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**ASSESSMENT OF TEACHING COMPETENCIES OF COLLEGE CHEMISTRY
FACULTY: INPUT TO A DEVELOPMENT PROGRAM**

A **Dissertation** Presented to
The Faculty of the Graduate Studies
College of Education
Department of Educational Management,
Measurement and Evaluation
PHILIPPINE NORMAL UNIVERSITY
Taft Avenue, Manila

In Partial Fulfillment
Of the Requirements for the Degree
DOCTOR OF PHILOSOPHY in EDUCATION
with Specialization in
EDUCATIONAL MANAGEMENT

MELBA F. MALLORCA-MADEJA
March 2011

APPROVAL SHEET

This dissertation entitled: **“ASSESSMENT OF TEACHING COMPETENCIES OF COLLEGE CHEMISTRY FACULTY: INPUT TO A DEVELOPMENT PROGRAM”** prepared and submitted by MELBA F. MALLORCA-MADEJA in partial fulfillment of the requirements for the degree of Doctor of Philosophy (Ph.D.) in Education with specialization in Educational Management has been examined and recommended for Oral Examination.

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ABSTRACT

Title: **ASSESSMENT OF TEACHING COMPETENCIES OF COLLEGE CHEMISTRY FACULTY: INPUT TO A DEVELOPMENT PROGRAM**

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Degree: Ph.D. in Educational Management

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Key Concepts: Teaching Competency, Development Program

This study assessed the teaching competencies of college chemistry faculty in Romblon State University in terms of communication competence, curriculum expertise, instructional organization and planning, classroom management, assessment of student learning, and laboratory competence. It also described the strengths and weaknesses of college chemistry faculty as perceived by themselves, their students, other science faculty, and supervisors in terms of afore cited teaching competencies. It also determined if there is a significant difference between and among the perceptions of the four groups of participants on the level of teaching competencies of the college chemistry faculty. Likewise, the best predictors of the teaching competencies of college chemistry faculty were also determined. Finally, based on the result of the study, a faculty development program was proposed to enhance the teaching competencies of college chemistry faculty.

This study was conducted during the school year 2010-2011 at Romblon State University. A total of three hundred three (303) participants composed of thirteen (13) chemistry faculty, thirteen (13) supervisors, twenty-seven (27) other science faculty, and two hundred fifty (250) chemistry students were involved in this study.

Data needed in this study were gathered mainly through questionnaires wherein the indicators were rated on a 5-point Likert scale where 1 means *never manifested* through 5 which means *always manifested*. Results of reliability tests of the questionnaires were the following: Spearman rho (r) = 0.76 means *high relationship*; correlation between forms (r) = 0.76 means *high correlation*; and Cronbach's Coefficient Alpha (α) = 0.86 means *highly reliable*.

The data gathered were processed using Statistical Package for Social Sciences (SPSS). Descriptive statistics like frequency counts and percentage were used to describe the demographic profile of the chemistry faculty participants; weighted mean was used to establish their profile on physiological status, psychological status, and information technology skills; including the trend in ratings on the teaching competencies.

Inferential statistics like One-Way ANOVA was used to determine if there is significant difference in the perceptions of the four (4) groups of participants on the level of teaching competencies of the chemistry faculty. The two-tailed hypotheses were tested at 0.05 level of significance. Multiple Linear Regression Analysis (MLRA) was used to determine which of the predictor variables best

predicts the teaching competencies of the chemistry faculty. Obtained p-values were compared to the standard p-value of 0.05.

The data gathered showed the following results: As to their profile on predictor variables, 61.5% are bachelor's degree holders with master's units and are Science majors; 53.8% have been teaching chemistry for twenty-one (21) years or more; 46.2% have two (2) eligibilities; 53.8% are members of only one (1) organization; that is Romblon State University Faculty Association (ROSUFA); 53.8% have not attended any seminar, workshop or conference related to chemistry teaching for the past five (5) years; and 46.2% have attended 1 - 5 seminars, workshops or conferences since they started teaching. They *frequently manifest* healthy lifestyle; they *frequently manifest* spirituality; they *always manifest* good values; they *frequently manifest* emotional intelligence; and they *occasionally manifest* information technology skills.

Based on the mean perceptions of the four (4) groups of participants, the various indicators for each group of teaching competencies were *frequently manifested* with communication competence having the highest mean scores and laboratory competence the lowest. However, considering the Total Quality Standard (TQS), a gap of 0.57 – 0.84 existed between the mean perception of the participants and the intent of TQS in all the six (6) groups of teaching competencies. Moreover, there is *no significant difference* between and among the perceptions of the four (4) groups of participants on the level of teaching competencies of the chemistry faculty.

Findings of the study also show that except for values and teaching experience, all the predictors included in this study significantly affect the level of teaching competencies of the chemistry faculty. These findings served as basis for proposing a Faculty Development Program designed to enhance the teaching competencies of chemistry faculty.

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

1) There is *significant* relationship between each of the following predictor variables: educational preparation, professional experience (except teaching experience), physiological status, psychological status (except values), and information technology skills, on the teaching competencies of chemistry faculty. Hence, the null hypothesis is rejected. However, there is *no significant* relationship between teaching experience and teaching competence. Hence, the null hypothesis is accepted. Moreover, values are *excluded* variables for teaching competence; and 2) There is no significant difference between and among the perceptions of the four (4) groups of participants on the level of teaching competencies of the chemistry faculty.

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Chapter I

THE PROBLEM AND ITS BACKGROUND

Introduction

The term "management" traditionally refers to the activities (and often the group of people) involved in the four general functions: planning, organizing, leading and coordinating of resources. Emerging trends in management include assertions that leading is different from managing, and that the nature of how the four functions are carried out must change to accommodate a "new paradigm" in management (McNamara, 2010).

