COMPETENCIES OF SCIENCE TEACHERS IN TEACHING PHYSICS IN PUBLIC SECONDARY SCHOOLS IN CATBALOGAN CITY DIVISION: INPUTS TO AN INTERVENTION PROGRAM

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Major in Educational Management

MELVIN H. SALAZAR

March 2014

APPROVAL SHEET

This thesis entitled **"COMPETENCIES OF SCIENCE TEACHERS IN TEACHING PHYSICS IN PUBLIC SECONDARY SCHOOLS IN CATBALOGAN CITY DIVISION: INPUTS TO AN INTERVENTION PRGRAM,"** has been prepared and submitted by **MELVIN H. SALAZAR,** who having passed the comprehensive examination, is hereby recommended for oral examination.

EUSEBIO T. PACOLOR, Ph. D.
University President, SSU
Adviser

Approved by the Committee on Oral Examination on March 13, 2014 with a rating of **PASSED**.

MARILYN D. CARDOSO, Ph. D.
Vice President for Academic Affairs/
Dean, College of Graduate Studies, SSU
Chairman

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

VICTORIA M. TAFALLA, Ph.D.
Dean, College of Education, SSU
Member

EDGAR V. CALVADORES, MAT
ESP-I Designate for Mathematics, DepEd City Division
Member

Accepted and approved in partial fulfillment of the requirements for the Degree, **Master of Arts in Education (MAEd)** major in **Educational Management.**

March 13, 2014
Date of Oral Defense

MARILYN D. CARDOSO, Ph.D.
Dean, College of Graduate Studies/
Vice President for Academic Affairs

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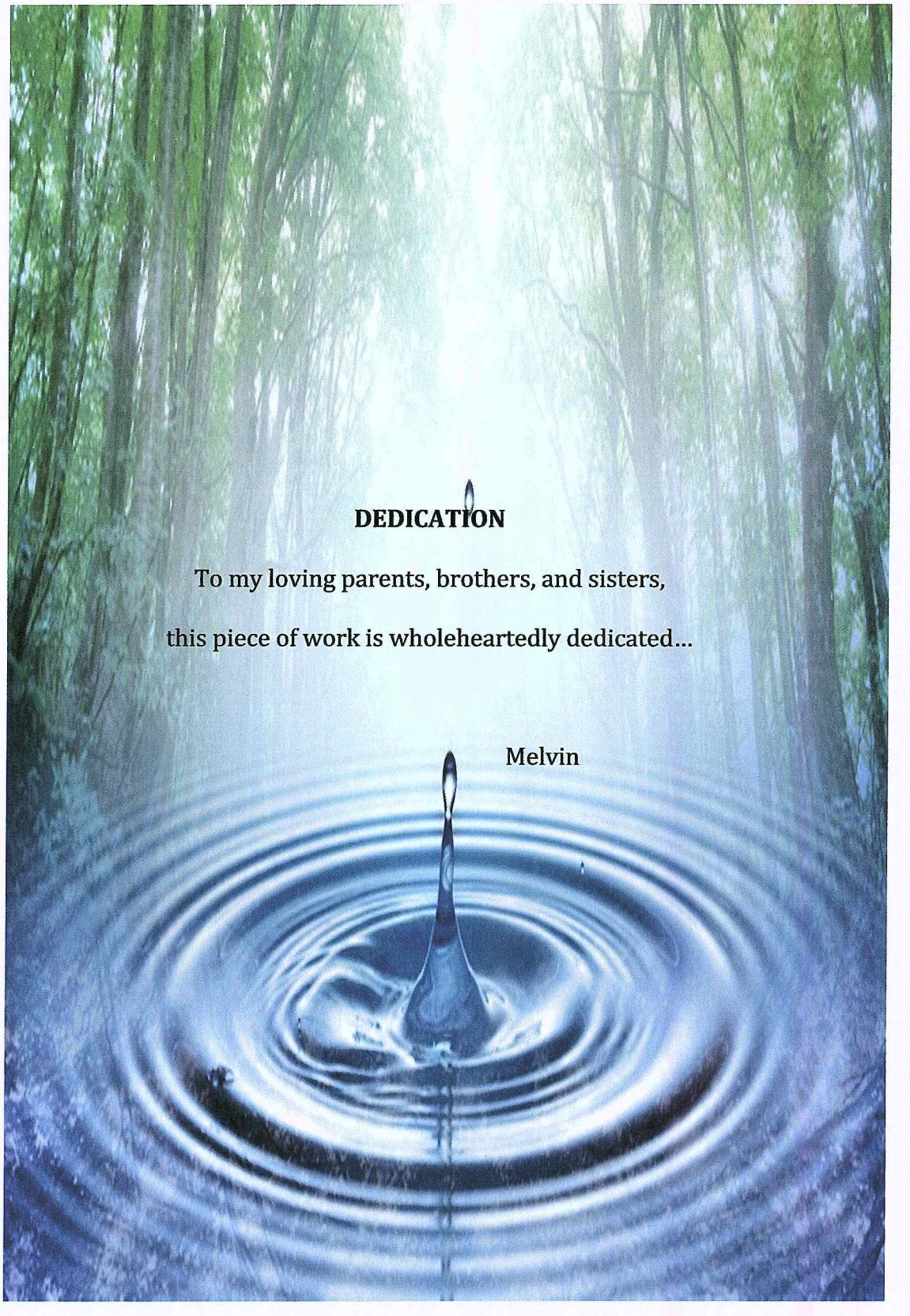

DEDICATION

To my loving parents, brothers, and sisters,

this piece of work is wholeheartedly dedicated...

Melvin

ABSTRACT

This study assessed the competencies of Science teachers in teaching Physics in public secondary schools in Catbalogan City Division as inputs to an intervention program. The study utilized the descriptive method of research using correlation analysis. The study focused on the following teachers' variables: age, sex, civil status, educational background (major or minor), teaching experience, teaching load, relevant trainings and seminars attended, teaching position, and school location. With regards to civil status, it can be noted that the computed r value was 0.411. The computed t-value was greater than the critical value 2.03 at 0.05 level of significance and degrees of freedom equal to 37. Hence, the null hypothesis stating that there is no significant relationship between the test performance of the teacher-respondents and the civil status was rejected. The statistical results imply that respondents from rural schools performed just as well as or equally to the respondents from the urban schools. The concepts on identifying the colours of light; describing a short circuit; and citing the use of conductors are some of the concepts where the respondents were competent. The Science teachers encountered learning difficulties in the following concepts: identifying the source of radiation exposure; citing the use of theories and identifying the particle which is not emitted by radioactive substances. In-service training of Science teachers that led to the development of teaching competencies especially on knowledge where teachers have found difficult.

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Chapter 1

THE PROBLEM AND ITS SETTING

Introduction

Education for many is the forefront in building the future; it gives everyone the power of knowledge that helps them cope with the different steps in their lives. It is one of the most powerful instruments for reducing poverty and inequality and lays a foundation for substantial economic growth.

The future of the nation depends on the education of the people. For this reason, teachers have important responsibilities in raising the quality of education. Teachers should be competent in order to cope with these responsibilities. It thus follows that kind and quality of teaching performance, which is equated with teacher competencies, can only be gauged using student achievement as seen in performance on division tests, national achievement tests, board exams both here and abroad, and employability of the graduates of any given course, stressed by Callang (2004).

Callang (2004) added that to become competent, a teacher candidate or licensed teacher, must continuously upgrade himself in terms of knowledge, skills, values and the motivation to excel in one's area of discipline.

The preamble of the code of Ethics of Professional Teachers (1997) indicates: "Teachers are duly licensed professionals who possess dignity and reputation with high moral values as well as technical and professional

competence. In the practice of their profession, they entirely adhere to observe and practice this set of ethical and moral principles, standards and values."

To achieve this degree of competence, the professional teacher is encouraged "to pursue such other studies to improve his efficiency, enhance the prestige of the profession, and strengthen his competencies, virtues, and productivity in order to be nationally and internationally competitive" (The Teacher and the Profession, Article IV, Section 3, Code of Ethics for Professional Teacher in the Philippines).

Consequently teacher competency is an important factor in instructional process. The attainment of the objectives of Science curriculum is anchored in Science instruction which can only be attained when the teacher is proficient in science and the teaching strategy by which it is taught.

The effectiveness of Science curriculum can be measured at the field level, meaning in the classroom. In this regard, it is the teacher who is tasked with every crucial and central role of implementation in order to achieve the objectives of the program. As such, it is imperative to know how teachers perform their main tasks as teachers. Attention should be directed whether or not the teacher is competent to teach the subject assigned to him. It is perceived among experienced Science teachers that one prerequisite to satisfactory teaching competency is adequate or mastery of subject matter. If they are found to be deficient in Science, so something has to be done in order to change the situation.

The general perception that the quality of education significantly and consistently declined was confirmed by a succession studies and surveys made by the Department of Education. Despite various programs and projects implemented by the Department of Education, still an alarming record students' achievement reveals to be poor as measured by the National Achievement Test (NAT) given by the National Education Testing and Research Center (NETRC) every year.

For the past two school years, 2011- 2012 and 2012 – 2013 NAT results for Catbalogan City Division, revealed that the average MPS of the subject areas was only 52.00 percent placing Filipino on top with 59.28 percent, followed by Araling Panlipunan with 57.00 percent, English with 51.51 percent, and Mathematics with 51.32 percent, and Science with 43.38 percent.

It is evident from the above that the students' performance in Science was very poor. The aforementioned statistics of the academic performance of the students in all subject areas is still an end to achieve as evidence by the failure in obtaining 75.00 percent mastery level required by the Department of Education in all subject areas.

Several questions may be asked as to the possible contributory factors that led to the poor performance of students in Science. Since teachers have direct influence on students' achievement development, these questions may be asked: What factors could have contributed to the poor students' academic performance? Could it be lack of competencies of teachers in content of

instruction? Or could be due to the non - commitment or poor attitude towards teaching Science?

It is in the context of the aforementioned observations and inferences that the researcher is motivated to undertake this study in order to investigate further with the hope of contributing a share in the promotion of quality and excellence in education.

Statement of the Problem

This study assessed the competencies of Science teachers in teaching Physics in public secondary schools in Catbalogan City Division as inputs to an intervention program.

Specifically, this study endeavored to answer the following questions:

1. What is the profile of secondary school Science teachers in Catbalogan City Division in terms of:

   1.1 age;

   1.2 sex;

   1.3 civil status;

   1.4 educational background (major/minor);

   1.5 teaching experiences;

   1.6 teaching loads;

   1.7 relevant training and seminars attended;

   1.8 teaching position, and

1.9 school location?

2. What is the level competency of the public secondary school Science teachers in Catbalogan City Division?

3. In what particular learning areas and content in Physics are they most competent or least competent?

4. Is there a significant relationship between the secondary school Science teachers' competency needs and their profile?

5. Is there a significant difference in the competencies possessed by the public secondary school Science teachers in relation to school location?

6. What inputs for intervention program for Science instruction maybe developed based on the findings of the study?

Hypotheses

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

1. There is no significant relationship between the public secondary school Science teachers' competency needs and each of the following:

1.1 age;

1.2 sex;

1.3 civil status;

1.4 educational background (major/minor);

1.5 teaching experience;

1.6 teaching loads;

1.7 relevant trainings and seminars attended;

1.8 teaching position; and

1.9 school location.

2. There is no significant difference in the competencies possessed by public secondary Science teachers in relation to school location.

Theoretical Framework

This study is anchored on the theories propounded by Darling - Hammond (2006), Peter (2011), and Mathew (2012).

Effective teaching of Science takes account of how student learn. Expressed in another way, good teachers know a great deal more than the subject matter they teach. Darling – Hammond (2006) pointed out that

> Research confirms that teacher's knowledge of subject matter, student learning and development, and teaching methods are all important elements of teacher effectiveness. Reviews of more than two hundred studies contradict the long – standing myths that "anyone can teach" and that "teachers are born and not made."

Hammond cited that the task of a teacher is closely tied to the nature of the classroom. Today's classroom call for teachers "prepare virtually all students for higher order thinking and performance skills once reserved to only a few ". Good teaching does not occur in a vacuum. Every competent teacher also needs to possess a strong set of values, skills and knowledge. Teachers today need to develop a holistic array of skills – for teaching and thinking, administration and

management, as well as knowledge of self of learners, community and pedagogy, among many others can be expected of them.

She further asserted that the single most important determinant of what students learn is what their teachers know. Teacher qualifications, teacher's knowledge and skills, make more difference for student learning than any other single factor. Clearly, this means if we want to improve student learning, what we have to do is invest in teachers' learning. We have to be sure that teachers understand not only their content area, which is very important, but also, how do students learn? Interestingly, well- qualified teachers make more difference from students who have struggled more. It's the most important for the students who have the most difficulty in school in the past.

Peter (2011) pointed out that the theory of teaching is based upon assumptions that the teacher possesses all knowledge and information which student does not possess. The teacher presents, demonstrates, and performs in the classroom.

Mathew (2012) stressed that an effective teacher, starting from elementary school to university level, must basically be an effective learner who alone can impart skills, methods and knowledge to the learners and thereby increase their learning effectiveness. Learning, teaching, imparting skills and methods, and guiding research are the functions of the consumptions and the production upon level and the context of the particular research or learning or teaching situation.

Teachers of Science must demonstrate competencies consistent with the achievement of the vision of high quality of Science teachers. They should not only demonstrate that they have the necessary knowledge, and planning skills to achieve these goals, but also that they are successful in engaging their students in studies of such topics as the relationship of science and technology, nature of science, inquiry in science and science – related issues.

Conceptual Framework

The schema in figure 1 conceptualizes the entire study. At the base of the schema is the research environment comprising of the Science teachers from eight public secondary schools in Catbalogan City Division namely: Samar National School, Samar State University, Eastern Visayas Regional Science High School, Catbalogan National Comprehensive High School, Guinsorongan National High School, Antonio G. Tuazon National High School, and Pangdan National High School.

This is followed by a frame consisting of variables which might affect the teachers' competencies in Science. This study recognizes the relationship between the secondary school science teachers' competencies and the teachers' related variables such as age, sex, civil status, educational background, teaching experience, teaching loads, relevant trainings and seminars attended, teaching position and school location.

