Calbayog City, 1956-1960
 College Education : Christ the King College
 Calbayog City, 1960-1964
 Graduate Studies : Manuel L. Quezon University
 Manila
 1970-1972
 Leyte State College
 Tacloban City, 1975-1977
 Samar State Polytechnic College
 Catbalogan, Samar 1989-1991

CIVIL SERVICE ELIGIBILITY

Teacher Civil Service : April 16, 1967
 Calbayog City

MEDAL/AWARD

Bronze Medal	:	GSP, 1986
Treasurer	:	Bio-Psycho Foundation SSPC-1989
Treasurer	:	School Plant Management SSPC-1990
President	:	Educational Leadership SSPC-1990
Treasurer	:	Teacher Circle CECS, Calbayog City 1991-1992

SEMINARS AND WORKSHOPS ATTENDED

Pilipino Seminar Workshop, National Level, Manila

PRODED Seminar Training for Grade VI Teacher,
Calbayog City

Research and Research Management for Science Club
Advisers - SSPC, Cathalogan, Samar, 1985.

Seminar Workshop for Grade VI Teachers, Regional Level,
Candahug, Palo Leyte.

Science Camp Training, Biliran, Biliran Sub. Province,
Regional Level.

NSDB-SI For Science Teachers DWU, National Level,
Tacloban City

Population Educational Seminar, Division Level
Calbayog City

Girl Scout Seminar Workshop Basic Division Level
Calbayog City

Seminar Workshop for Grade VI Teachers, Echo, Division
Level 1986 - Facilitator

CO-CURRICULAR ACTIVITIES

President	:	Matobato Teachers Club Matobato, Calbayog City
Business Manager	:	Calbayog East Central School 1987
Board of Director	:	PTA, Calbayog East Central School 1989
Treasurer	:	Philo-Socio Foundation SSPC- 1989
Treasurer	:	Bio-Psycho Foundation SSPC-1989
Treasurer	:	School Plant Management SSPC-1990
President	:	Educational Leadership SSPC-1990
Treasurer	:	Teacher Circle CECS, Calbayog City 1991-1992

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