In educational management, it is a widely known fact that teachers play a key role in improving the quality of education. Frase (1992) observed that, because teachers come into the profession wanting to teach well, a primary goal for the school must be to assure teacher competency in the classroom. Hunter (1994) argued that "teachers are not born, they are made." She emphasized that the teacher's understanding of content and methodology are important aspects for successful classroom teaching and thus, essential aspects of student learning. This statement about the special knowledge required of teachers is parallel to the contention held by Glasser (1990) that student learning depends on the teacher's skills and ability to initiate the desire to learn.

Every youth of the present generation aims to attain tertiary education. He knows the important role that institutions of higher learning play in the development of a country. Hence, every high school graduate aspires to earn at least a bachelor's degree. However, many of those who enter college find great difficulty in some of their subjects especially Mathematics, Physics, and Chemistry (Madeja, 2002).

Among the different branches of science, chemistry has the greatest scope. As the study of matter, it encompasses the whole universe and everything animate and inanimate in it. It is concerned not only with the composition of matter and the changes it undergoes, but also with the energy associated with these changes. Through chemistry, people try to understand and explain the behavior of all matter (Araneta and Catris, 2001).

All people practice chemistry practically all the time in our daily life, from the moment we wake up after a good night's sleep to the time we close our eyes to rest at night. Whatever we do, wherever we go, whoever we are with, we cannot separate chemistry in our life. This may be the reason why majority of the college courses offer chemistry as one of the required subjects. Hence, a great responsibility lies on chemistry teachers.

Success in a teaching career depends on the degree of mastery of the technical and interpersonal competencies needed to fulfill the roles and responsibilities of a teacher. Mastering these competencies may take up years of thorough practice and learning. The longer one teaches, the more technical and

interpersonal competencies may be acquired. According to Arends (1988), teaching competencies predict effective teaching. They should be demonstrated in the functions of an effective teacher, namely: the executive or managerial function, the interactive or facilitative function, and the organizational or systematizing function. Being responsible for instructional effectiveness in the classroom, teachers especially those in the tertiary level should possess a high level of teaching competencies.

An effective teacher is one who seeks to make the most of time available for instruction, plans to manage students' behavior, and institutes procedures to heighten the interests of the class. His expertise is the subject matter and teaching methods which enable him to deliver instructions (Langlois and Zales, 1992).

The most important factors for successful classroom teachers are: classroom management, subject matter, knowledge, and discipline. Considerable importance is also given to the organization of learning situations and materials for effective teaching (Jones and Jones, 1986).

Like other classroom teachers, chemistry teachers should also consider these factors if they wish to become successful teachers. The chemistry teachers must understand and be skilled in guiding the dynamics of group behavior, particularly as they affect the progress of individual learning. They should also be skilled in ways of organizing and directing the activity of large or small groups to ensure maximum individual participation (Pajarillo, 1998).

The chemistry laboratory is a place to explore ideas, try out theories, and raise problems. In the laboratory, observed data are given meaning. The data gathered remain to be of no use until after critical thinking turns them into something of importance. It is after the data have given meaning where laboratory work has its greatest educational value.

Relative to this, competent chemistry teachers using the process approach works effectively if they know how to motivate students to work by themselves; if they know how to guide their students when they feel lost in the seeming complexity of their work; and if they know how to encourage their students when they experience failure in tasks they have set their hearts on.

The competent chemistry teacher must teach the learner how to learn, so that even after leaving school, he could be capable of independent study and personal growth and development. These skills: observing, comparing, classifying, measuring, inferring, predicting, and controlling variables are considered process skills (Salandanan, et al., 1996). To educators these skills are the means through which the student acquires knowledge and gains scientific literacy when exposed directly to the natural world.

Because of all these, educators should define the role of administrators and teachers in maximizing the use of opportunities to meet the challenges in improving the teaching competencies of chemistry teachers. To be the best and most qualified, they should have a high level of teaching competencies particularly in such areas as communication competence, curriculum expertise, instructional organization and

planning, classroom management, assessment of student learning, and laboratory competence.

This research was undertaken to assess the teaching competencies of college chemistry faculty, the result of which served as input to a proposed faculty development program aimed at enhancing these teaching competencies. Moreover, results of this study contribute insights to help school managers in the tertiary level to improve the system of hiring, retention, promotion, training and development of teachers.

Research Locale

This study was conducted in the province of Romblon, particularly in the Romblon State University System and its external campuses during the academic year 2010-2011.

It is to be noted, however, that prior to the integration of the CHED-supervised schools into the Romblon State University, the high school chemistry teachers are also the ones handling chemistry subjects in the college. This is especially true in Romblon College of Fisheries and Forestry whose branches were formerly barangay high schools where most of the chemistry teachers are graduates of Bachelor of Science in Education (now Bachelor of Secondary Education) major in General Science. It is to be noted that Romblon State University is the only government tertiary educational institution in the province of Romblon.

The map of the Philippines illustrated in Figure 1 (page 8) shows that Romblon province is composed of three (3) major islands: Tablas, Sibuyan, and Romblon; and seventeen (17) municipalities: nine (9) are located in Tablas, three (3) in Sibuyan, and five (5) are located in separate islands --- Romblon (in Romblon Island), San Jose (in Carabao Island), Corcuera (in Simara Island), Banton (in Banton Island), and Concepcion (in Sibale Island). Hence, they are called island municipalities.

As illustrated in Figure 1, the province of Romblon is situated at the center of the Philippine archipelago. It is surrounded by deep waters and lies in the Sibuyan Sea between the island of Masbate on the east, Mindoro to the west, Marinduque to the north, and Panay to the south. It is approximately 187 nautical miles from Manila.

Also called the Marble capital of the Philippines, Romblon is the country's leading producer of high-quality marble comparable to that of Italy. Romblon marble is the most renowned product of the province. It comes in different shades: white, green, pink, red, gray, and black. Its deposits are estimated at 150 million metric tons.