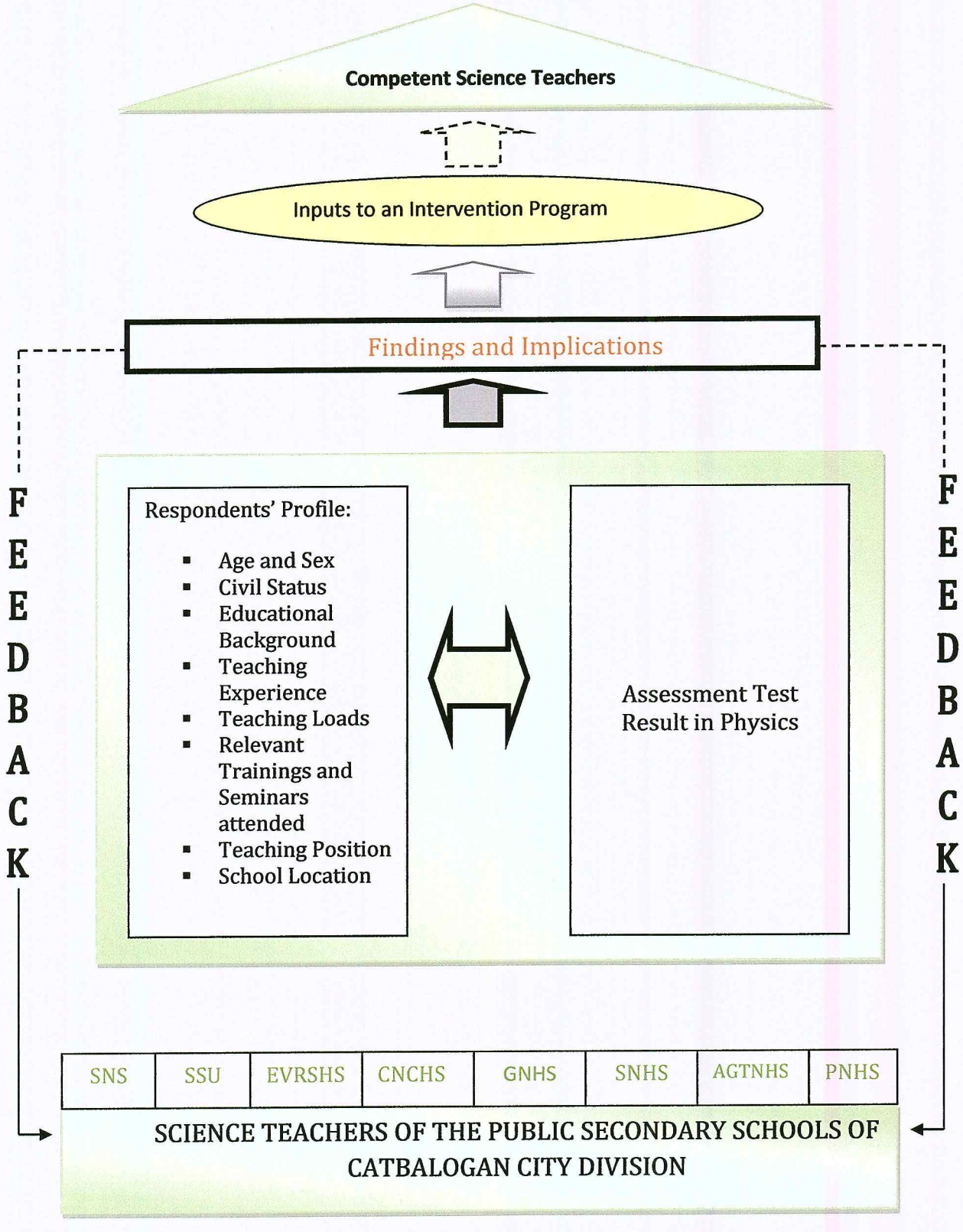

Figure 1. Conceptual Framework of the Study

School location is included to find out if teachers from urban or maybe from rural schools possess a high level of Physics - content competency or do they have the same level of Physics- content competency.

The teachers' content knowledge competency is measured in terms of test performance scores by content areas.

Moreover, the data obtained from the respondents are statistically analyzed and interpreted to provide useful information on the teachers' competencies and can be used finally as inputs for intervention program.

The broken lines which start from the findings and implications down to the base represent the feedback to the inputs in the educational pursuit of the Science teachers of the eight public secondary schools in Catbalogan City Division which in turn would redound to a more effective Science education program. Hence, it is envisioned that the inputs to an intervention program would eventually serve a spring board in teaching Physics that would help Science teachers acquire the needed knowledge and skills which geared towards the attainment of quality Science instruction which is the ultimate goal of this study.

Significance of the Study

This study was expected to provide basis for an important Physics instruction. Results of this study served as inputs for intervention program for

secondary students. Specifically, the results of this study would benefit the following:

Science teachers. It will help the teachers to upgrade and enhance their content knowledge, teaching skills, work values and revise curricula in general improve the teaching of Physics. The results of the study would provide feedback in their teaching competencies that will serve as basis for improvement in the teaching practice.

Students. It will help the students to realize the importance of learning Physics as applied to their lives. This study will inspire the students to be resourceful, productive and globally competitive individual in the future through dynamic activities and development program.

School administrators. It will challenge the leaders of the school to design dynamic activities and programs that would enhance and upgrade the competencies of the Science teachers.

Science supervisors. It would provide them feedback on the level of competencies of Science teachers in teaching Physics. Identifying these competencies would direct them towards upgrading the competencies of teachers in teaching Physics.

Parents. It would provide information to the parents on the level of appreciation their children have in relation to the study of Physics.

Curriculum developers. It would enhance their insights into the development of the curriculum. The gathered data would also provide them a clear perception of the most vitally important phases of science program which need to be stressed and/or intervened that would rebound to a more effective science education program.

Future researchers. This can be used as reference for researchers who will conduct the same study but in broader perspective.

Scope and Delimitation

This study assessed the competencies of Science teachers in teaching Physics in public secondary schools in Catbalogan City Division as inputs to an intervention program. The respondents of this study included all the 39 Science teachers in eight public secondary schools in Catbalogan City Division.

The public secondary schools are Samar National School (SNS), Samar State University (SSU), Eastern Visayas Regional Science High School (EVRSHS), Catbalogan National Comprehensive High School (CNCHS), Guinsorongan National High School (GNHS), Silanga National High School (SNHS), Antonio G. Tuazon National School (AGTNHS), and Pangdan National High School (PNHS).

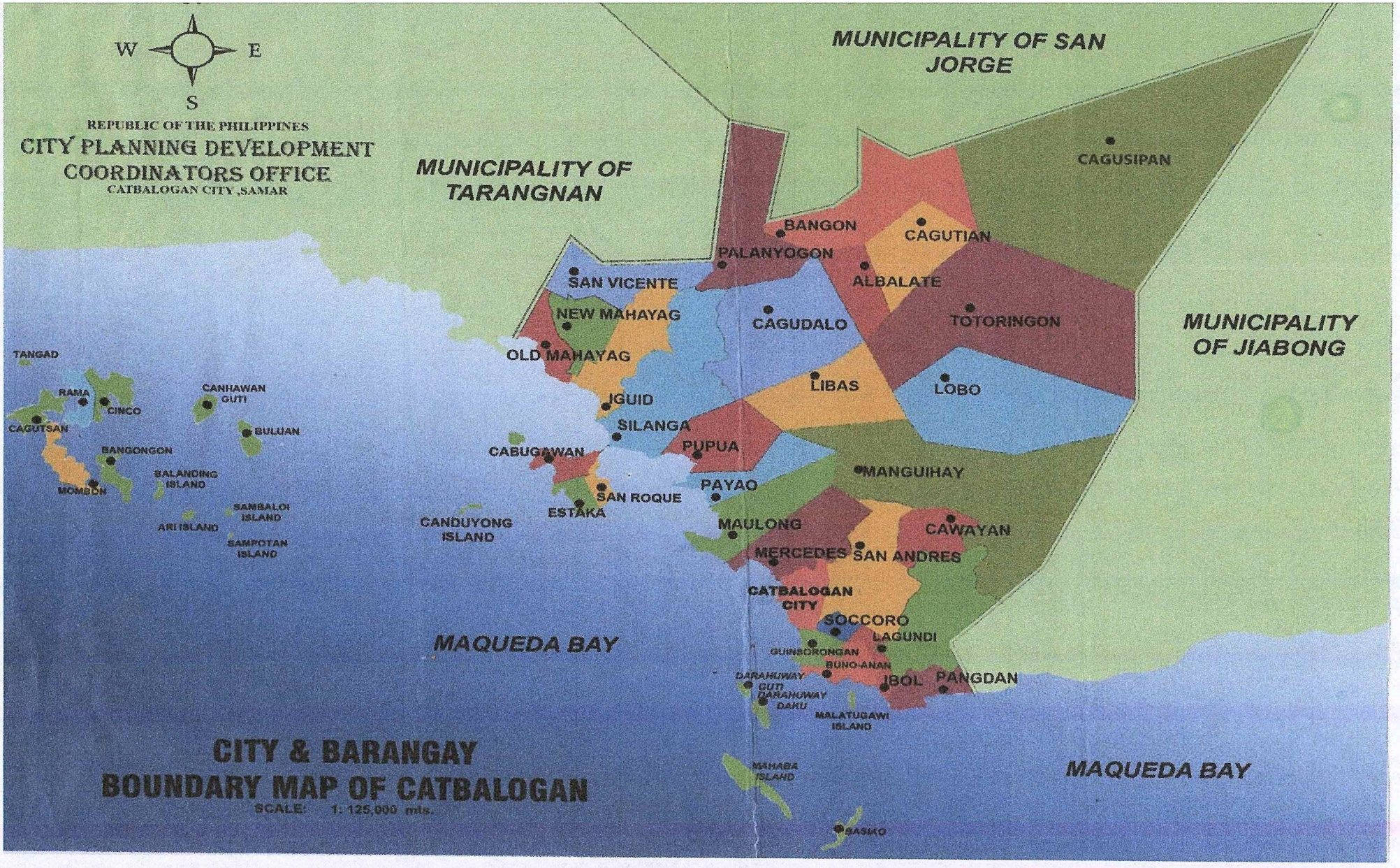

Figure 2. Map of Catbalogan City showing the location of the respondents' schools of the study.

Moreover, the test for competency attempted to measure the knowledge and skills of the respondents in Physics on learning areas namely: Physics, You, and Society; Light and Sight; Reflection and Mirrors; Lenses and Vision; Radiation Around Us; Reactors and Nuclear Energy; Electric Circuits; The Benefits and Danger of Electrical Energy; The Magnet and Current Connection; Power Generation, Transmission, and Distribution; Going Places; What Causes Motion; Conservation of Energy; and Floating and Flying.

The accuracy of the information could be ascertained only from the instruments obtained which were gathered personally by the researcher. Henceforth, the results and information drawn in this study were good only for the respondents concerned.

This study was conducted during the school year 2013 – 2014.

Definition of Terms

For a frame of reference and to facilitate understanding, the following terms are hereby defined conceptually and operationally:

Assessment. This is defined as the process of evaluating, ascertaining or judging the value or amount of something by careful appraisal (Good, 1978:156). As used in this study, this is a test design to measure the teachers' knowledge on the content of Physics.

Competencies. This is defined as the cognitive abilities and skills possessed by or able to be learned by individuals that enable them to solve

particular problems, as well as motivational, volitional and social readiness and capacity to use the solutions successfully in various situations (Weinert, 2001:289). As used in this study, competencies imply certain knowledge and skills of Science teachers in different content areas: Physics, You, and Society; Light and Sight; Reflection and Mirrors; Lenses and Vision; Radiation Around Us; Reactors and Nuclear Energy; Electric Circuits; The Benefits and Dangers of Electrical Energy; The Magnet and Current Connection; Power Generation Transmission, and Distribution, Going Places; What Causes Motion; Conservation of Energy; and Floating and Flying.

Curriculum. This refers to the course of study offered by an educational constitution or the system of subject offerings woven together by subject matter specialists with the end in view of training and/or education individuals to make them total persons while specializing in a field or two (Bantam, 1982:220). In this study, this term refers to all of the planned experiences provided by the school to assist students in attaining the described learning outcomes.

Difficulty. This refers to the quality or state of being difficult or hard to do to overcome (Webster, 1986:630). As used in this study, this refers to a test answered by less than fifty percent of the total number of teachers who took the assessment test.

Effectiveness. This is defined as the ability to achieve desired results with economy of time and efforts in relation to the amount of work accomplished

(Good,1978:36). In this study, this refers to the attainment of goals and objectives set earlier for the system.

Evaluation. This is the process of examining and judging the quality or degree of something (Webster, 1975:31). In this study, it refers to the determination of the competency needs of public secondary school Science teachers in teaching Physics.

Instruction. This is defined as an outline or manual of procedure to be followed. They are the specific methods and activities by which the teacher influences learning (Webster, 1976:38). As used in this study, it implies teaching or helping the learners discover what they need surrounding them with opportunities for experiencing and discovering useful information and helping them plan their schemes for using or applying their new found information.

Intervention program. This refers to the process or program that comes in or between a legal proceeding in order to stop, settle or change something (Webster, (1978:273). Operationally, this implies a group of closely related services that interfere n the affairs of the existing Science education program for the purpose of improving the quality and relevance of the public secondary school Science teachers in Catbalogan City Division.

Knowledge. This term is defined as the understanding gained by actual experience. It is something learned or kept in mind (Webster, 1976:287). In this study, it refers to a simple recall to a more complicated thinking process like Physics problem solving.

Mastery. This is defined as a skill or knowledge that makes one master of something (Webster, 1976:323). In this study, it denotes the authority, capacity or control of possessing knowledge or skill that makes one dominion over another.

Physics. This is defined as the science that deals with matter and energy and their interactions in the fields of mechanics, acoustics, optics, heat, electricity, magnetism, radiation, atomic structure, and nuclear phenomena (Webster, 1986:1707).

Profile. This is a group of data representing qualitatively the extent to what an individual exhibit traits or abilities as determined by test or ratings (Webster, 1986:1811). Operationally, this is the personal descriptions, of the public secondary school Science teachers as to their age, sex, civil status, educational background, teaching experience, teaching loads, relevant trainings and seminars attended, teaching position, and school location.

Rural schools. This refers to schools often small, as identified by local factors where geographic location and sparse population can make networking and the delivery of effective provision problematic (National Rural Network). In this study, it refers to public schools offering secondary education outside Catbalogan City proper.

School location. This refers to the community in which the school is located (Glossary of Statistical Terms). Operationally, this refers to the public secondary rural and urban schools in Catbalogan City Division.

Science. This refers to the observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena (Grolier International Dictionary, 1984:1162).

Secondary school teachers. This term refers to the fourth year high school teachers covered by the study who are teaching Physics in the public secondary schools in Catbalogan City in fulltime, regular and permanent basis.

Skills. According to Rioder (1989:92), this term refers to anything the teacher has to do with ease and precision. As used in the study, it refers to the instructional proficiency possessed by the Science teacher in terms of teaching competency.

Teachers. This refers to the persons whose occupation is to instruct (Webster, 1986:2346). In this study, this refers to a person engaged in teaching Physics at the secondary level.

Teachers' competence. This refers to the adequacy and efficiency of knowledge and skills of the teachers in teaching a particular field (Webster, 1876:463). As used in this study, this refers to the knowledge and skills of Science teachers in teaching Physics.

Urban schools. This defined as education facilities that provide education to students who live in the metropolitan area (Wikipedia on Ask.com) In this study, it refers to public schools offering secondary education within Catbalogan City proper.

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

Significant literature and studies that delve into some aspects of this research had been surveyed and reviewed to acquire better insights on the conduct of the present study. These include both foreign and local literature and studies done in relation to the competencies of Science teachers in teaching Physics.

Related Literature

A changing society brings with it a rapidly changing economy, emerging pressured for professionalization of teaching and demands for more meaningful pedagogical appreciation education should be ready to face these challenges.

The spirit of enterprise and the people – wide participation should be geared toward the strengthening of professionalism are destructing sculpted by the strict and regular observance (The Modern Teacher, 2004).

Platero (2007) stated that the mission of the school is to create experiences for the youth specifically those dreaming to be academic mentors, where they willingly and purposely join their energies and talents as guided by a "moral compass." Together, they commit to the belief that demands in academic classroom, with the leadership of competent and well trained teachers produce independent minds, strong bodies and powerful character.

In fact, professional competence s mentioned in the aim of Elementary and Secondary Project, one of the development programs of the DepEd. The aim has been to meet the sectors requirement for essential physical resources, especially in educationally and economically disadvantage area: improve the professional competence of teachers and school administrators, expand the population's basic knowledge and skills at risk dropping out of school as well as illiterate out – of – school youth and adult, and further develop DepEd institutional capacities in planning and management of education system.

The core task of any education system is to equip its young people with the knowledge and skills they need to participate in social, economic and political life. Getting children into primary school, through their early grades and into secondary school is not an end in itself but a mean of delivering these skills. Success or failure in achieving quality education for all hinges critically not just on countries with more years delivering in school, the ultimate measure lies in what children learn and quality of their educational experience. For children, therefore to acquire the basic knowledge and skills that would ultimately shape their future life chances during their school experience, government needs to ensure that the teachers and the approaches they adopt in teaching are appropriate and relevant to enhance children's learning. This call not only for better training of student teachers (pre – serving) but also for ongoing development of serving teachers (in – serving) to enhance their competence and skills to be able to improve the learning of children.

The challenges faced by many teachers today relate to the increasing demand and expectations put on teachers, yet systems have failed in ensuring that the teachers they employ are able to deliver what is expected of them. Teachers, once recruited, are expected to be able to respond to increasing professional as well as social demands. Unfortunately, the increasing demand and expectation on teachers are often accompanied by fewer resources as well as increasing class sizes thus making it a huge challenge for many teachers, some without proper trainings, to cope with. This often result in teachers being at risk of becoming casualties of the situation rather than becoming catalysts of change throughout the teaching and learning process. In order to meet ever changing and increasing demands on teachers, education authorities need to put in place strategies demands on teachers, education authorities need to put in place strategies that foster a well -qualified, well-equipped and motivated teaching force.

It is important to upgrade the competencies of in – service teachers. The aim of the pre – service teacher curriculum is to prepare professional teachers for practice in primary and secondary schools in the Philippines. The memo from CHED enumerated the competence expected of the Bachelor of Elementary Education and Bachelor of Secondary Education (Fajardo, 2007).

Competency standards are: Graduate of BEED and BSED program are teachers who have the basic and higher level literacy, communication, numeracy, critical thinking, learning skills needed for higher learning, have a deep and

principled understanding of the learning processes and the role of the teacher in facilitating these processes in their students, have a deep and principled understanding of how educational process relate to larger historical, social, cultural, and political processes, have a meaningful and comprehensive knowledge of the subject matter they will teach can apply a wide range of teaching process skills (including curriculum development, lesson planning and teaching appropriate); have direct experienced in the field or classroom (classroom observation, teaching assistance, practice teaching); can demonstrate and practice the professional and ethical requirements of the teaching profession;; can facilitate learning of diverse types of learners, in diverse types of learning environment, using a wide range of teaching process skills, learning processes in the students, educational process in order to constantly improve their teaching knowledge, skills and practice, can be created and innovative approaches and evaluate the effectiveness of such approaches in improving student learning; and are willing and capable to continue learning in order to better fulfill their mission as teachers.

Teacher's competence in terms of knowledge and skills possessed significantly contribute to the accepted standard and ideals of the teaching profession. Teachers must possess not only substantial knowledge but deeper and more advanced in order to be able to teach with confidence and accuracy (Salandanan, 2007).

To become an effective teacher, you must be committed to your learning passionate about your profession and dedication to excellence. To become a master teacher, you must continue your learning through additional course work, advanced degrees and professional development activities.

Educational Commission of the States (2006) presented the three strands of competence: knowledge, skills, and disposition and motivations. Knowledge relating to democracy, citizenship and civil society is an important dimension of competency lists and deserves to remain so. Competencies related to skills are also part of most (if not all) of the standard documents, though they sometimes may be merged with knowledge.

Some educators place an emphasis cultivating civic dispositions (also called civic virtues or motivations) often means that students' responsibilities and acceptance of duties are to obey the law and participate in activities and be a contributing members in solving problems in the community.

The State of New Mexico (2006) outlines competencies that all Science teachers are expected to meet. After each one, the State then lists a working knowledge of ideas related to the competencies. How the world's people cope with ever changing conditions, examine issues from multiple perspectives and respond to individual and cultural diversity; the use of language tools; the way in which human being view themselves, understand relationships and patterns in history in order to understand the past and present and to prepare for the future; the impact of economic systems and institutions on individual, families,

careers, business, communities, and the government, the diverse, dynamic, and ever changed nature of culture; the impact of science and technology on societies, to develop and employ the civic skills necessary for participatory citizenship: the role of global connections and interdependence between and among individual, groups, societies, and nations; and in addition to the general licensure requirement on assessment, the secondary science teacher should possess the capabilities, dispositions, and knowledge to assess student learning.

Firman (2005) stated his Competency Standard for Teachers (Law # 14/2005). First, is the professional competency, It is a wide comprehensive mastery of the subjects to be taught to children. Second, is the pedagogical competency which to understand students, designing and implementing effective lessons; evaluating process and achievement. Third, is the personal competency for having matured personality and character worth of imitation; having leadership and ability to nurture each student. Lastly, is the social competency which is the ability to communicate effectively with students, fellow teacher, and community.

Competencies encompass the more familiar 'KSAs" (Knowledge, Skills, and Abilities) but are more powerful and that they emphasize a person's ability to produce an expected outcome (HR Professionals, 2005).

But what does it mean to be competent? To be competent is the juxtaposition of this knowledge with the application of that knowledge in the teaching practice. In other words, a competent individual is one who effectively

and efficiently accomplishes a task in a given context using appropriate knowledge, skills, attitude, and abilities that have adjusted and developed with time and needs (NASPA, 2006 – 2007).

Overall, teachers are expected to be well – rounded in their academic subjects and prepared adequately to understand the child and help him to learn through a well – integrated general education, professional training and academic orientation (Ololube, 2005: 17 – 37).

Related Studies

This section summarizes a review of related studies on teachers' characteristics which have some bearings on their teaching competency. It cannot be denied that one competency pre – requisite to the Science teachers effective teaching is sufficient knowledge of the content. This follows from the dictum that one cannot teach what he does not have, hence, secondary Science teachers' content knowledge competency has to be looked into, an effort to improve Science program.

Astorga (2005) conducted a study on "Instructional Competencies and Problems of Multigrade Teachers." Findings revealed that multigrade teachers were young, mostly females, married, mostly monograde teaching exposure at the pre – service level, bachelor's degree holders, with a few who had earned M. A. units, were graduates of public schools, mostly with minimal teaching experience with less than five years, and attendance of in-service trainings at a

district and division levels only, and the level of competence is very satisfactory. Perceptions of the school administrators and multigrade teachers in the level of teachers' competence vary.

From the above findings, it was recommended that continuous trainings and seminars should be conducted to upgrade and strengthen the instructional competencies of the multigrade teachers in order to enable them to acquire a deeper understanding of the philosophy, goals, objectives, and special features of multigrade program. Multigrade teachers should be encouraged to undertake continuing education to improve their efficiency in teaching and keep them abreast with the new trends in education and the rapid changes through technology. The necessary support incentives or allowances should be provided for multigrade teachers so that they remain competent and are prepared to take up their challenge. A well – planned monitoring system and supervision should be seriously implemented. School administrators should visit multigrade classes periodically to ensure smooth and effective multigrade instruction.

The present study was parallel and closely related to the study conducted by Astorga in the sense that they focused on the teaching competencies of teachers. However, they differed in terms of the number of respondents included, the area covered, the research environment and treatment of data.

Another similar study was investigated by Tan (2006). Her study purported to assess the training needs of Home Economics Instructors in State Colleges and Universities in the Island of Samar. The findings revealed that

among the six listed variants, only civil status proved to have a relationship with the training needs of HE instructors. Age, sex, educational qualifications, academic rank, teaching experience, and attendance to relevant seminars or trainings had nothing to do with HE instructors' training needs. The HE instructor - respondents were growing professionally. However, some of them were not full – fledged instructors and this could be attributed to the fact this requirement in obtaining such rank was stringent. Attendance in seminars or trainings was found to be waiting among respondents.

From the above findings and conclusions, it was recommended that a realistic and functional staff development program for HE instructors in state universities and colleges in Samar should be implemented based on the identified areas where training is most needed. Furthermore, the program should include provisions for exposing HE instructors to activities that are reflective of the home management setting. This means that administrators should scrutinize and properly select the seminars or trainings to be attended by HE instructors based on those that are needed. Faculty members in the Home Economics department should finish their MS or MA degrees.

The present study was related to the previous study for the reason that both studies delved on the competencies of teachers. However, they differed in the number and types of factors being investigated, the scope of the study in terms of the respondents and the areas concerned.

The study of Salazar (2007) entitled "Training Needs of Multigrade Teachers in the Northern Districts, Division of Eastern Samar" revealed the following findings: 1) most of the multigrade teachers were female, young and married with bachelor's degree and insufficient experience; 2) majority had favorable attitude towards teaching multigrade classes; 3) in – service trainings attended by multigrade teachers were inadequate; 4) both administrators and multigrade teachers perceived that the seven (7) areas of needs identified in this study, as trainings are much needed, and 5) multigrade teachers and administrators' perceptions on the training needs of multigrade teachers do not differ significantly.

She recommended that the implementation of the proposed in – service training program for multigrade teachers be considered as yearly activity Multigrade teachers should be required to enroll in advanced studies offering multigrade courses. They should be encouraged to attend lectures, meetings, conferences and assemblies on official business. A well – planned monitoring system and supervision should be seriously implemented. Similarly, a follow – up study must also be conducted every year after an in – service training program was conducted.

Similarity was viewed the above – mentioned study and the present since both dealt with same concerns, that is, on teacher's teaching competencies. They differed on the types and factors being investigated, the scope of the study. Her

study focused on elementary teachers while the present study focused on the secondary teachers.

In the study conducted by Lumahan (2009) on "Competencies and Work Values of Social Studies Teachers in Selected Schools in Pasig City: Bases for a Revitalized Faculty Development Program", she found out that under content knowledge, there was only one weakness revealed on teachers' competencies on the area of connecting of social studies with other broad field of knowledge such as Math. Strengths revealed on teachers' pedagogical and social competencies. Teachers were found to be weak on the category of professionalism. On the other hand, they have strong work values.

The following were the recommendations she made: 1) teachers should be provided with a long range of learning dynamic activities for them to enhance their competencies, develop new skills, and to raise their competency level; 2) they should be motivated and encouraged to enhance their self – esteem over their professional lives by providing opportunities for them to reflect or analyze and improve the quality of their performance; 3) comprehensive and interesting training/ development program for Social Studies teachers should be provided with some fresh ideas on how to apply important principles and concepts to improve their teaching performance competencies; and 4) pre – service and in – service training program need to be organized so as to make teachers acquire competencies.

The present study showed a number of similarities with that of Lumahan's with reference to the type of research methodology, the kind of statistical tools employed and the type of research objective pursued. However, differences had been noted on the instruments used, the number and type of respondents involved, and the number of schools covered.

Yboa (2011) in her study on "Comparative Performance of Seniors and Novice Teachers of San Sebastian and Calbiga Districts Division of Samar" revealed the following findings: 1) the profile characteristics of the two groups of teachers were similar; 2) both groups were predominantly female, mostly married, education graduates with a majority pursuing graduate studies favorable attitudes towards teaching; 3) the performance of senior teachers was better than those of novice teachers as measured by the scores of their pupils on the District Achievement Test. The only significant difference, however, was in Mathematics; 4) as to the relationship of the profile characteristics and the teachers' performance, only educational qualification was found to be significantly related to teaching performance in English; and 5) the problems in the area of administration and supervision were considered by both groups of teachers as the most serious consisting of lack of support in the curriculum and lack of opportunity to attend in – service training.

From the conclusions drawn, Yboa recommended the following: 1) a well developed program for supporting and scheduling of formal advanced studies of both senior and novice teachers be submitted to the districts office through the

respective school had and be implemented so that teachers will be encouraged to earn not only master's units, but the master's degree itself; 2) a faculty monitoring program in all three subjects could be implemented with the senior teachers and other resource persons assisting the novice teachers; and 3) more intensive supervision and in – service trainings in teaching strategies in Mathematics should be provided for the novice teachers utilizing different observation scheme like team supervision, clinical supervision, and cursory supervision.

The study of Dacutanan (2012) was geared towards the professional competence of teachers and academic performance of pupils in the Kindergarten school. Based on the findings, she conceded that very few teachers had attended trainings and mostly in the division level. They need more trainings to enhance their teaching capabilities. Somehow, the teacher – respondents had the desire to improve their teaching skills and competencies by reading professional books where they could get strategies and methods in teaching. However, they did this in moderation which could be attributed to the fact that they were very busy in preparing their instructional materials that they hardly find time in reading professional books.

As it was uncovered in this study that teachers lacked relevant trainings in the different levels namely: national, regional, division and district, Dacutanan recommended that as a matter of policy, the school administrators should federate kindergarten teachers throughout the country and an annual convention

be conducted as an avenue to enhance the competencies of the teachers teaching in the Kindergarten. Teaching competencies of the Kindergarten teachers affected significantly the academic performance of the Kindergarten pupils, therefore should be enhanced. As a matter of management policy, the administrators should implement training programs for the Kindergarten teachers which serve as an avenue to develop their skills and competency level.

The present study had been found similar to the study undertaken by Dacutanan in the sense that both studies placed emphasis on the competencies of the teachers. However, differences had been noted also on the focus of the study and the type of respondents. The present study delved on the competencies of Science teachers on Physics in public secondary schools while the previous study delved on professional competence of teachers and academic performance of Kindergarten pupils.

The study of Mengullo (2012) entitled "Teachers' Questioning Skills and Mathematics Performance of Students in Technical – Vocational Secondary Schools in Eastern Samar Division" revealed that the respondents were generally middle – aged and majority of them were bachelor's degree holders with master's units. Also, majority of them were highly experienced and with adequate in – service trainings. Likewise, the techniques in questioning and the profile of respondents were also looked into by this study. The result showed that only INSETS attendance was significantly related to the use of questioning techniques particularly in giving more complete and thoughtful responses. Age,

educational qualification and teaching experience were found not to have an effect on the use of questioning techniques. With regards to the performance of students, the types of questions used by teacher and his technique did not affect the performance of students.

Based on the findings of this study, the researcher recommended the following: 1) school heads must encourage teachers to undergo graduate studies to enhance their teaching competence particularly in framing high – level questions; 2) likewise, teachers should be sent to trainings and seminars for their professional growth; 3) they should provide students with activities focusing on the development of critical thinking and creative problem – solving which is of great help in dealing with real – life situations; and 4) teachers must find ways to increase the academic performance of students like implementing the best practices in school and identifying strategies and instructions.

The foregoing study was related to the present study since both studies delved on the teaching competencies of teachers. However, they differed on the types and factors being investigated, scope of the study in terms of respondents and areas of concerned.