Tablas Island is the biggest island where Romblon State University – Main Campus at Odiongan, Romblon is located. It has five (5) colleges: College of Agriculture, Fisheries, and Forestry (CAFF), College of Arts and Sciences (CAS), College of Business and Accountancy (CBA), College of Engineering and Technology (CET), and College of Education and Graduate Studies (CEGS). Five

(5) campuses of the integrated CHED-supervised institution, Romblon College of Fisheries and Forestry (RCFF) are also located here: the campuses of San Agustin, Calatrava, San Andres, Santa Fe, and Santa Maria.

Romblon State University was formerly named Romblon Agricultural College (RAC). It was converted into a state college by virtue of Batas Pambansa 393, sponsored by ex-Assemblyman Nemesio V. Ganan Jr., who authored House Bill No. 131 on May 18, 1983.

In 2000, by virtue of the mandated Integration Law of the Commission on Higher Education (CHED), two (2) of the CHED-supervised institutions in the province got integrated into the only host state college of the province, Romblon State College (RSC) System which includes: Romblon College of Fisheries and Forestry (RCFF) with satellite campuses and Sibuyan Polytechnic College (SPC) at San Fernando, Romblon with one (1) satellite campus in Cajidiocan, Romblon.

On October 14, 2009 Romblon State College was converted into Romblon State University by virtue of Republic Act 9721.

As a whole, Romblon State University is composed of the main campus in Odiongan, Romblon with the following external campuses: five (5) in Tablas Island namely Calatrava Campus, San Agustin Campus, San Andres Campus, Santa Fe Campus, and Santa Maria Campus; two (2) in Sibuyan Island namely San Fernando Campus and Cajidiocan Campus; and one (1) in Romblon Island, which is Romblon Campus (in Sawang, Romblon).

The present study is of significant value to the whole university particularly the academic community since it determined the best predictors of the teaching competencies of college chemistry faculty. Its findings served as basis for a proposed management development program designed to enhance their teaching competencies. Its findings also served as input to a proposed recruitment program for college chemistry faculty to guide the school administrator in hiring new teachers.

Theoretical Perspective

The study on the assessment of teaching competencies of college chemistry faculty was anchored on the following theories. According to Arends (1988), “teaching competencies predict effective teaching.” He further said that success in a teaching career depends on the degree of mastery of the technical and interpersonal competencies needed to fulfill the roles and responsibilities of a teacher.

Sanchez (1996) defined teaching competencies as knowledge, skill, or ability, having such is relevant to the successful practice of teaching or management of teaching tasks. Wellis and Dubin (1990) added that teaching competencies involve the ability and the readiness to perform effectively the tasks considered essential in the teaching profession.

Hence, mastering these competencies may take up years of thorough practice and learning. The longer one teaches, the more technical and interpersonal

competencies may be acquired. These competencies should be demonstrated in the functions of an effective teacher, namely: the executive or managerial function, the interactive or facilitative function, and the organizational or systematizing function (Arends, 1988).

In the teaching profession, there is a need to develop higher level of competence. Teachers must be properly selected: well educated, skilled, competent, responsible, and zealous in the teaching field so they can educate students to their full growth and development as future citizens (Peik, 1989).

This theory is supported by Hunter (1994) who argued that “teachers are not born, they are made.” She emphasized that the teacher’s understanding of content and methodology are important aspects for successful classroom teaching and thus, essential aspects of student learning. This statement about the special knowledge required of teachers was parallel to the contention held by Glasser (1990) that student learning depends on the teacher’s skills and ability to initiate the desire to learn.

Teaching competency is the quality of being capable of performing the skills of the subject and teaching what the learners need to learn about it. This means that the teacher is able to analyze the subject for the purpose of determining its teachable units in terms of skills: accuracy, speed, safety, etc.; knowledge: theories, principles, practices, etc.; and attitudes and values regarding the subject (Chua, 2005). It involves the ability and the readiness to perform effectively the tasks considered essential in the teaching profession (Wellis and Dubin, 1990).

Scriven (1994) as cited in Caigoy (2007) clustered four areas of minimum competencies that teachers need in order to discharge their duties. These areas are: a) knowledge of the subject matter; b) instructional skills; c) assessment skills; and d) professional and other duties to the school and community.

These competencies are affected by important factors like educational qualification and professional background (Ornstein, 1990). Because of this, teachers are advised to continue improve these particular aspects in their career. Without continued updating, one's teaching becomes outdated and dry. To keep abreast with developments in one's discipline, a teacher needs to do three things: 1) read professional books and journals; 2) attend professional conferences, at least once or twice a year; and 3) take advance courses in conjunction with a university-sponsored program or a school district in-service program.

According to Taylan (1998), success in teaching performance depends upon the teacher's competence in performing his roles, especially that of directing learners. His roles include being a director, counselor, mediator of the culture, a member of the community while being a link between the school's community, and being a member of the profession.

With these theories, it follows that efforts to improve the quality of education, and therefore the quality of students, will also focus on the quality of teacher's competencies.

Conceptual Framework

The study on the assessment of teaching competencies of college chemistry faculty is premised on the belief that college chemistry faculty should possess a high level of teaching competencies. Instructional effectiveness in any school can be attributed primarily to the teachers who play a major role in the education process. With this concept, it follows that efforts to improve the quality of education, and therefore the quality of students, will also focus on the quality of teaching competencies.

Teaching competency is the quality of being capable of performing the skills of the subject and teaching what the learners need to learn about it. This means that the teacher is able to analyze the subject for the purpose of determining its teachable units in terms of skills: accuracy, speed, safety, etc.; knowledge: theories, principles, practices, etc.; and attitudes and values regarding the subject (Chua, 2005).

According to Taylan (1998), success in teaching performance depends upon the teacher's competence in performing his roles, especially that of directing learners. His roles include being a director, counselor, mediator of the culture, and a member of the community.

Summing up, a teacher's competence is a gauge of his effectiveness as a teacher. He is effective if he can produce desired results or effects on the students who are the receiving ends of the teaching process (Woolfolk, 1990).

Educational qualification and professional background are also important factors affecting teacher competencies. Because of this, teachers are advised to continue improve these particular aspects in their career. Ornstein (1990) avers that without continued updating, one's teaching becomes outdated and dry. To keep abreast with developments in one's discipline, a teacher needs to do three things: 1) read professional books and journals; 2) attend professional conferences, at least once or twice a year; and 3) take advanced courses in conjunction with a university-sponsored program or a school district in-service program.

Ponciano (2007) concluded that the level of teaching competencies is affected by personal characteristics, intelligence, attitudes, and ability. The results of his study suggested that emotional intelligence, use of information technology, self-beliefs, membership in professional organizations, grade point average in college, personality traits, and field of specialization are the best predictors of the four dimensions of teaching competencies: classroom management, instructional planning and evaluation, curriculum expertise, and information technology.

Based on the theories, concepts, and studies reviewed about teaching performance which result to teaching competence, a framework that follows (on the next page) shows the predictor and criterion variables and how they relate with each other.

As can be gleaned from Figure 2 (on page 14), teaching competence is found at the center. Surrounding it are the six (6) components of teaching competence such as: (1) communication competence; (2) curriculum expertise; (3) organization and planning; (4); classroom management; (5) assessment of student learning; and (6) laboratory competence.

Located outside are the five (5) groups of factors that are assumed to affect teaching competencies. These are: (1) educational preparation (highest educational attainment and field of specialization); (2) professional experience (number of years teaching chemistry, work eligibility, membership in professional organizations, and number of seminars/workshops attended); (3) physiological status; (4) psychological status (spirituality, values, and emotional intelligence); and (5) information technology skills..

As can be gleaned from Figure 2 (on the next page), the effects of predictor variables on criterion variables which are the teaching competencies were determined.

Statement of the Problem

The main purpose of the study is to assess the factors and predictors of the teaching competencies of college chemistry faculty in Romblon State University.

Specifically, the study sought answer to the following questions:

1. What is the profile of the college chemistry faculty in terms of the following?

1.1 Educational Preparation:

1.1.1 Highest Educational Attainment

1.1.2 Field of Specialization

1.2. Professional Experience:

1.2.1 Years of Teaching Experience

1.2.2 Work Eligibility

1.2.3 Membership in Professional Organization

1.2.4 Number of Seminars Attended

1.3 Physiological Status

1.4 Psychological Status

1.4.1 Spirituality

1.4.2 Values

1.4.3 Emotional Intelligence

1.5 InformationTechnology Skills

2. What is the level of the teaching competencies of college chemistry faculty as perceived by themselves, their students, their supervisors and other science faculty in terms of the following?

2.1 Communication Competence

2.2 Curriculum Expertise

2.3 Instructional Organization and Planning

2.4 Classroom Management

2.5 Assessment of Student Learning

2.6 Laboratory Competence

2.6.1 Laboratory Safety

2.6.2 Laboratory Skills/Techniques

3. What are the strengths and weaknesses of college chemistry faculty as perceived by themselves, their students, other science faculty, and supervisors in terms of the above competencies?
4. Is there a significant difference between and among the perception of the four groups of participants on the level of teaching competencies of the college chemistry faculty?
5. What are the best predictors of the teaching competencies of college chemistry faculty?
6. Based on the findings of the study, what faculty development program could be proposed to enhance the teaching competencies of college chemistry faculty?

Assumption

The study is premised on the assumption that the level of teaching competencies of college chemistry faculty in terms of communication competence, curriculum expertise, instructional organization and planning, classroom management, assessment of student learning, and laboratory competence is affected by the following factors: educational preparation, professional experience, physiological status, psychological status, and information technology skills.

Findings of the study as regard the influence of predictors of teaching competencies shall serve as input to a faculty development program designed to enhance the teaching competencies of college chemistry faculty.

Hypotheses

The following null hypotheses were hereby given for statistical testing:

1. There is no significant relationship between each of the following predictor variables and teaching competencies of college chemistry faculty:
 - 1.1 Educational Preparation
 - 1.2 Professional Experience
 - 1.3 Physiological Status
 - 1.4 Psychological Status
 - 1.5 Information Technology Skills

2. There is no significant difference between and among the perception of the college chemistry faculty, their students, other science faculty, and supervisors on the level of teaching competencies of the college chemistry faculty in terms of:
 - 2.1 Communication Competence
 - 2.2 Curriculum Expertise
 - 2.3 Instructional Organization and Planning
 - 2.4 Classroom Management
 - 2.5 Assessment of Student Learning
 - 2.6 Laboratory Competence
 - 2.6.1 Laboratory Safety
 - 2.6.2 Laboratory Skills/Techniques

Significance of the Study

The present study is beneficial to the entire academic community of the whole Romblon State University specifically the chemistry faculty for it brings into light the level of their teaching competencies and finally come up with a faculty development program to enhance their teaching competencies.

This study determined the best predictors of the teaching competencies of college chemistry faculty. As such, the findings of this study are beneficial to the following:

School Administrators. Findings of this study provide them with data which are useful in implementing school policies on recruitment and hiring, retention, promotion, and training and development of faculty. Upon becoming aware of the effect of certain variables on teaching competence, they may be encouraged or challenged to pour in some support in terms of the procurement of up-to-date and sufficient instructional facilities, the granting of privileges in the form of scholarships, study leaves, and participation of teachers in seminars and trainings related to their academic preparation.

College Deans and Campus Directors. This study provides them insights in the distribution of teaching loads to their faculty. Findings of this study serves to guide them in helping the faculty members in the department to help them improve their teaching competencies.

Chemistry Faculty. The present study is beneficial to the entire academic community of the whole College system specifically the chemistry faculty for it

brings into light the level of their teaching competencies. Having knowledge of their level of teaching competencies, chemistry teachers who score high will be motivated to do much better and those who score low will find means to improve their teaching competencies. Finally, a program was developed to enhance their teaching competencies.

Chemistry Students. They are the ultimate beneficiaries of this study because instructional effectiveness in any school can be attributed primarily to the teachers who play a major role in the education process. Teaching competencies predict effective teaching. Logically, if there is effective teaching, there is effective learning.