Another study similar to the former study is the one conducted by Villamor (2012) entitled "Teachers Learning belies and Mathematics Achievement of Grade Six Pupils in High and Low Performing Schools of Dagami, Leyte". It revealed that majority of the teachers were female, young, equal number of single and married, bachelor's degree holders, had least

experience and with no in – service trainings in Mathematics. The teachers in both high and low performing schools have nontraditional learning belief on goals of learning, learning process, learning ability, teachers' role, and parents' role in Mathematics learning but have "traditional" beliefs on assessment of Mathematics learning.

There was no significant relationship between teachers' learning belief and profile variables such as age, sex, civil status, educational attainment' teaching experience and in - service trainings attended in Mathematics, but there was a significant relationship between teachers' learning beliefs and Mathematics achievement.

Based on the findings, it is recommended that teachers with no master's degree or units should be encouraged to augment and improve their teaching skills and focus their attention in reading books or electronic sources with regards to Mathematics subject. There should be in – service trainings that would deliberately include opportunities for teachers to reflect on their beliefs and practices since some teachers are not fully aware of the tradition that they adhere in teaching. Teachers should be actively involved in staff development that will make them fully aware of their beliefs and teaching practices, since passive attendance in seminars hinders the teachers from re – examining their beliefs and practices. Mathematics teachers should conduct an intervention as a way for teachers to ensure students' success n Mathematics.

Calves (2013), conducted a study entitled "Teachers' Disciplinary Practices and Pupils' Academic Achievement." Findings revealed that the grade six core subject teachers in the district of Babatngon were generally female, young adults, married, considered new teachers, and mostly occupying Teacher I positions. They have earned bachelor's degree, teaching more than 3 subjects in the public elementary schools and majority of them have not undergone any training and seminars about disciplinary practices. The level of academic achievement of pupils in English, Science, and Mathematics was "satisfactory". The relationship between teachers' disciplinary practice along aggressive behavior, delinquent related behavior and withdrawing behavior showed no significant relationship with the teachers' profile variable except for the significant relationship with the teachers' profile variables except for the significant correlation between civil status and in - complaint behavior. The disciplinary practices along the different modes of behavior of pupils in the classroom were not significantly related with the pupils' academic achievement in the core subjects, namely: English, Science, and Mathematics.

From the above findings, it was recommended that schools should conduct seminars and trainings for teachers on proper disciplinary practices that may be administered inside the school campus to update their competencies in dealing with all types of behavioral problems such as aggressive behavior, delinquent related behavior, non - compliant behavior, and withdrawing behavior. School administrators should provide good motivation to core subject

teachers to enhance their performances as indicated by the academic achievement of the pupils. They should encourage teachers to pursue and finish postgraduate studies in due time to come up with highly competitive requirements. School administrators should take into account the promotion of teachers. Every school should provide competent guidance counselors in order to help pupils with behavioral problems.

The researcher relates the former study with the present one because both studies dealt with same concerns, that is, on teachers' teaching competencies. They differed on the types and factors being investigated, the scope of the study in terms of respondents and areas concerned.

A more recent study of Balunan (2013) was geared towards the teaching skills of beginning elementary school teachers in Leyte district. Based on the findings, she conceded that majority of the beginning teachers were adults, female, married, bachelor's degree holders with masters units and General Education graduates. Most had one year length of service, and attended in – service trainings and seminars in the division levels only. Age was significantly related to Human Relation skills with supervisors and peer. A significant relation existed between sex and Guidance skills and Human Relation skills. There was also significant relation between civil status and Guidance skills, Evaluation skills, and Human Relation skills. There was a significant relation between length of service and Pedagogical skills.

The following were the recommendations she made: 1) beginning elementary teachers should finish their master's degree; 2) school heads should send beginning elementary school teachers to regional and national seminars on the different subject areas to enhance their teaching competencies; 3) school heads may use the different teaching skills in rating the performance of these beginning teachers and encourage them to continuously practice these skills.

The present study had been found similar to the study undertaken by Balunan in the sense that both studies placed emphasis on the competencies of the teachers. However, differences had been noted also on the focus of the study and the type of respondents. The present study delved on the competencies of Science teachers teaching Physics while the previous study delved on the competencies of beginning elementary school teachers.

Chapter 3

METHODOLOGY

This chapter is concerned with the research methods and procedures employed to systematically answer the specific problems posed for investigations. Specifically, the chapter elucidates on the research design, sampling techniques, instrumentation, validation of the instruments, data gathering procedures, and the corresponding statistical technique used for accurate data analysis and interpretation.

Research Design

The study utilized the descriptive method of research using correlation analysis. Descriptive in nature since the research assessed the competency of Science teachers and described their characteristics. The study focused on the following teachers' variables: age, sex, civil status, educational background (major or minor), teaching experience, teaching load, relevant trainings and seminars attended, teaching position, and school location.

The main instrument used to gather data from the respondents were questionnaire and the teacher – made test. The questionnaire was designed to get the profile of the respondents, and the teacher – made test was on getting the competency level of the respondents. Informal interview was conducted to obtain additional information to supplement the data obtained from the

respondents. All the specific guidelines in constructing test questions were followed to ensure content validity and reliability of the test, with the assistance and consultation of experts in the field of Physics.

The data gathered out of the said instruments were organized, analyzed and statistically interpreted. The research utilized the following statistical tools: The Weighted Mean that established the level of competency of the respondents, Arithmetic Mean that determined the degree of relationship between the levels of competency of the respondents and their different profile, and Fisher's t- test which was used to test the significance of the relationship.

Instrumentation

To accumulate relevant and reliable data in obtaining the competency level of the respondents, the following instruments were utilized:

Questionnaire. The researcher used a questionnaire as Part I of the instrument to gather data on the respondents' profile on age, sex, civil status, educational background, teaching experience, teaching loads, relevant trainings and seminars attended, teaching position, and school location.

Assessment test. Part II of the data gathering instrument was a teacher - made test. This test was guided by Munby's suggested taxonomy of language skills (1978: 123 - 131). This tested the respondents' level of competence in Physics.

The test was constructed with clear instructions and directions on the front page. To ensure the content validity of the test, a table of specification was constructed based on the specific objective in the Philippine Secondary Schools Learning Competencies (PSSLC) of Physics. After the construction of the table of specification, the researcher prepared a test of 80 items to be distributed equally among content areas. The test was designed to evaluate what teachers know and do not know. It was used in judging the respondent's mastery of certain essential knowledge, processes and skills, the test items were of the objective type using multiple choice test with four possible options or choice to facilitate administration, scoring and interpretation of test results .Based on the test results, the median score was 52 and the mean score was 51.77. Of the 39 respondents, 22 teachers were above the mean and 17 were below the mean. The result of the test served as basis to determine the teachers' assessment in Physics as expressed in terms of mean percentage score.

Validation of Instrument

In order to come up with valid and reliable instrument, expert validation and dry run was conducted. The original pool of one hundred items served as one of the instruments to gather data. These one hundred items were divided among the content areas specified in the PSSLC of Physics. The test was first submitted to researcher's adviser and some Physics teachers who were not respondents of the study for critiquing and correction and then it was submitted

to the panel members of the pre – oral defense of this study. The approved draft was tried among 17 Science teachers in the different schools in Samar Division namely: Jiabong National High School, Motiong National High School, Wright National High School, and Tinane Intergrated School who were not included among the target respondents from January 27 – 31, 2014.

The set of the test questions with instruction on the front page, together with separate answer sheets were given to each of the examinees. To ensure uniformity in the trial run, the researcher personally administered the examination. All rules in the administration of the test were followed during the testing.. The purpose was to determine index of difficulty and discrimination as well as testing time of the evaluation instrument.

The test papers were corrected by the researcher himself. One point was given for each correct answer. The result of the try out were tallied, organized, and analyzed to ascertain that the test was able to gather information needed in this study. The effectiveness of each item was evaluated. It was finalized based on the suggestions of the critiques mentioned above and on the result of the try out before it was used for the final data gathering process.

The index of difficulty was considered in analyzing the responses to each test items. This expressed the responses of the teachers who got the correct responses of the alternative.

The scored test papers were arranged form the highest score down to the lowest score. The test papers were separated into three groups – the upper

group, middle group and lower group. Twenty – seven percent of the total number of test papers were counted starting from the top of the pile and another 27 percent of the total test papers were counted starting from the bottom of the pile was each separated to constitute the upper and lower groups respectively.

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

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

Value of index of Difficulty	**Interpretation**
86% - 100%	Very easy Reject the item
51% - 85%	Fairly easy Retain the item
15% - 50%	Fairly hard Retain the item
0% - 14%	Very hard Reject the item

Since the difficulty of the item referred to the percentage of getting the item right, the smaller the percentage figure, the more difficult the item is. The items that had a difficulty index of between 15.00 percent to 85.00 percent were considered for inclusion in the final form of the test.

In the context of item discrimination analysis, it provided an indication of how will an item sort out the good teachers from the not so good in terms of knowledge on content of Physics. The total scores on the examination being considered were taken as the measure by which to judge the discriminating power of each item within the examination.

The formula for calculating the index of discrimination (I.D) is:

$$\text{I.D.} = \frac{\text{No. of correct in upper group} - \text{No. of correct in lower group}}{\text{No. of teachers in one group}}$$

In determining whether the item was rejected, modified or accepted, the suggested guide to the interpretation of the numerical Value Index of Discrimination (Bright, 1979:19) is shown below:

Value of index of Discrimination		**Acceptability of item**
0.40 and above	-	A high level of discrimination. Retain the item.
0.30 to 0.39	-	Item discriminations reasonably well. Retain the item.
0.20 to 0.29	-	A marginal level of discrimination. Retain the item.
Below 0.20	-	Item does not contribute to the overall pattern of the examination results. Reject the item.
Negative values	-	Reject the item

Test items with index of discrimination between .10 to .20 were modified in order to correct mistakes that may have been overlooked as long as the test items contribute to the overall pattern of the examination results.

Items with negative discrimination were rejected and items with a discrimination index of 0.20 and above were considered for inclusion in the final form of the test with certain modifications.

The reliability of the test was computed using the Kuder Richardson Formula 21 and interpreted based on the interpretation given by Ebel (1965) as shown below:

Interpretation of the Coefficient of Reliability:

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

The first draft of the questionnaire was shown to the research adviser and colleagues for their comments and suggestions for improvement. After incorporating their suggestions, the improved version of the questionnaire was validated for content by the Science Supervisor and some Physics teachers not

from the respondents' schools. It was finalized based on the suggestions of the critiques mentioned above and on the result of the try out before it was used for the final data gathering process.

Sampling Procedure

The respondents of the study were composed of public secondary school Science teachers teaching Physics in urban and rural schools. These teachers responded to the assessment test and questionnaire designed to elicit data on their personal and professional characteristics.

There were three urban schools namely: Samar National School, Samar State University, and Eastern Visayas Regional Science High School and five rural schools such as Catbalogan National Comprehensive High School Guinsorongan National High School, Silanga Natioan High School, Antonio G. Tuazon National High School, and Pangdan National High School from the Catbalogan City Division composed the respondents' schools. A total of eight schools involved in this study. Thirty – nine Science teachers in the public secondary schools were respondents of this study.

Data Gathering Procedure

The researcher sought the approval from the Schools Division Superintendent of Catbalogan City Division and School Administrators concerned to allow him to field and administer the data gathering instruments to the samples. During the early week of February after the pre – oral examination,

the researcher visited the respondents' schools to meet their respective principals and teachers to explain the nature and objective of the study.

Then, the researcher went back personally to the respondents' schools with the help and assistance of his peers from February 18 to 22, 2014 to administer the instruments such as the questionnaire and the assessment test. The questionnaire included the following factors: age, sex, civil status, educational background, teaching loads, relevant trainings and seminars attended, teaching position, and school location. The five days field work by the researcher greatly facilitated the methods of data collection in the eight respondents' schools. The test was administered to the Science teachers of each public high school. However, two teachers from a respondents' school declined to take the examination with unknown reasons. The respondents were given a maximum time allotment of 2 hours to answer the test. The test paper was given one point for every correct answer and no point for the wrong answer. The scores were recorded in separate sheets. To gather additional information to supplement the data gathered through questionnaire and assessment test, the researcher also conducted informal interview with the respondents.

Statistical Treatment of Data

To arrive at the solution to the problem in this study, all responses were processed. The set of data gathered from the instruments were organized analyzed, and interpreted according to the stage level of competence based on

the score mandated in the scoring sheet. Statistical measures like Frequency Count, Percentage, Arithmetic Mean, Standard Deviation, T-test for Two Independent Samples, Pearson Product Moment Correlation, Spearman Rank Order Correlation Coefficient, and Fisher's t – test were applied. In testing the null hypothesis, the level of significance was posted at 0.05.

Frequency count. This was used in determining the number of respondents at the same age, sex, civil status, etc.

Percentage. This was used in the analysis, interpretation and presentation of data on the teacher – respondents' profile.

The content knowledge competency of teachers was measured using the formula:

$$\text{Score in Percent} = \frac{\text{No. of Correct Responses}}{\text{Total No. of Items}} \times 100\%$$

The following were the levels of competency set by the researcher in assessing performance in the content knowledge test:

Score	Percent	Interpretation
69-80	86%-100%	Very High Competency
54-68	68% - 85%	High Competency
40-53	50% - 67%	Average Competency
26-39	32% - 49	Low Competency
1-25	Below 31%	Very Low Competency

These ranges were set with minimum competency criterion at 50 percent.

Arithmetic mean and standard deviation. These tools were used in computing the interval and ratio scale variables in this study such as age, teaching experience, relevant trainings and seminars attended and the level of competency of the teacher – respondents.

t – test for two independent samples. This treatment was applied in determining significant difference between the test results of teacher – respondents from the rural and urban areas (Walpole, 1982: 361).

Pearson Product Moment Correlation Coefficient. This formula was used to test the relationship between the test performance in Physics and the following variables: age, teaching experience, teaching loads, and relevant trainings and seminars attended (Guilford,1973:85).

Spearman Rank Order Correlation Coefficient. The formula was used to test the relationship between the test performance in Physics and the following variables : sex, civil status, educational background, teaching position, and school location (Broto,2008:64).

Fisher's t-test. This formula was used in testing the significance of the coefficient of correlation between a set paired variables (Walpole, 1982:383).

Chapter 4

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter presents the result of the data gathered relative to the objectives of the study with the appropriate analyses and interpretations in the light of the problems and hypotheses. The order of presentation follows the sequence of the problems in Chapter 1.

All in all, there were 39 Science teacher–respondents in this study; 23 and 16 from urban and rural public secondary schools in Catbalogan City Division, respectively.

The profile of the teacher – respondents was elicited in terms of age, sex, civil status educational background, teaching experience, teaching loads, relevant trainings and seminars attended, teaching position and school location. The data on these aspects are presented and discussed in this section.

Age and sex. Table 1 showed the frequency and percentage distribution of the age and sex of the teachers. It further shows that majority of the teacher – respondents were female, that is 35 respondents, and four male teacher–respondents. The greater number of female over male respondents is reflective of the predominantly of female in teaching the Science subject.

It can be gleaned from the table that the biggest number of respondents were under 35 – 39 age bracket with 10 or 25.64 percent.