Future Researchers. They will make use of the findings of this study as added reference material regarding teaching competencies. In the event that they will undergo similar studies, this study is very beneficial to them.

Scope and Delimitation of the Study

The primary concern of this study is to identify the factors and predictors of the teaching competencies of college chemistry faculty. It was conducted in the whole Romblon State University system during the First Semester of School Year 2010 – 2011.

Scope of the study includes significant variables like educational preparation (highest educational attainment and field of specialization); professional experience (number of years of teaching chemistry, work eligibility, membership in professional

organization, and number of seminars attended); physiological/health status; and psychological status (spirituality, values, emotional intelligence).

It involved description, analysis, and interpretation of the level of teaching competencies in terms of communication competence, curriculum expertise, instructional organization and planning, assessment of student learning, classroom management, and information technology skills based on the available data and responses from the questionnaires with the purpose of using the findings for determining the factors and predictors of teaching competencies.

This study involved as respondents, the chemistry faculty, their students, other science faculty, and supervisors from the whole Romblon State University:

- **Romblon State University-Main Campus** (Odiongan, Romblon)
 - College of Agriculture, Fisheries and Forestry
 - College of Arts and Sciences
 - College of Business and Accountancy
 - College of Engineering and Technology
 - College of Education and Graduate Studies
- **Former Romblon State College – Tablas Branch**
 - San Agustin Campus
 - Calatrava Campus
 - San Andres Campus
 - Santa Fe Campus

- Santa Maria
- Former **Sibuyan Polytechnic College** (San Fernando, Romblon)
 - San Fernando Campus
 - Cajidiocan Campus
- External campus of former **Romblon State College – Main Campus**
 - Romblon Campus

The study was conducted from June to November, 2010.

Definition of Terms

To enhance comprehension of the text, the following recurring terms are either conceptually and operationally defined, or both.

Achievement. It means what has been learned by the student of the subject matter taught in school (Calmorin, 1994). As used in this study, it refers to the status of a student with respect to attained skills or knowledge as compared with other students or with the school's standard.

Apparatus. It means a group of instruments, device or machine for a particular purpose (Read, 1995). As used in this study, it refers to any of the chemistry laboratory apparatus ranging from glassware, porcelain wares, wooden materials, and metals used in chemistry laboratory.

Assessment of Student Learning. It means gathering of information about what has been learned by the students. As used in this study, it includes written tests, oral responses, performance tests, and observations of behavior of students, the results of which are used to diagnose difficulties and improve instruction. Indicators include: 1) Informs students the basis of evaluation; 2) Uses varied, valid, and reliable assessment strategies in evaluating student performance; 3) Gives fair grading system; 4) Adheres to academic policies regarding examination schedules and grading system; 5) Returns test papers of students within reasonable time; 6) Uses test results to improve instruction; and 7) Conducts authentic assessment techniques such as performance tests and observation of behavior.

Chemistry Faculty. It refers to the teachers in the undergraduate level of tertiary education, whether full-time, part-time, or contractual. In this study, they are the teachers who handle chemistry classes in the Romblon State University System.

Classroom Management. It is a term used by teachers to describe the process of ensuring that classroom lessons run smoothly despite disruptive behavior by students. The term also implies the prevention of disruptive behavior (Wolfgang and Glickman, 1986). As used in this study, it involves creating and maintaining effective environments for student learning. Indicators include: 1) Starts and ends classes on time; 2) Adopts a systemic, peaceful and orderly conduct of classroom routine and other activities; 3) States clearly and explicitly classroom rules to prevent disciplinary problems; 4) Establishes supportive and cooperative

classroom atmosphere; 5) Enhances students' self-esteem through proper recognition of their performance; 6) Maintains order and discipline among students; and 7) Maintains professional role while being friendly.

Communication Competence. It refers to how the faculty communicates both in oral and written expressions using Standard English. It also refers to clarity of pronunciation and quality of voice during classroom teaching. Indicators include: 1) Speaks in clear, pleasant and well-modulated voice; 2) Observes correct grammar both oral and written; 3) Observes systematic and orderly presentation of ideas in speech and in writing; 4) Explains clearly the content/details of the lesson; 5) Uses examples/illustrations to help clarify topics; 6) Clarifies topic when it is not understood; and 7) Asks questions which develop analytical and critical thinking.

Curriculum Expertise. It means expertise in the way content is designed and delivered. It also means expertise in the structure, organization, balance, and presentation of the content in the classroom. Curriculum is a set of materials that includes both content and instructional guidelines. The set of materials may be from one publisher or developer or may have been selected from a variety of materials organized by the school (National Research Council, 1996). As used in this study, it involves understanding and organizing subject matter for student learning. Indicators in this area include: 1) Demonstrates excellent mastery of subject matter; 2) Teaches topics which are consistent with the course prescription in the syllabus; 3) Helps students to relate subject matter concepts to past lessons and their own lives; 4) Updates one's self with current technologies in the field of chemistry; 5)

Cites current and relevant information to enrich information in textbooks/hand-outs; 6) Serves as consultant/expert in the field of chemistry; and 7) Directs students to use the electronic sources for additional information.

Development Program. It refers to faculty development program. As used in this study, it refers to a proposed faculty development program which is developed by the researcher for the purpose of enhancing the teaching competencies of the college chemistry faculty of Romblon State University.

Educational Preparation. It includes the teacher's highest educational attainment and his field of specialization. As used in this study, it refers to the teacher's academic degree, whether Bachelor's, Master's or Doctorate including his area of specialization in each degree earned.

Emotional Intelligence. It means the understanding of one's feelings and management of behaviors (Goleman, 1995). It also includes reflection of other's behaviors and the ability to recognize emotional response from others as will be reflected in their responses to the modified "Petrides and Furnham (2000) Trait Emotional Intelligence Questionnaire (TEIQue)," choosing only the positive indicators such as: 1) Shows that he/she is a highly motivated person; 2) Deals effectively with people; 3) Shows a number of good qualities; 4) Is able to influence the way other people feel; 5) Finds ways to control one's emotions; 6) Shows that he/she is pleased with one's life; and 7) Describes one's self as a good negotiator.

Information Technology Skill. It refers to any of the various skills in using the computer in classroom teaching and doing classroom-related activities. As used in this study, it includes skills in basic computer operation, word processing, and using spreadsheets.

Instructional Organization and Planning. It refers to formulation of objectives and organizing learning experiences for all students. Indicators include: 1) Organizes subject matter consistent with course syllabi/outline; 2) Shows that there is considerable agreement between announced objectives and what is actually taught; 3) Presents the lesson in clear, logical, and organized manner; 4) Sequences instruction to help students see relationships and connections across subject matter areas; 5) Assists students in summarizing or emphasizing major points in the lesson; 6) Provides activities for remediation, reinforcement, and enrichment; and 7) Uses a variety of techniques and strategies to make the lesson interesting.

Laboratory Competence. This term implies how the chemistry faculty makes use of the chemistry laboratory in teaching. It includes knowledge of laboratory safety and application of some skills and techniques in using the laboratory facilities. For laboratory safety indicators include: 1) Ensures that the laboratory is clean and orderly; 2) Conducts pre-lab discussion before students are allowed to perform experiments; 3) Ensures that students observe and practice proper disposal of solid and liquid chemicals; 4) Teaches students to observe precautionary measures; 5) Ensures that first aid kit is always available in case of

accidents; 6) Prepares students to proactively respond to accident or any untoward incident; and 7) Instructs students to wear gloves and protective eyeglasses when performing laboratory activities. For laboratory safety indicators include: 1) Ensures proper handling of apparatus and supplies; 2) Demonstrates skills in measuring volumes of liquid; 3) Observes proper techniques in handling substances; 4) Demonstrates skills in using weighing scales; 5) Observes proper techniques in determining odors of substances; 6) Demonstrates knowledge in improvising laboratory apparatus/ equipment; and 7) Ensures that faucets are closed and lights are turned off before leaving the laboratory.

Multiple Linear Regression Analysis. It is an advanced statistical technique used in determining the independent variables that best affect the dependent variables (Ferguson and Takane, 1986). As used in this study, It is an inferential statistics used to determine the variables under study that best predict teaching competencies.

Physiological Status. It pertains to biological function of a normal person which requires the satisfaction of physiological needs for the human body to function normally. It also means the status pertaining to the organic functions of an individual (Read, 1995). As used in this study, it refers to the physical health of the faculty. Indicators include: 1) Observes cleanliness and neatness at all times; 2) Indulges in regular physical fitness program; 3) Refrains from vices such as cigarette smoking and drinking alcoholic beverages; 4) Can tolerate dusts, vapors, and strong odors; 5) Exercises moderation in one's eating habits; 6) Is always well-

dressed with firm built; and 7) Chooses fruits and vegetables over meat served on the table.

Professional Experience. It includes the chemistry teacher's number of years of chemistry teaching, work eligibility, membership in professional organizations, and number of seminars attended.

Psychological Status. It refers to the status pertaining to mental phenomena, especially those associated with consciousness, behavior, and the problems of adjustment to the environment. As used in this study, it includes the chemistry faculty's spirituality, values, and emotional intelligence.

Recruitment Program. It means the search for potential applicants for actual and anticipated vacant positions in the organization. It is a process of linking the sources of labor and the organization which is the specific labor market (Martirez, 1999). As used in this study, it refers to a program involving the process of searching for and attracting potential applicants through announcements, assessments, and related procedures to select the most qualified applicant for appointment to an appropriate position in the faculty.

Spirituality. This term concerns with matters of spirit, a concept closely tied to religious belief and faith. It is directed to develop inner relationship with God, allow people to grow in their relationship with the human community, and consider a better future for all humans and the earth (Bauzon (2000). As used in this study, it refers to whether the chemistry faculty manifests the following indicators: 1) Begins and ends classes with a prayer; 2) Attends church activities regularly; 3) Is ready to

help those who are in need; 4) Manifests faith in God at all times; 5) Refrains from judging others especially the students; 6) Shows a positive disposition even in unfavorable situation; and 7) Offers prayer to the sick and to those who have problems.

Supervisor. It refers to the immediate head of a faculty or employee. As used in this study, it refers to anyone among the deans of the colleges of Romblon State University Main Campus; and the campus directors of the external campuses of the said university.

Teaching Competency. It refers to knowledge, skill, or ability, having such is relevant to the successful practice of teaching or management of teaching tasks (Sanchez, 1996). As used in this study, it refers to the extent by which a teacher's knowledge, skills, and values are efficiently and effectively applied to the following areas of concern in Chemistry teaching: communication competence, classroom management, instructional organization and planning, curriculum expertise, assessment of student learning and laboratory competence (laboratory safety and laboratory skill/techniques).

Teaching Effectiveness. It means the teacher's ability to succeed in imparting knowledge, skills, attitudes, and values to the learners thereby effecting change in the students. It also means effective learning on the part of the students (Mitzel, 1982).

Values. This term refers to the virtues being regarded highly by the chemistry faculty as manifested in his/her daily life especially on how he/she deals with people. This study is limited only to those values embarked on the Revised Version of the Values Education Program in 1997: truth and honesty, love and goodness, human relations, sustainable human development, and nationalism and globalism.

Chapter II

REVIEW OF RELATED LITERATURE

This chapter deals with the underlying theories and concepts used in the study. It presents the review of relevant and related literature, both conceptual literature and research literature.

Conceptual Literature

On Teaching Competencies

Instructional effectiveness in any school can be attributed primarily to the teachers who play a major role in the education process. With this concept, it follows that efforts to improve the quality of education, and therefore the quality of students, will also focus on the quality of teacher's competencies.

Teaching competency is the quality of being capable of performing the skills of the subject and teaching what the learners need to learn about it. This means that the teacher is able to analyze the subject for the purpose of determining its teachable units in terms of skills: accuracy, speed, safety, etc.; knowledge: theories, principles, practices, etc.; and attitudes and values regarding the subject (Chua, 2005). It involves the ability and the readiness to perform effectively the tasks considered essential in the teaching profession (Wellis and Dubin, 1990).