Table 1

Age and Sex Distribution of the Teacher – Respondents

Ages	Sex		Total	
	Male	Female	*f*	Percent (%)
60-64	-	3	3	7.69
50-54	-	2	2	5.13
45-49	1	2	3	7.69
40-44	-	7	7	17.95
35-39	2	8	10	25.64
30-34	1	4	5	12.82
25-29	-	4	4	10.26
20-24	-	5	5	12.82
Total	**4**	**35**	**39**	**100.00**
Mean	**38.50**	**37.43**	**37.54**	**-**
SD	**6.65**	**11.19**	**10.75**	**-**

On the other hand, the lowest number of respondents belonged to the age of years with 60- 64. The data further revealed that the oldest respondent was 64 and the youngest was 20. There were 14 teachers below the mean and 15 teachers above the mean.

Civil status. In terms of respondents' civil status, Table 2 presents that there were 30 or 76.92 percent of the respondents were married and nine or 23.08

percent were single. The result showed that there were more married teachers teaching in their respective schools.

Table 2

Civil Status of the Teacher – Respondents

Civil Status	*f*	Percent (%)
Single	9	23.08
Married	30	76.92
Total	39	**100.00**

Educational qualification. Table 3 presents the data relative to educational qualification of the teacher – respondents. Out of the 39 respondents, five or 12.82 percent had obtained MAT/ MAEd/ MEd degree, one or 2.56 percent had Ph.D. units, and 24 or 61.54 percent had MAT/ MAEd/ MEd units. Nobody finished doctorate degree. The data on educational qualification of the respondents were indicative that of the 39 teachers, nine or 23.08 percent had no master's units and thirty or 76.92 percent had earned several graduate units. However, some of those with master's degree units were not Science related subjects. The result revealed that there was a need for the principals to encourage and motivate their teachers and head teachers to take a higher level of education.

Machell study (2007) emphasized that to become a master teacher there is a need to continue the learning through additional course work and advanced degree and professional development activities.

Table 3

Educational Qualification of the Teacher – Respondents

Educational Qualification	*f*	Percent (%)
MAT/MAEd/MEd with Ph.D. units	1	2.56
MAT/MAEd/MEd degree holder	5	12.82
With MAT/MAEd/MEd units		
Major:		
MAT – Chemistry/Physics	19	48.72
MAT - Mathematics	2	5.13
MAEd – Educational Management	3	7.69
Without MA units	9	23.08
Total	**39**	**100.00**

Undergraduate degree and major preparation. The undergraduate degree and major preparation of the teacher – respondents presented in Table 4 showed that all of the 39 Science teachers were bachelors' degree holders. Thirty – three or 84.62 were Science majors and six or 15.38 were not Science majors. As a whole, it can be said that Science teachers in public secondary schools in Catbalogan City Division have relevant educational qualification and training.

Table 4

Undergraduate Major of the Teacher – Respondents

Undergraduate Major	*f*	Percent (%)
Science	33	84.62
Non-Science	6	15.38
Total	**39**	**100.00**

Teaching experience. Teaching experience is another factor which needs to be considered in appraising the teaching competencies of Science teachers. It could imply that Science teachers had teaching experiences which helped them increase their mastery of the subject matter.

Table 5 showed that eight or 20.51 percent were newcomers in the teaching profession. Several of them were experienced teachers and some had enough experience. The data further indicates that the average years of teaching experience of respondents of the respondents was 11.51 with a standard deviation of 8.27 percent. The oldest respondent in the service had spent the past 33 years as a teacher and the youngest was barely a year in the service. The finding implied that a majority number of teacher – respondents were relatively young in their teaching profession.

Table 5

Length of Teaching Experience of the Teacher – Respondents

Length of Teaching Experience (in years)	*f*	Percent (%)
33-36	*1*	2.56
29-32	*0*	0.00
25.28	*4*	10.26
21-24	*1*	2.56
17-20	*4*	10.26
13-16	*6*	15.38
9-12	*3*	7.69
5-8	*12*	30.77
1-4	*8*	20.51
Total	**39**	**100.00**
Mean	**11.51**	-
SD	**8.27**	-

Teaching loads. Table 6 indicates the teaching loads of the teacher respondents. As shown in the table, all of the respondents teach in their area of concentration and the other teachers had teaching loads other than Science. This implied a maximum Science teaching – learning process while some respondents were slightly bothered by this other loads.

Table 6

Teaching Loads of the Teacher – Respondents

Subject	*f*	Percent (%)
Science	38	100.00
Math	3	7.69
English	2	5.13
Research	1	2.56
Values	1	2.56
TLE	1	2.56

In – service trainings attended. Data obtained from Table 7 reflects the in – service trainings attended by the teacher – respondents. It can be gleaned from the same table that all of the 39 respondents had attended the trainings. However, majority of the teachers had attended very few trainings since they were just new in the service. Seventeen teachers had attended two to eight days in-service trainings, 12 had nine to 15 days, four had 44 to 50 days, three had 13 to 22 days, and one teacher each for 23 to 29 days, 30 to 36 days, and 37 to 43

days. However, it was significant to note that most of the in – service trainings were in the school and division levels. In average, the number of days of relevant trainings or seminars attended by the teacher – respondents is 14.72 or 15 days with a standard deviation of 14.54.

Table 7

Relevant Trainings/Seminars Attended by the Teacher – Respondents

Number of Days of Trainings/ Seminars	*f*	Percent (%)
44-50	4	10.26
37-43	1	2.56
30-36	1	2.56
23-29	1	2.56
13-22	3	7.69
9-15	12	30.77
2-8	17	43.59
Total	**39**	**100.00**
Mean	**14.72**	**-**
SD	**14.54**	**-**

Teaching position. Contained in Table 8 are data on the teaching position of the teacher – respondents. As gleaned from this table, 19 or 48.72 percent were Teacher I, six or 15.38 percent were Teacher II, eleven of 28.21 percent were Teacher III and three or 7.69 percent were Master Teacher I. This indicated that majority of the respondents belonged to Teacher I position.

Table 8

Teaching Position of the Teacher – Respondents

Teaching Position	*f*	Percent (%)
Teacher I	19	48.72
Teacher II	6	15.38
Teacher III	11	28.21
MT I	3	7.69
Total	**39**	**100.00**

School location. Data on school location are shown in Table 9. This revealed that 24 or 61.54 percent were assigned to teach in urban schools and 15 of 38.46 percent are teaching in rural schools. This signified that most of the teacher – respondents belonged to the schools within Catbalogan City proper.

Table 9

School Location of the Teacher – Respondents

School	f	Percent (%)
Rural	15	38.46
Urban	24	61.54
Total	**39**	**100.00**

Competency Level of the Science Teachers

Table 10 showed the result of the test in terms of raw scores and percentage of correct responses for the whole test. The median score was 52 while the mean was 51.77. This shows that 22 teachers were above the mean and 17 teachers were below the mean. Analysis of the result revealed that only one respondent obtained "very high competency"; 18 respondents got "high competency"; 13 respondents got "average company" and the remaining respondents got " fairly low competency". The data revealed that on the average, the knowledge competency level of the Science teachers was 64.67% which fell under the category of "average competency". Therefore, some of the Science teachers in Catbalogan City Division had inadequate content knowledge on the Physics subject.

Table 10

Respondents' Raw Scores and Percent of Correct Responses

Respondent No.	Raw Score	Percent	Interpretation
1	70	87.50	Very High Competency
2	67	83.80	High Competency
3	65	81.3	High Competency
4	65	81.3	High Competency
5	65	81.3	High Competency
6	63	78.8	High Competency
7	62	77.5	High Competency
8	62	77.5	High Competency
9	61	76.3	High Competency
10	60	75.0	High Competency
11	59	73.8	High Competency
12	59	73.8	High Competency
13	58	72.5	High Competency
14	58	72.5	High Competency
15	58	72.5	High Competency
16	58	72.5	High Competency
17	55	68.8	High Competency
18	55	68.8	High Competency
19	55	68.8	High Competency
20	52	65.0	Average Competency
21	52	65.0	Average Competency
22	52	65.0	Average Competency
23	50	62.5	Average Competency
24	48	60.0	Average Competency
25	47	58.8	Average Competency
26	46	57.5	Average Competency
27	46	57.5	Average Competency
28	46	57.5	Average Competency
29	46	57.5	Average Competency
30	45	56.3	Average Competency
31	42	52.5	Average Competency
32	42	52.5	Average Competency
33	39	48.8	Fairly Low Competency
34	37	46.3	Fairly Low Competency

Table 10 continued

Respondent No.	Raw Score	Percent	Interpretation
35	37	46.3	Fairly Low Competency
36	37	46.3	Fairly Low Competency
37	36	45.0	Fairly Low Competency
38	35	43.8	Fairly Low Competency
39	27	33.8	Fairly Low Competency
Total	**2017**	**-**	**Average Competency**

Legend:

Score	Percent	Interpretation
69 – 80	86 – 100	Very High Competency
54 – 68	68 – 85	High Competency
40 – 53	50 – 67	Average Competency
26 – 39	32 – 49	Low Competency
1 – 25	1 – 31	Very Low Competency

If the respondents found the Physics subject they were teaching difficult as attested to by the result of the test, how much more for the students. The attainment of the objectives of Physics subject was anchored on effective Science instruction which could be realized when the teacher was proficient or had adequate knowledge of subject content.

Test Performance

Data shown in Table 11 presented the mean score of their examination in Science of the public secondary school Science teachers in Catbalogan City Division during the second semester of the given school year 2013 – 2014. The mean score was obtained by dividing the total score by the number of examinees in every area.

Table 11

Competency Level by Learning Area

Area	N	Mean	Competency Level	Interpretation
Part I	20	14.60	73.00	High Competency
Part II	20	16.30	81.50	High Competency
Part III	20	11.40	57.00	Average
Part IV	20	10.10	50.50	Average
Overall Mean and Competency Level	**80**	**13.10**	**65.50**	**Average Competency**

A closer examination of the data clearly revealed that the mean score in Area I was 14.60; Area II – 16.30; Area III – 11.40; and Area IV – 10.10 with 73.00; 81.50; 57.00; and 50.50 competency level respectively. The result showed that it is in Area II where the teachers performed significantly better than in Areas I, III, and IV.

As a whole, the teacher respondents mean score of 13.10 with 65.50 Competency level signifies that the teacher – respondents fell under the category of "Average Competency". This result was below the expected output of 75.00 percent desired a minimum learning competency level in secondary science subject. This can be implied that science teacher–respondents had inadequate knowledge on comprehension skills and problem solving abilities contributed to

the "Average Competency" may be attributed to the capabilities of the teachers since 84.62 percent of the Science teachers included in the study were Science majors while the remaining 15.38 percent were non-Science majors.

Table 12

Frequency, Percent and Rank Wrong Responses per Item of the Test

Item No.	Test Items/Concept	Frequency	Percent	Rank
28	Identifying the source of radiation exposure	31	79.5	1.5
1	Citing the use of theories	31	79.5	1.5
24	Identifying the particle which is not emitted by radioactive substances	27	69.2	3
32	Describing the use of plutonium	26	66.7	4.5
25	Explaining how radiation is produced	25	66.7	4.5
60	Describing the motion of a moving body	25	64.10	6.5
15	Describing the image formed in a concave lenses	25	64.10	6.5
40	Describing how an overloading in a household circuit occurs	24	61.5	8
68	Applying the relationship of impulse to momentum	22	56.4	9
73	Relating the speed of an object to kinetic energy	21	53.8	10
67	Describing an elastic collision	20	51.3	12
50	Describing an electric current	20	51.3	12
49	Describing how electromagnet produces strong magnetic field	20	51.3	12
66	Relating impulse to momentum	19	48.7	15.5
12	Distinguishing between real and virtual image	19	48.7	15.5

Table 12 continued

Item No.	Test Items/Concept	Frequency	Percent	Rank
11	Describing the speed of light when passing from one medium to another	19	48.7	15.5
35	Describing a circuit	19	48.7	15.5
80	Stating Pascal's principle	18	46.2	19.5
77	Describing the direction of a drag	18	46.2	19.5
57	Defining superconductors	18	46.2	19.5
52	Defining a domain	18	46.2	19.5
71	Differentiating the amount of power employed by two bodies	17	43.6	23.5
16	Describing an image formed in a convex mirror	17	43.6	23.5
15	Describing an image formed in a concave mirror	17	43.6	23.5
14	Distinguishing between mirrors and lenses	17	43.6	23.5
55	Identifying the type of power plant	16	43.6	27.5
54	Describing a step – up transformer	16	43.6	29.5
51	Describing the magnetic field around a bar magnet	16	43.6	29.5
48	Describing a magnetic field	16	43.6	29.5
45	Interpreting correctly the manufacture's label on appliances	16	43.6	29.5
4	Describing the nature of light	16	43.6	29.5
64	Describing the acceleration of a body	15	38.5	33
38	Explaining how a fuse and a circuit breaker work in a circuit	15	38.5	33
22	Identifying the type of lens used in a magnifying glass	14	38.5	33

Table 12 continued

Item No.	Test Items/Concept	Frequency	Percent	Rank
46	Identifying the equation for electrical energy	14	35.9	35.5
41	Differentiating a circuit breaker from a fuse	14	35.9	35.5
74	Applying the law of conservation of mechanical energy	13	33.3	38
37	Applying series connection to light bulb	13	33.3	38
18	Describing the type of lens in astronomical telescope	13	33.3	38
76	Citing the use of Bernoulli's principle	12	30.8	41.5
34	Giving the acronyms for E = mc2	12	30.8	41.5
27	Identifying the type of particle provided in a nuclear reaction	12	30.8	41.5
13	Describing the image formed in a plane mirror	12	30.8	41.5
61	Calculating the displacement of moving object	11	28.2	47.5
58	Describing an electromagnetic induction	11	28.2	47.5
44	Calculating the efficiency of a light bulb	11	28.2	47.5
43	Identifying the unit of power	11	28.2	47.5
21	Locating the image in a lens	11	28.2	47.5
19	Describing how mirage is formed	11	28.2	47.5
9	Relating angle of incidence to the angle of reflection	11	28.2	47.5
2	Describing a theory	11	28.2	47.5
79	Citing the use of Pascal's principle	10	25.6	54

Table 12 continued

Item No.	Test Items/Concept	Frequency	Percent	Rank
53	Defining a transformer	10	25.6	54
33	Identifying the location at which nuclear accident with many facilities occurred	10	25.6	54
30	Describing nuclear fission	10	25.6	54
3	Identifying the unit of measure that is longest	10	25.6	54
17	Identifying the property of light that uses optical fiber	9	20.5	57
47	Identifying the device used in household wirings to prevent short circuit	8	20.5	59
31	Describing the energy released by nuclear reaction	8	20.5	59
8	Describing how shadows are formed	8	20.5	59
78	Explaining why some bodies like balloon float on air	7	17.9	64
75	Defining heat	7	17.9	64
63	Determining the displacement of a free falling body	7	17.9	64
59	Identifying the type of Inertia	7	17.9	64
29	Identifying the primary source of energy in the power plant	7	17.9	64
26	Determining the number of protons and neutron, given the symbolic representation of nuclide	7	17.9	64
10	Identifying the colors of white light	7	17.9	64
72	Computing the height of a body given its power, force, and time	6	15.4	70
70	Relating mass to inertia	6	15.4	70

Table 12 continued

Item No.	Test Items/Concept	Frequency	Percent	Rank
62	Describing a free fall	6	15.4	70
39	Applying Ohm's Law to parallel connection	6	15.4	70
23	Citing an application of radiocarbon dating	6	15.4	70
7	Describing the nature of light	5	12.8	75
56	Defining a step – up transformer	5	12.8	75
69	Applying Newton's Third Law of Motion to a moving body	5	12.8	75
65	Identifying an example of velocity	5	12.8	75
5	Describing the behavior of light upon meeting an opaque object	5	12.5	75
36	Citing the use of conductors	4	10.3	78
42	Describing a short circuit	3	7.7	79.5
6	Identifying the colors of light	3	7.7	79.5

Relationship of Test Performance by Teacher – Related Variables

The coefficient of relationship between the test performance and selected variables which influence the level of competency of the teachers were computed using the Pearson Product Moment and Spearman Rank Correlation formulas to ascertain if there is an existence significant relationship between the variables involved.