In the teaching profession, there is a need to develop higher level of competence. Teachers must be properly selected: well educated, skilled, competent, responsible, and zealous in the teaching field so they can educate students to their full growth and development as future citizens (Peik, 1989).

Teaching competency is the quality of being capable of performing the skills of the subject and teaching what the learners need to learn about it. This means that the teacher is able to analyze the subject for the purpose of determining its teachable units in terms of skills: accuracy, speed, safety, etc.; knowledge: theories, principles, practices, etc.; and attitudes and values regarding the subject (Chua, 2005). It involves the ability and the readiness to perform effectively the tasks considered essential in the teaching profession (Wellis and Dubin, 1990).

Logan, et al., 1995 cited the following competencies that teachers need to be competent inclusive teachers:

- Ability to solve problem, to be able to informally assess the skills a student needs (rather than relying solely on standardized curriculum).
- Ability to take advantage of children's individual interests and use their internal motivation for developing needed skills.
- Ability to make appropriate expectations for EACH student, regardless of the student's capabilities. If teachers can do this, it allows all students to be included in a class and school.

- Ability to set high but alternative expectations that are suitable for the students; this means developing alternative assessments.
- Ability to determine how to modify assignments for students; how to design classroom activities with so many levels that all students have a part. This teaching skill can apply not just at the elementary or secondary level, but at the college level as well. It will mean more activity-based teaching rather than seat-based teaching.
- Ability to learn how to value all kinds of skills that students bring to a class, not just the academic skills. In doing this, teachers will make it explicit that in their classrooms they value all skills, even if that is not a clear value of a whole school.
- Ability to provide daily success for all students. Teachers have to work to counteract the message all students get when certain students are continually taken out of class for special work.

Highly liked teachers know their subject areas very well and can present lessons effectively. They are patient enough to answer questions or to repeat explanations. They are able to relate with their students. They are kind and understanding. They listen to learners' problems whether they are about school or home problems. Adolescents, being conscious of their own personal appearance, appreciate teachers who have pleasing personalities. They like teachers who are well-groomed, with cheerful disposition, speak in well-modulated voice, and show good manners and values (Guines, 2004).

The teacher's competence in terms of knowledge and skills possessed significantly contribute to the accepted standards and ideals of the teaching profession (Salandanan, 2007). She added:

“As a professional she is expected to be knowledgeable about the subject she is supposed to teach. She must possess not only substantial knowledge but deeper and more advanced in order to be able to teach with confidence and accuracy. She should include what the students are supposed to know about the subject including what they want to know. Her choice of the content would depend on the curricular objectives and prescribed syllabus.”

The teacher must likewise be knowledgeable and skilled in employing a wide repertoire of teaching methods, procedures, and strategies that can insure the consistent and continued search for knowledge and new information. Her rich experience in conducting discussions and guiding the students in performing experiments and other forms of investigations will enable them to gather abundant and relevant data with confidence and authority. If students find difficulties in following the systematic procedures she can easily revise or think of alternative solutions, thus avert waste of time, effort, and materials. Employing time-tested and experience-proven methodologies is a mark of an updated and progressive teacher (Salandanan, 2007).

According to Taylan (1998), success in teaching performance depends upon the teacher's competence in performing his roles, especially that of directing learners. His roles include being a director, counselor, mediator of the culture, a member of the community while being a link between the school's community, and being a member of the profession.

Levine and Ornstein (1990) as cited in Caigoy (2007) identify effective teaching in terms of what effective teachers do in the classroom as follows:

- **Classroom Management.** Effective teachers develop good managerial techniques. They make sure students know what they expect; they make certain that students know what to do if they need help; they follow through with reminders and rewards to enforce rules; and they do not respond to discipline problems emotionally.
- **Direct Instruction.** Effective teachers have a clear, systematic method of teaching called direct instruction or explicit teaching. They proceed in small steps, provide ample review and explanation before proceeding to the next step, ask questions and check for understanding, and provide systematic feedback and correction.
- **Time on Task.** Effective teachers provide students with relevant academic activities to see to it that students spend an adequate amount of time actually engaged in these learning activities.
- **Questioning.** Effective teachers ask appropriate questions in a manner that ensures participation and facilitates mastery of academic content. Questioning focuses on both facts and abstract thinking.
- **Comprehension Instruction.** Effective teachers emphasize independent learning and learning to learn. They teach students to apply concepts, solve problems, and monitor their own comprehension.

- **Level of Cognitive Instruction.** Most instruction for low-achieving students emphasizes mechanical rote thinking. Effective teachers try to move toward higher-order thinking skills and independent learning by motivating students to learn and by using appropriate materials and activities.
- **Grouping.** Effective teachers are able to group students for individualized and small-group instruction. They are able to work with more than one student or group at a time.

The University of Waterloo's Competency Portfolio Project emphasizes the need for students to learn in ways that help them deal with a range of contexts, many if not all unique and be able to demonstrate that knowledge in a variety of learning contexts. This means that faculty members need to model desired competencies for students in their teaching.

In practice, this has translated into a much more skills-based approach to teaching. By helping students to "see" their own competence they will be able to transfer their knowledge to other learning contexts. In order to foster this change in students' behavior teachers go beyond simply articulating the learning goals for them in terms of the competencies that they will develop in the subject to encouraging and requiring them to reflect on how they can use their knowledge (both content and skills) in other learning contexts --- in the workplace, in their community, and in other academic courses.

The approach to teaching translates into a more powerful learning experience because it encourages students to view learning as a life-long experience, rather than just a course-based experience. The professional competencies that are part of teaching excellence in higher education include: (1) Demonstrate an ability to transform content knowledge into instruction; (2) Use teaching methods that prompt thoughtful and responsible learning; (3) Share your passion through interest and explanation of the discipline with students; (4) Encourage respectful student/faculty contact; (5) Engage with students at their level; (6) Promote cooperation/collaboration among students; (7) Promote active learning; (8) Provide prompt and high-quality feedback; (9) Emphasize time on task; (10) Model effective presentation skills; (11) Communicate high expectations; and (12) Respect diversity (Light, 1998).