Table 13

Relationship Between Teacher – Respondents' Test Performance and their Profile

Profile	r – value	Fisher's *t* – value		Evaluation	Decision
		computed	tabular		
Age	-0.200	-1.24	2.03	Not Significant	Accept Ho
Sex	0.254	1.54	2.03	Not Significant	Accept Ho
Civil Status	0.411	2.74	2.03	Significant	Reject Ho
Undergraduate Major	0.238	1.49	2.03	Not Significant	Accept Ho
Length of Teaching Experience	-0.222	-1.38	2.03	Not Significant	Accept Ho
Teaching Loads	-0.254	-1.60	2.03	Not Significant	Accept Ho
Relevant Trainings/Seminars Attended	-0.152	-0.94	2.03	Not Significant	Accept Ho
Teaching Position	0.149	0.92	2.03	Not Significant	Accept Ho
School Location	0.196	1.22	2.03	Not Significant	Accept Ho

df=37;α=05; two – tailed

In relation to age, it was gleaned in Table 13 that the computed r – value resulted to -0.200 with a corresponding absolute Fisher's t – value of 1.24. in comparison to the critical t – value of 2.03 at 0.05 level of significance with 37 degrees of freedom, it proved to be lesser. This led to the acceptance of the null hypothesis which states that there is no significant relationship between the test performance of the teacher – respondents and their age. This means that age was not significantly related to their test performance.

With regards to sex, it can be observed that the computed correlation coefficient was 0.254. Testing its significance, it revealed a Fisher's t – value of 1.54 which turned out to be lesser at 0.05 level of significance with degrees of freedom of 37. As a result, the hypothesis which states that there is no significant relationship between the teacher – respondents' test performance and their sex was accepted. This implied that the test performance of the teacher had nothing to do with his sex.

In relation to civil status, it can be noted that the computed r value was 0.411. The computed t – value of 2.74 was greater than the critical t – value of 2.03 at 0.05 level of significance and degrees of freedom equal to 37. Therefore, the null hypothesis which signifies that there is no significant relationship between the test performance of the teacher – respondents and their civil status was rejected. This denotes a significant relationship between the test performance of the teachers and their civil status. This further signifies that teachers who were married have a better test performance than those who were single.

The computed *r* value in correlation between the test performance of the teacher – respondents and their undergraduate major, whether science or non-science major, resulted to 0.238. The test of significance revealed a computed *t* – value of 1.49, which is lesser than the critical *t* – value of 2.03 with the level of significance of 0.05 and degrees of freedom of 37. The relation was found to be not significant between the variables aforementioned.

On the relationship between the test performance of the teacher – respondents and their length of teaching experience, the *r* value turned out -0.222 with the corresponding *t* – value of -1.38. Comparing this with the tabular or critical *t* – value of 2.03, it turned out to be lesser at 0.05 level of significance and 37 degrees of freedom. Thus, the hypothesis which states that there is no significant relationship between the test performance of the teacher – respondents and their length of teaching experience was accepted.

With regards to their teaching load, the correlation coefficient was found out to be -0.254 with an absolute Fisher's t – value of 1.60 which was lesser than the critical *t*-value of 2.03 at 0.05 level of significance. Hence, the corresponding hypothesis was accepted. This denotes that there was no significant relationship between the two variables.

On the relationship between test performance and relevant trainings and seminars attended, it can be observed that computed *r* was -0.152. The test of significance of the correlation coefficient resulted to a computed t- value of -0.94. Comparing this with the tabular t- value of 2.03 at 0.05 level of significance, it

registered lesser. This led to the acceptance of the hypothesis stating that there is no significant relationship between the two variables aforementioned.

In relation to their teaching position, it can be observed that the computed *r* resulted to 0.149 with the corresponding t – value of 0.92. In comparison to the critical t- value of 2.03, it turned out to be lesser at 0.05 level of significance and 37 degrees of freedom. Therefore, the hypothesis which states that there is no significant relationship between the test performance of the teacher – respondents and their teaching position was accepted. This means that the test performance of the teachers had nothing to do with their teaching position.

On the relationship between test performance and school location, the computed correlation coefficient was 0.196. The test of significance revealed a Fisher's t – value of 1.22, which was numerically lesser to the critical t- value of 2.03 at 0.05 level of significance and 37 degrees of freedom. This led to the acceptance of the hypothesis stating that there is no significant relationship between the test performance of the teacher – respondents and their school location. This implied that the test performance was not significantly related to their school location.

Comparison in the Assessment Test Score of the Teacher – Respondents and their School Location

In Table 14, the assessment test scores of the teacher – respondents and their school location were statistically treated using t- test for two independent

samples. Teachers from the urban schools obtained the highest mean score of 52.08 while the teachers from the rural schools had the lowest mean score of 51.13. It is also revealed from the table, in comparison between the variables

Table 14

Comparison in the Assessment Test Result of the Teacher – Respondents and their School Location

Result	School Location		Decision
	Rural	Urban	
Mean	51.13	52.08	
Vaariance	120.41	110.69	
Observation	15	24	
df	38		
Computed t-value	-0.27		Accept Ho
Critical t-value	2.04		

aforementioned, the computed t – value of -0.27 turned out to be lesser than the critical t- value of 2.04 at 0.05 level of significance and 38 degrees of freedom. As a result, the hypothesis which stated that there is no significant difference in the competencies possessed by public secondary school Science teachers in Catbalogan City Division in relation to school location was accepted.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of the major findings of this study, conclusions that were derived from the major findings and the recommendations based on the conclusion drawn.

Summary of Findings

The findings of the study were herein presented vis-à-vis the specific questions and null hypotheses already stated.

Based on the data gathered, the following results were obtained:

1. The eldest teacher in the sample was 64 and the youngest was 20.

2. Of the 39 respondents, four were males and 35 were females.

3. Thirty or 76.92 percent of the respondents were married and nine or 23.08 percent were single.

4. The public secondary school teachers in Catbalogan City Division were all bachelor's degree holders.

5. Thirty – three or 84.62 percent of them were Science majors and six or 15.38 percent were Non – Science majors.

6. Of the 39 respondents, 30 had post graduate units and nine had no graduate units.

7. The oldest respondent in the service had spent the past 33 years as a teacher and the youngest was barely a year in the service. The average years of teaching experience of the respondents was 11.51 with a standard deviation of 8.27 percent.

8. All respondents were teaching Science, but other teachers had teaching loads other than Science such as Mathematics, Computer Science, English, Values Education, Research, and T.L.E.

9. All teacher – respondents had attended in – service trainings but most of the trainings were held in school and division levels.

10. On the average, the number of days of relevant trainings or seminars attended by the teacher – respondents was 14.72 or 15 days with a standard deviation of 14.54.

11. Of the 39 respondents, nineteen or 48.72 percent were Teacher I, six or 15.38 percent were Teacher II, eleven or 28.21 percent were Teacher III, and three or 7.69 percent were Master Teacher I.

12. There were 23 teachers assigned to teach in urban schools and 16 were assigned in rural schools.

13. In terms of the raw scores and percentage of correct responses for the whole test, the median score was 52 while the mean score was 51.77 or 52. This implies that 22 teachers were above the mean and 17 teachers were below the mean.

14. In terms of competency level, one respondent (3.00 percent) obtained "very high competency"; eighteen respondents (46.00 percent) got "high competency; thirteen respondents (33.00 percent) got "average competency"; and the remaining seven (18.00 percent) obtained "fairy low competency."

15. On the average the knowledge competency level of the Science teachers resulted to 51.72 with a standard deviation of 10.56 which fell under the category of "average competency".

16. The mean score in Learning Area I was 14.60; Area II – 16.30; Area II-11.40; and Area IV – 10.10 with 73.00; 81.50; 57.00; and 50.50 competency level respectively.

17. In terms of the correlation coefficient between the test performance of the teacher – respondents and their profile such as age, sex, educational background, teaching experience, teaching loads, relevant trainings and seminars attended, teaching position, and school location, the *r* values resulted to -0.200, 0.245, 0.238, -0.222, -0254, -0.152, 0.149, and 0.196 with their corresponding Fisher's *t* – value of -1.24, 1.54, 1.49, -1.38, -1.60, -0.94, and 0.92, and 1.22 respectively. This led to the acceptance of the hypothesis stating that there is no significant relationship between the level of competency of the teacher – respondents and the said profile.

18. With regards to civil status, it can be noted that the computed *r* value was 0.411. The computed *t* – value was greater than the critical value 2.03

at 0.05 level of significance and degrees of freedom equal to 37. Hence, the null hypothesis stating that there is no significant relationship between the test performance of the teacher – respondents and the civil status was rejected.

19. The statistical results imply that respondents from rural schools performed just as well as or equally to the respondents from the urban schools.

Conclusions

In the light of these findings, the following conclusions were drawn:

1. The Science teachers in Catbalogan City Division are generally female, middle age, and majority of them are bachelor's degree holders with master's units. Also, majority of them are highly experienced and with adequate in – service trainings.

2. Some of the Science teachers in Catbalogan City Division had inadequate competency in the Physics subject.

3. The competency in Physics of the Science teachers fell under "Average Competency."

4. Among the respondents profile, only the civil status had significant relationship with the teachers' test performance. This signifies that teachers who were married have a better test performance than those who were single.

5. The Science teachers encountered learning difficulties in the following concepts: identifying the source of radiation exposure; citing the use of

theories and identifying the particle which is not emitted by radioactive substances.

6. The concepts on identifying the colors of light; describing a short circuit; and citing the use of conductors are some of the concepts where the respondents were competent.

7. Light and Sight and Benefits and Danger of Electricity are the learning areas where the respondents were most competent.

8. Radiation Around Us and Physics, You and Society are the learning areas where the respondents were least competent.

9. The school location has nothing to do with the competencies of Science teachers.

Recommendations

In the light of the findings and conclusions of the study, the researcher recommends the following:

1. In-service trainings of Science teachers that led to the development of teaching competencies especially on knowledge where teachers have found difficult.

2. Science teachers should be encouraged through incentives to grow professionally by pursuing post graduate studies and to subscribe Science journals and affiliate with associations of Science teachers locally and nationally.

3. Curriculum of teacher training institute should include multi – lateral learning areas in Science with broader and richer learning experience for prospective Science teachers.

4. Researches of assessing competency of teachers should be periodically conducted and probably improved for use as bases in planning future in-service training programs.

5. Researches should be conducted to determine the factors that may influence the Science teachers average competency level.

6. A similar study may be conducted in other division in Eastern Visayas so that a general development program evolved to train Science teachers in the secondary level for higher achievement of students' NAT.

7. The training of Science teachers on content and teaching strategy is imperative to improve their teaching skills and competencies.

8. Training design along the following learning areas: Radiation Around Us, and Physics, You, and Society should be developed where the teachers were least competent as inputs for intervention program.

9. Attitude towards Science teaching and schools where the teacher – respondents graduated in college are some variables that might affect the competencies of Science teachers in teaching Physics maybe included for further studies.

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APPENDICES

APPENDIX A

July 14, 2013

Dr. Marilyn D. Cardoso
Dean, College of Graduate Studies
Samar State University
Catbalogan City

Ma'am:

In my desire to start writing my thesis, I am submitting three titles for approval, preferably No, 1, to wit:

1. Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program

2. Correlates of Achievement in Physics: A Basic for Instructional Redirection

3. Teacher – Student Factors and the Academic Achievement in Science of Fourth Year Students in Samar National School

Anticipating for your favorable action in this regard.

Very truly yours,

(SGD.) MELVIN H. SALAZAR
Researcher

APPENDIX B

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan City

October 1, 2013

Dear Dr. Eusebio T. Pacolor,

Please be informed that you have been designated as adviser of Mr. Melvin H. Salazar, candidate for the degree in Master of Arts in Educational major in Educational Management who proposes to write a thesis on "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program ".

Thank you for your cooperation.

Very truly yours,

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

CONFORME:

(SGD.) EUSEBIO T. PACOLOR, Ph. D.
Thesis Adviser

APPENDIX C

Republic of the Philippines
Samar State University
Catbalogan City

January 15, 2014

Dr. Marilyn D. Cardoso
Dean, Graduate Studies
Samar State University
Catbalogan City

Ma'am:

I have the honor to apply for Pre – Oral Defense of my thesis entitled "COMPETENCIES OF SCIENCE TEACHERS IN TEACHING PHYSICS IN PUBLIC SECONDARY SCHOOLS IN CATBALOGAN CITY DIVISION: INPUTS TO AN INTERVENTION PROGRAM. "

Anticipating for your favorable action in this regard.

Very truly yours,

(SGD.) MELVIN H. SALAZAR
Graduate Student

Recommending Approval:

(SGD.) EUSEBIO T. PACOLOR, Ph.D.
Thesis Adviser

Approved:

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

Date: February 1, 2014
Time: 2:00 P.M.

APPENDIX D

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan City

February 20, 2014

TO THE TEACHER – RESPONDENT:

Greetings!

You have been selected as respondent of this research entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program". The main objective of the study is to determine the extent of influence of some selected factors in relation to teachers' performances in order to evolve a training program for Science teachers.

I earnestly request your cooperation by answering as honestly and clearly as possible every item in the teacher's profile and performance assessment test. The teacher's profile seeks general information about your educational qualifications, while the performance assessment test seeks general information about your knowledge on content in Physics. I assure you that your response to this teacher's profile and performance assessment test will be treated with strict confidentiality which will be used solely for the objective of the study and will not jeopardize you in any way.

For your time and effort in participating on this study, thank you very much.

Very truly yours,

(SGD.)MELVIN H. SALAZAR
Researcher

APPENDIX E

PART I. TEACHER'S PROFILE

Direction: Kindly supply the following information:

1. Age: _____ Sex: _____ Civil Status: _____
2. Name of School: _____
3. Address of School: _____
4. Teaching Position: _____
5. Present Teaching Loads: _____
6. Number of years in Teaching Science: _____
7. Total years of Teaching Experience: _____
8. Educational Attainment: _____
   a) Bachelor's Degree (Specify): _____ Year Graduated: _____
      Major: _____
      Minor: _____
   b) Master's Degree (specify): _____ Year Graduated: _____
      Major: _____
   c) Master's units (specify) : _____
   d) Doctoral units (specify): _____
9. Relevant In – Service Trainings Attended (Workshops/Seminars)

Category	Number of days
Local	
Regional	
National	

ASSESSMENT TEST IN PHYSICS

Multiple Choice:
Direction: Each of the items is followed by four suggested answers. Choose the correct answer you think is correct and write the letter only of the correct answer on the answer sheet.

1. Theories help scientists to
   A. explain large bodies of data
   B. prove hypotheses
   C. determine truth from lies
   D. propose new ideas about how the world works

2. If a theory is challenged by a new evidence, which of the following could occur?
   A. The theory could be altered
   B. The theory is accepted, not the evidence
   C. The evidence is wrong
   D. A vote is taken on whether to accept the new evidence or not

3. Which of this measurement is longest?
   A. decimeter
   B. hectometer
   C. kilometer
   D. mile

4. Which of the following is NOT true about light?
   A. Light needs no medium to travel in
   B. The speed of light differs in different media
   C. Light takes about 8 minutes to travel from the sun to the earth
   D. Light is a form of energy

5. When light bounces off a surface, we say it has been
   A. reflected
   B. absorbed
   C. bent
   D. diffracted

6. To make a wall reflect as much light as possible you should paint it with
   A. black
   B. green
   C. white
   D. yellow

7. Which of the following statements is FALSE?
   A. Light travels in straight lines
   B. Light travels very fast
   C. Light can pass through any metal
   D. Light is a transverse wave

8. How are shadows formed?
   A. By light passing through an object
   B. By light reflecting from a shiny object
   C. By an opaque object blocking into path of light
   D. By passing through a slit

9. A beam of light hitting a mirror at an angle is reflected off at
   A. a small angle
   B. the same angle
   C. a large angle
   D. different angles

10. An object under white light reflects green light and absorb the other six colors of the spectrum will appear the color of
   A. red – orange
   B. blue – purple
   C. green
   D. violet

11. If the speed of light decreases when passing from one medium to another it
   A. bends to move along the normal
   B. bends to move towards the normal
   C. bends to move away from the normal
   D. bends to move neither towards nor away from the normal

12. If an object is outside the focal point of a concave mirror, the image will be
   A. virtual and inverted
   B. real and inverted
   C. virtual and upright
   D. real and upright

13. Which type of mirror produces an image that is always erect, same size as the object, and is virtual?
   A. Concave
   B. Convex
   C. plane
   D. none of the above

14. Mirrors work much like lenses EXCEPT
   A. Mirrors have reflective surfaces and lenses don't
   B. Lenses have reflective surfaces and mirrors don't
   C. You can see through a mirror, but not in a lens
   D. Mirrors have reflective surfaces and lenses don't

15. In a concave mirror, an object placed _____ will result in a virtual image
   A. between the focal point and twice the distance of the focal point
   B. twice the distance of the focal point
   C. between the focal point and mirror
   D. at the focal point

16. A _____ image is formed when light rays converge and pass through the image
    A. virtual
    B. real
    C. critical
    D. convex

17. Optical fiber works on the principle of
    A. refraction
    B. total internal refraction
    C. total internal reflection
    D. none of the above

18. Large astronomical telescope always use objective
    A. lens
    B. mirror
    C. combination of lens and mirror
    D. none of the above

19. Mirage is due to
    A. unequal heating of different parts of the atmosphere
    B. magnetic disturbance in the atmosphere
    C. depletion of ozone layer in the atmosphere
    D. equal heating of different parts of the atmosphere

20. Image formed by concave lenses are
    A. real and inverted
    B. virtual
    C. enlarged
    D. none of the above

21. In a ray tracing diagram, two rays must pass through the _____ to determine the location of the image in a lens.
    A. image
    B. lens edge
    C. object
    D. mirror

22. A magnifying glass is an example of a
    A. convex lens
    B. concave lens
    C. prism
    D. mirror

23. Radiocarbon dating is used to estimate the age of
    A. soil
    B. rock
    C. monuments
    D. fossils

24. Out of the following which is NOT emitted by radioactive substances?
    A. Electron
    B. Electromagnetic radiation
    C. Alpha particle
    D. Neutron

25. Radiation is produced in the atmosphere as a result of
    A. collision between fast neutrons and nitrogen nuclei present in the atmosphere
    B. action of ultraviolet light from the sun on atmosphere oxygen
    C. action of solar radiations particularly cosmic rays or carbon dioxide present in the atmosphere
    D. lighting discharge in the atmosphere

26. The nucleus of ${}^{242}_{94}Pu$ contains _____ protons and _____ neutrons
    A. 242 and 94
    B. 148 and 94
    C. 94 and148
    D. 94 and 238

27. Consider this reaction:

$$^{238}_{92}U \rightarrow {}^{234}_{90}Th + {}^{4}_{2}X$$

What is X ?
    A. Gamma ray
    B. Beta particle
    C. Alpha particle
    D. Proton

28. For most people, the largest contributor to their annual dose of radiation is
    A. cosmic rays
    B. uranium
    C. beta decay
    D. radon

29. The primary source of energy in nuclear power plant is the _____ of uranium
    A. alpha ray
    B. nucleus
    C. beta decay
    D. gamma decay

30. Which statement about nuclear fission is CORRECT?
    A. The fission process can be sustained by a chain reaction
    B. Fission involves splitting a large nucleus into smaller ones
    C. Fission is the process used to produce energy both in nuclear power plants and in atomic bombs
    D. All of these statements are correct

31. The tremendous amount of energy released by nuclear reactions is primarily due to
    A. mass balance
    B. mass defect
    C. meltdown
    D. control rods

32. Which statement about Pu – 239 found in spent fuel rod is CORRECT?
    A. Pu – 239 formed from U – 238 in fuel rods, has the potential to be diverted for weapon
    B. Pu – 239 can be separated from fuel rods but it is not fissionable so there is no market for it
    C. Pu – 239 routinely being reversed and reprocessed and used to produce nuclear power plant
    D. Pu – 239 present in very low concentrations in fuel rods, therefore has little potential for either peaceful use or weapons production

33. Nuclear accidents with significant radiation leaks and many human facilities have occurred at which location?
    A. Three Mile Islands
    B. Chernobyl
    C. Seabrook
    D. Nuclear radiation leaks and many human fatalities have occurred at all three facilities

34. In the relationship $E = mc^2$, the letter C represents
    A. the speed of the particles emitted in a nuclear reaction
    B. the Celsius temperature of the nuclear reaction
    C. the speed of light
    D. the difference between the masses of the reactants and those of the products

35. When the electric current CANNOT flow, the circuit is
    A. loose
    B. broken
    C. open
    D. closed

36. Which part of the pencil are conductors?
    A. The wood and eraser
    B. The metal and point
    C. The wood and metal
    D. The eraser and point

37. Five light bulbs of equal resistances are connected in series will_____
    A. never light up
    B. be brighter the closer they get to the positive end
    C. flicker on and off
    D. be equally bright

38. Why does running too many appliances on one circuit cause a fuse to blow or a circuit breaker to shut off?
    A. The current drops to almost zero
    B. As more resistors are added in parallel, the total resistance increases
    C. The voltage becomes too much for the circuit to handle
    D. As more resistors are added in parallel, the total resistance decreases, which causes an increase in the total amount of current

39. Two 240.0 Ω resistors are connected in parallel placed across a 12.0 – V battery. What is the current in each branch of the circuit?
    A. 0.0500 A
    B. 0.0125 A
    C. 0.0250 A
    D. 0.0100 A

40. One should not connect a number of electrical appliances to the same power socket because
    A. this can damage the appliances due to overloading
    B. this can damage the domestic wiring due to overloading
    C. this can damage the electric meter
    D. the appliance will not get voltage

41. How does a circuit breaker differ from a fuse?
    A. A circuit breaker can be used multiple times
    B. A circuit breaker is less sophisticated
    C. A circuit breaker does not detect current
    D. A circuit breaker serves different purposes than the fuse

42. It took place when current passes through a certain path in the circuit due to the crossing or touching of uncovered portion of the wire
    A. Octopus wiring
    B. Overload
    C. Overheat
    D. Short circuit

43. Which unit of measure is equal to 1 Joule/second?
    A. Kilowatt – hour
    B. Watt – hour
    C. Watt
    D. Kilowatt

44. Suppose that a compact fluorescent light bulb uses 150J of input energy to produce 30J of light energy. How efficient is it? ($Eff = \frac{Eo}{Ei} \times 100\%$)
    A. 5%
    B. 2%
    C. 20%
    D. 50%

45. Energy is being consumed at the greatest rate in an appliance drawing
A. 5.0A at 110V
B. 10A at 220 V
C. 10A at 110V
D. 54 at 220V

46. Electric power is the rate at which electrical energy is performed and has the unit Joule/second. How could total energy consumed during same time interval be determined from power?
A. Energy = power/time
B. Energy = time/power
C. Energy = power + time
D. Energy = power x time

47. Which of these is used in household wiring to prevent accidental fire in case of short circuit?
A. Electric meter
B. Insulated wire
C. Electrical fuse
D. Plastic charge

48. A magnetic field does NOT exert a force on
A. another magnet
B. a wire carrying steady current
C. a moving charge
D. a stationary charge

49. When the magnetic field through a loop of wire changes, a voltage is induced in the coil. If the coil had twice as many loops, then
A. one – half as much voltage is induced
B. twice as many voltage is induced
C. the same voltage is induced
D. four time the voltage is induced

50. In which of the following situations is an electric current NOT produced?
A. A magnet moves toward a stationary coil of wire
B. A coil of wire moves toward a stationary magnet
C. A coil of wire is wrapped around a stationary magnet
D. The size of the magnetic field through a coil of wire in decreasing

51. Magnetism at the center of a bar magnet is
A. minimum
B. zero
C. maximum
D. at the poles

52. The small group of atoms that behave like small magnets, inside a large magnet are called
A. Iron filings
B. Domains
C. compass needles
D. poles

53. A transformer can be used to change the
   A. voltage of AC electricity
   B. power of AC electricity
   C. voltage of DC electricity
   D. power of DC electricity

54. If greater induced voltage is desired in a transformer, there should be
   A. more loops in the primary coil than in the secondary coil
   B. more loops in the secondary coil than in the primary coil
   C. less loops in the secondary oil there in the primary coil
   D. an equal number of loops in both coils

55. Which of the following power plants has lesser risk to society?
   A. Geothermal power plant
   B. Hydroelectric power plant
   C. Nuclear power plant
   D. Thermal power plant

56. A step – up transformer increases the
   A. current
   B. power
   C. energy
   D. voltage

57. Superconductors are substances which
   A. conduct electricity at low temperature
   B. offer high resistance to the flow of current
   C. offer no resistance to the flow of electricity
   D. conduct electricity at high temperature

58. How does electromagnetic induction happen?
   A. When there is relative motion between the coil and the magnet
   B. When both magnet and coil are stationary
   C. When the magnet is in motion while the coil is at rest
   D. Both A & C

59. An athlete can take a longer jump if he comes running from the distance as compared to when he jumps suddenly. Identify the type of Inertia.
   A. Inertia of direction
   B. Inertia of motion
   C. Inertia of position
   D. Inertia of rest

60. A body moving with constant speed in circular path
   A. has constant velocity
   B. has a straight line distance – time graph
   C. is accelerating
   D. is not accelerating

61. What is the displacement of a car whose initial velocity is 5m/s and then accelerated $2m/s^2$ for 10 seconds? (Hint: $d = Vit + \frac{at^2}{2}$)

A. 150 m
B. 125 m
C. 200 m
D. 225 m

62. An object in a state of free fall _____
A. falls with a constant speed of 10m/s downward
B. falls with an acceleration of $10m/s^2$ downward
C. falls under the sole of gravity
D. both B & C

63. How far will a ball travel after 4 seconds in vertical direction if it is dropped from a certain height ?

A. 19.6 m
B. 78.4 m
C. 117 m
D. 137.6 m

64. The acceleration in a body is due to _____
A. balance force
B. electrostatic force
C. mass
D. unbalanced force

65. Which of the following is a measure of velocity?
A. 30 s
B. 30 South
C. 30 m/s
D. 30 m/s South

66. The momentum of an object is equal to the
A. impulse acting on it
B. force acting on it
C. velocity change of an object
D. force acting it times velocity

67. In an elastic collision.
A. momentum is conserved but not KE
B. KE is conserved but not KE
C. momentum and KE are both conserved
D. neither momentum nor KE is conserved

68. In order to catch a ball, a baseball player extends his hand forward before impact with the ball and then let it recoil backward in the direction of the ball's motion upon impact. Doing this, reduces the force of impact in the player's hand mainly because
A. the resultant velocity of impact is lessened
B. the momentum of impact is reduced
C. the time of impact is increased
D. the time of impact is reduced

69. According to Newton's Third Law of Motion, when a human strikes and exerts force on the nail, the nail _____.
A. creates a balance force
B. disappears into the wood
C. exerts an equal and opposite force back on the hammer
D. moves at constant speed

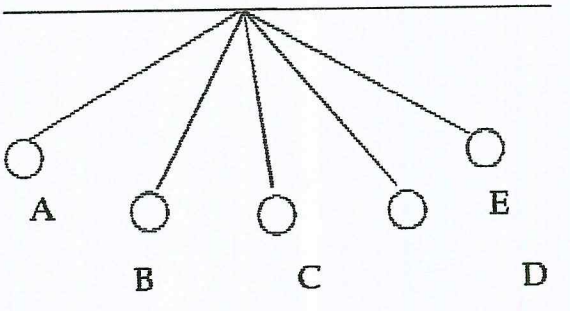
70. The greater the mas of an object
A. the less force it can exert
B. the more space it takes up
C. the more balance it is
D. the greater the inertia

71. Margie and Vicky go up a flight of stairs. Margie having the same weight as Vicky reaches the top of the stairs ahead of Vicky. Which of the following statements is CORRECT?
A. Vicky shows greater power than Margie
B. Margie does a greater amount of work than Vicky
C. Both exhibit the same power
D. Margie shows greater power than Vicky

72. If 1500 W of power are used to lift a 450 N object in 3 seconds, how high was the object lifted?
A. 0.09 m
B. 10 m
C. 83.33 m
D. 5 m

73. If the speed of an object is doubled, then its kinetic energy is _____.
A. doubled
B. halved
C. quadrupled
D. tripled

For item 74, refer to the illustration below.



74. At which position is the potential energy of the pendulum zero?
A. at D
B. at C
C. at B
D. at A

75. Heat is the
A. same as temperature
B. thermal energy that is transferred form one object to another
C. potential energy associated with temperature
D. mass fluid generated by doing work on the system

76. Bernoulli's Principle describes property of a _____.
A. fluid at rest
B. object in motion
C. object heating in a liquid
D. fluid in motion

77. In what direction does drag take place?
A. in the direction of the motion of an object
B. in the opposite direction of the motion
C. drag has no particular direction
D. both A and B

78. A helium balloon will rise if you let it go. Which of the following is TRUE about the balloon?
A. There is no gravity acting on it
B. There is buoyant force acting on it from the air
C. There is no buoyant force acting on it because it is not in a fluid
D. It is moving so you cannot calculate what forces are acting on it

79. A hydraulic lift uses which principle?
A. Archimedes'
B. Aerodynamic
C. Bernoulli's
D. Pascal's

80. According to Pascal, pressure applied to a fluid _____.
A. decreases as it moves through the fluid
B. is transformed unchanged throughout the fluid
C. increases as it moves through the fluid
D. fluctuates as it is transmitted through the fluid

TABLE OF SPECIFICATIONS IN PHYSICS

Content/ Topic	Teaching Time	Percentage of Teaching of Time	No. of Items	Level of Questions			
				Knowledge	Comprehension	Application	Higher Application
I. Physics You and Society	4	4.25	3	1,3	2		8
II. Light & Sight	6	6.38	5	5	6	4	16
III. Reflection & Mirrors	8	8.51	7	9,10,11	12,13,14	7	15,17
IV. Lenses & Vision	8	8.51	7	18,20,21	19,22		23,24,26
V. Radiation Around Us	6	6.38	5	25		27	31,32
VI. Reactors & Nuclear Energy	8	8.51	7	29,30,33,34		28	39
VII. Electric Circuits	7	7.45	6	36	35,38	37,40	
VIII. The Benefits and Danger of Electrical Energy	7	7.45	6	42,43	41,46	44,45	
IX. The Magnet and Current Connection	6	6.38	5	51,52	48,49	50	
X. Power Generation, Transmission and Distribution	7	7.45	6	53,56,57	54,58	55	
XI. Going Places	8	8.51	7		60,62,63,64	59,61	
XII. What Causes Motion	7	7.45	6	65,69,70	66,67	68	
XIII. Conversation of Energy	6	6.38	5		73,75	71,72,74	
XIV. Floating and Flying	6	6.38	5	76,79	77,80	78	
TOTAL	94	100	80	27	26	17	10

ITEM ANALYSIS IN PHYSICS

Item No.	Upper	Lower	U	L	Difficulty Index	Discrimination Index	Remarks
1	5	5	1	1	1	0	Reject
2	2	1	0.4	0.2	0.3	0.2	Retain
3	5	3	1	0.6	0.8	0.4	Retain
4	2	3	0.4	0.6	0.5	-0.2	Reject
5	3	3	0.6	0.6	0.6	0	Reject
6	5	5	1	1	1	0	Reject
7	5	3	1	0.6	0.8	0.4	Retain
8	5	2	1	0.4	0.7	0.6	Retain
9	5	4	1	0.8	0.9	0.2	Retain
10	5	4	1	0.8	0.9	0.2	Retain
11	5	1	1	0.2	0.6	0.8	Retain
12	4	1	0.8	0.2	0.5	0.6	Retain
13	1	0	0.2	0	0.1	0.2	Retain
14	5	4	1	0.8	0.9	0.2	Retain
15	4	4	0.8	0.8	0.8	0	Reject
16	2	1	0.4	0.2	0.3	0.2	Retain
17	5	0	1	0	0.5	1	Retain
18	5	0	1	0	0.5	1	Retain
19	5	2	1	0.4	0.7	0.6	Retain
20	5	0	1	0	0.5	1	Retain
21	5	3	1	0.6	0.8	0.4	Retain
22	5	1	1	0.2	0.6	0.8	Retain
23	4	1	0.8	0.2	0.5	0.6	Retain
24	5	1	1	0.2	0.8	0.8	Retain
25	4	0	0.8	0	0.4	0.8	Retain
26	2	0	0.4	0	0.2	0.4	Retain
27	4	1	0.8	0.2	0.5	0.6	Retain
28	4	2	0.8	0.4	0.6	0.4	Retain
29	2	0	0.4	0	0.2	0.4	Retain
30	2	0	0.4	0	0.2	0.4	Retain
31	4	5	0.8	0.6	0.7	0.2	Retain
32	4	2	0.8	0.4	0.6	0.4	Retain
33	4	0	0.8	0	0.4	0.8	Retain
34	2	0	0.4	0	0.2	0.4	Retain
35	2	1	0.4	0.2	0.3	0.2	Retain
36	5	1	1	0.2	0.6	0.8	Retain
37	4	4	0.8	0.8	0.8	0	Reject
38	5	2	1	0.4	0.7	0.6	Retain
39	5	3	1	0.6	0.8	0.4	Retain
40	4	2	0.8	0.4	0.6	0.4	Retain
41	5	2	1	0.4	0.7	0.6	Retain

42	5	0	1	0.4	0.5	1	Retain
43	5	0	1	0	0.5	1	Retain
44	4	1	0.8	0	0.5	0.6	Retain
45	5	1	1	0.2	0.6	0.8	Retain
46	5	2	1	0.2	0.7	0.6	Retain
47	4	1	0.8	0.4	0.5	0.6	Retain
48	5	1	1	0.2	0.6	0.8	Retain
49	3	1	0.6	0.2	0.4	0.4	Retain
50	4	1	0.8	0.2	0.5	0.6	Retain
51	3	0	0.6	0	0.3	0.6	Retain
52	3	1	0..6	0.2	0.4	0.4	Retain
53	4	1	0.8	0.2	0.5	0.6	Retain
54	3	0	0.6	0	0.3	0.6	Retain
55	4	0	0.8	0	0.4	0.8	Retain
56	2	2	0.4	0.4	0.4	0	Reject
57	3	1	0.6	0.2	0.4	0.4	Retain
58	4	0	0.8	0	0.4	0.8	Retain
59	5	1	1	0.2	0.6	0.8	Retain
60	3	0	0.6	0	0.3	0.6	Retain
61	5	1	1	0.2	0.6	0.8	Retain
62	3	1	0.6	0.2	0.4	0.4	Retain
63	3	1	0.6	0.2	0.4	0.4	Retain
64	4	0	0.8	0	0.8	0.8	Retain
65	2	1	0.4	0.2	0.3	0.2	Retain
66	4	1	0.8	0.2	0.5	0.6	Retain
67	3	2	0.6	0.4	0.5	0.2	Reject
68	4	1	0.8	0.2	0.5	0.6	Retain
69	5	3	1	0.6	0.8	0.4	Retain
70	5	3	1	0.6	0.8	0.4	Retain
71	4	0	0.8	0	0.8	0.8	Retain
72	5	0	1	0	1	1	Retain
73	3	1	0.6	0.2	0.4	0.4	Retain
74	5	3	1	0.6	0.8	0.4	Retain
75	2	2	0.4	0.4	0.4	0	Reject
76	5	1	1	0.2	0.6	0.8	Retain
77	2	1	0.4	0.2	0.3	0.2	Retain
78	4	1	0.8	0.2	0.5	0.6	Retain
79	4	1	0.8	0.2	0.5	0.6	Retain
80	2	0	0.4	0	0.2	0.4	Retain

APPENDIX F

Republic of the Philippines
Samar State University
Catbalogan City

January 28, 2014

The Schools Division Superintendent
Division of Samar
Catbalogan City

Ma'am:

Greetings!

The undersigned is requesting your good office that he be given permission to conduct a dry run of his questionnaires to the Science teachers, in order to improve and validate the survey questionnaire intended for his study entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catblogan City Division: Inputs to an Intervention Program."

In view of this, the same in asking an approval that the validation be conducted to the following schools in Samar Division namely: Jiabong National High School, Motiong National High School, Wright National High School, and Tinane Integrated School.

Your utmost consideration is highly appreciated in this regard.

Very truly yours,

(SGD.) MELVIN H. SALAZAR
Researcher

CONFORME:

(SGD.) EUSEBIO T. PACOLOR, Ph. D.
Thesis Adviser

APPROVED:

(SGD) THELMA C. QUITALIG, Ph. D.
Schools Division Superintendent

APPENDIX G

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan City

February 17, 2014

DR. EDITA S. DE VEYRA
Officer – In – Charge
Office of the Schools Division Superintendent
Catbalogan City Division
Catbalogan City

Ma'am:

Greetings!

I would like to request permission to administer questionnaire to all Science teachers in public secondary schools in this division. This is in connection with the research study I am conducting in compliance with the requirements for the degree, Master of Arts in Education major in Educational Management at Samar State University, Catbalogan City. My research title is "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program".

Attached is a set questionnaire for your perusal. Rest assured that all data and information be reflected to the questionnaire will be treated with utmost confidentiality. I hope for a positive response to this request.

Thank you in advance for your support to this academic and research endeavor.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

CONFORME:

(SGD.) EUSEBIO T. PACOLOR, Ph. D.
Thesis Adviser

APPROVED:

(SGD.) EDITA S. DE VEYRA, Ph. D.
OIC- Schools Division Superintendent

APPENDIX H

Samar State University
Catbalogan City

February 20, 2014

Dr. LUZ C. MACAIRAN
Secondary School Principal IV
Samar National School
Catbalogan City

Ma'am:

Greetings!

This is to request permission from your good self to allow the undersigned student – researcher to administer questionnaire to all Science teachers in this school on February 21, 2014 during their vacant hours.

This is in connection with his master's thesis entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program."

Attached is a copy of the set of questionnaires for your perusal.

Rest assured that the data gathered will be treated with strict confidentiality.

Thank you.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

Approved:

(SGD.) LUZ C. MACAIRAN, Ed.D.
Principal IV

APPENDIX I

Samar State University
Catbalogan City

February 18, 2014

Dr. VICTORIA M. TAFALLA
Dean, College of Education
Samar State University
Catbalogan City

Ma'am:

Greetings!

This is to request permission from your good self to allow the undersigned student – researcher to administer questionnaire to all Science teachers in this school on February 20, 2014 during their vacant hours.

This is in connection with his master's thesis entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program".

Attached is a copy of the set of questionnaires for your perusal.

Rest assured that the data gathered will be treated with strict confidentiality.

Thank you.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

Approved:

(SGD.) VICTORIA M. TAFALLA, Ph.D.
Dean, College of Education

APPENDIX J

Samar state University
Catbalogan City

February 18, 2014

Mrs. VERONICA G. BUENAVENTURA
OIC – Principal
Eastern Visayas Regional Science High School
Catbalogan City

Ma'am:

Greetings!

This is to permission from your good self to allow the undersigned student – researcher to administer questionnaire to all Science teachers in this school on February 20, 2014 during their vacant hours.

This is in connection with his master's thesis entitled "Competencies of science Teacher in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program".

Attached is a copy of the set of questionnaires for your perusal.

Rest assured that the data gathered will be treated with strict confidentiality.

Thank you.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

Approved:

(SGD.) VERONICA G. BUENAVENTURA
OIC – Principal

APPENDIX K
Samar State University
Catbalogan City

February 18, 2014

Mrs. SOLT.PALACIO
Principal
Guinsorongan National High School
Catbalogan City

Ma'am:

Greetings!

This is to request permission from your good self to allow the undersigned student – researcher to administer questionnaire to all Science teachers in this school on February 20, 2014 during their vacant hours.

This is in connection with his master's thesis entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program."

Attached is a copy of the set of questionnaires for your perusal.

Rest assured that the data gathered will be treated with strict confidentiality.

Thank you.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

Approved:

(SGD.) SOL. T. PALACIO
Principal

APPENDIX L
Samar State University
Catbalogan City

February 18, 2014

Mr. CONRADO MERCADO
OIC-Principal
Catbalogan National Comprehensive High School
Catbalogan City

Sir:

Greetings!

This is to request permission from your good self to allow the undersigned student – researcher to administer questionnaire to all Science teachers in this school on February 20, 2014 during their vacant hours.

This is in connection with his master's thesis entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program".

Attached is a copy of the set of questionnaires for your perusal.

Rest assured that the data gathered will be treated with strict confidentiality.

Thank you.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

Approved:

(SGD.) CONRADO MERCADO
OIC-Principal

APPENDIX M
Samar State University
Catbalogan City

February 18, 2014

Mrs. MARISSA L.TAN
Principal
Silanga National High School
Catbalogan City

Ma'am:

Greetings!

This is to request permission from your good self to allow the undersigned student – researcher to administer questionnaire to all Science teachers in this school on February 20, 2014 during their vacant hours.

This is in connection with his master's thesis entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program."

Attached is a copy of the set of questionnaires for your perusal.

Rest assured that the data gathered will be treated with strict confidentiality.

Thank you.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

Approved:

(SGD.) MARISSA L. TAN
Principal

APPENDIX N
Samar State University
Catbalogan City

February 18, 2014

Mr. AYLMER M. ARELLON
Principal
Pangdan National High School
Catbalogan City

Sir:

Greetings!

This is to request permission from your good self to allow the undersigned student – researcher to administer questionnaire to al Science teachers in this school on February 20, 2014 during their vacant hours.

This is in connection with his master's thesis entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program".

Attached is a copy of the set of questionnaires for your perusal.

Rest assured that the data gathered will be treated with strict confidentiality.

Thank you.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

Approved:

(SGD.) AYLMER M. ARELLON
Principal

APPENDIX O
Samar State University
Catbalogan City

February 20, 2014

Mrs. RUTH D. CABANGANAN
Teacher – In – Charge
Antonio G. Tuazon National High School
Rama, Catbalogan City

Ma'am:

Greetings!

This is to request permission from your good self to allow the undersigned student – researcher to administer questionnaire to all Science teachers in this school on February 20, 2014 during their vacant hours.

This is in connection with his master's thesis entitled "Competencies of Science Teachers in Teaching Physics in Public Secondary Schools in Catbalogan City Division: Inputs to an Intervention Program".

Attached is a copy of the set of questionnaires for your perusal.

Rest assured that the data gathered will be treated with strict confidentiality.

Thank you.

Respectfully yours,

(SGD.) MELVIN H. SALAZAR
Researcher

Approved:

(SGD.) RUTH D. CABANGANAN
Teacher – In – Charge

CURRICULUM VITAE

CURRICULUM VITAE

NAME	:	MELVIN H. SALAZAR
ADDRESS	:	Brgy. Lagundi, Catbalogan City
DATE OF BIRTH	:	June 1, 1969
PLACE OF BIRTH	:	Catbalogan, City
SEX	:	Male
CIVIL STATUS	:	Single
PRESENT POSITION	:	Master Teacher I
STATION	:	Samar National School Catbalogan City

EDUCATIONAL BACKGROUND

ELEMENTARY	:	Catbalogan III Central Elementary School Catbalogan City 1982
SECONDARY	:	Samar State University Catbalogan City 1986
COLLEGE	:	Leyte Normal University Tacloban City 1990 Bachelor of Secondary Education (BSEd) Major in Physics
GRADUATE	:	Samar State University Catbalogan City 2014 Master of Arts in Education (MAEd) Major in Educational Management

ELIGIBILITY

Professional Board Examination for
Teachers

SCHOLARSHIP STUDY/GRANTS

CERTIFICATE PROGRAM IN BIOCHEMISTRY	:	University of San Carlos Cebu City Summer 1995 – 1996
SUMMER SEQUENTIAL CERTIFICATE PROGRAM IN PHYSICS	:	University of Eastern Philippines Catarman N. Samar Summer 1997
CERTIFICATE PROGRAM IN PHYSICS	:	Leyte National University Tacloban City Summer 2006
DISP-TEACHING EFFECTIVENESS : COURSE IN CHEMISTRY AND PHYSICS		University of the Philippines (U.P.) Diliman , Quezon City 2007

MEMBERSHIPS AND AWARDS

President of the Science Club Advisers Association of the Phils. Inc. (SNS Chapter)

Auditor of the Philippine Physics Society (Samar Chapter)

Member of the Philippine Physics Society (National Chapter)

National and Regional Demonstration Teacher of the Department of Education

Outstanding Teacher of the Science Department in Samar National School

Member of the SNS Teachers' Chorale and Dance Troupe

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