Scriven (1994) as cited in Caigoy (2007) clustered four areas of minimum competencies that teachers need in order to discharge their duties. These areas are: a) knowledge of the subject matter; b) instructional skills; c) assessment skills; and d) professional and other duties to the school and community.

Logan, et al., 1995 cited the following competencies that teachers need to be competent inclusive teachers:

- Ability to solve problem, to be able to informally assess the skills a student needs (rather than relying solely on standardized curriculum).
- Ability to take advantage of children's individual interests and use their internal motivation for developing needed skills.

- Ability to set high but alternative expectations that are suitable for the students; this means developing alternative assessments.
- Ability to make appropriate expectations for each student, regardless of the student's capabilities. If teachers can do this, it allows all students to be included in a class and school.
- Ability to determine how to modify assignments for students; how to design classroom activities with so many levels that all students have a part. This teaching skill can apply not just at the elementary or secondary level, but at the college level as well. It will mean more activity-based teaching rather than seat-based teaching.
- Ability to learn how to value all kinds of skills that students bring to a class, not just the academic skills. In doing this, teachers will make it explicit that in their classrooms they value all skills, even if that is not a clear value of a whole school.
- Ability to provide daily success for all students. Teachers have to work to counteract the message all students get when certain students are continually taken out of class for special work.

They also mentioned other competencies that will help teachers in an inclusive environment as follows:

- A realization that every student in the class is their responsibility. Teachers need to find out how to work with each student rather than assuming someone else will tell them how to educate a student.
- Knowing a variety of instructional strategies and how to use them effectively. This includes the ability to adapt materials and rewrite objectives for a student's needs.
- Working as a team with parents and special education teachers to learn what skills a student needs and to provide the best teaching approach.
- Viewing each student in the class as an opportunity to become a better teacher rather than a problem to be coped with or have someone else fix.
- Flexibility and a high tolerance for ambiguity.

They added:

"Teachers today more fully recognize the value of inclusion because they see its power as an effective instructional practice. We feel that two factors are critical to the effectiveness of the district's inclusion efforts: effective collaboration among classroom teachers and the special education staff, and a weekly block of instructional planning time."

Bain (2004) stressed that important variables presumed to be indicative of teacher's competence which have been examined for their relationship to student learning include: measures of academic ability, years of teaching experience, measures of subject matter and teaching knowledge, and teaching behaviors in the classroom.

Teaching is an interactive process. It involves relating with another person. The teacher leads in this interpersonal interaction by understanding the basic human needs. He knows that to bring out the best in a person, he needs to communicate acceptance, respect, and trust to each learner. This is the key make learners cooperate. The tendency is to listen, obey, respect his authority, and set standards for themselves. The positive feelings directed to them inspire and challenge them to achieve more which is also the teacher's achievement (Gine, 2004).

According to Goldhaber (2002), good teaching is clearly an important predictor to raising student achievement. In fact, most research suggests that the benefit of improving the quality of the nation's teaching workforce is far greater than other policy interventions, such as lowering class size.

Summing up, a teacher's competence is a gauge of his effectiveness as a teacher. He is effective if he can produce desired results or effects on the students who are the receiving ends of the teaching process (Woolfolk, 1990).

On Communication Competence

Since "the essence of teaching is human interaction," all teachers must continuously enhance their skills of communication and collaboration. Positive interaction with students, parents, and colleagues, is an essential factor for effective teaching (Dwyer and Villegas, 1993).

A teacher's communication skill is a very important aspect of a successful learning experience. The learners behave according to their perception of teacher's

verbal and non-verbal communication. It helps if teachers send clear messages and check on the receiver's interpretation (Eliot, 1996).

The teacher's communication competence is vital in classroom discussions. One aspect of classroom communication is the teacher's art of questioning. The teacher's most convenient tool for developing and enhancing the student's thinking skills is her art of questioning. Thus, engaging learners in a climate of inquiry challenges their critical and creative thinking (Manzano, 1992).

Another aspect to consider is the art of questioning. According to Cotton (1998) as cited in Reyes (2001), critical thinking among students could be enhanced when teachers ask questions calling for higher mental operations such as application, analysis, synthesis, and evaluation. Moreover, teaching students how to respond and how to ask higher level questions is positively related to their voluntary participation in the cognitive process in the classroom. Therefore, Walker (1999) as cited in Reyes (2001) said that teachers who want to develop critical thinking and problem solving skills should ask questions which would facilitate discussion and lead students to think.

In his article, Richard (1996) as cited in Reyes (2001) says:

"Dead questions reflect dead minds. If we want thinking, we must stimulate the questions to further questions. We must overcome what previous schooling has done to thinking of students. We must resuscitate minds that are largely dead when we receive them."

McKenzie (2001) said that questions are the fuel toward real learning. He emphasized the importance of questions in his online journal, FromNowOn. He says:

“Smart questions are essential technology for those who venture on the Information Highways. Without strong questioning skills, you are just a passenger on someone else’s tour bus. You may be on the highway, but someone else is doing the driving.

Schools without a strong commitment to student questioning and research are wasting their money if they install expensive networks linking classrooms to rich electronic information resources.”

De Camino as cited in Cashin (1995) states that:

“In the skillful use of the question, more than in anything else lies the fine art of teaching; for in such use we have the guide to clear and vivid ideas, the quick spur to imagination, the stimulus to thought, and the incentive to action.”

Therefore, whatever teaching method or technique is used, the role of teachers is to stimulate learners to think. Questioning is still the best way to make students understand the world, and ultimately, create a world fit for human beings (Reyes, 2001).

On Curriculum Expertise

Curriculum is the way content is designed and delivered. It includes the structure, organization, balance, and presentation of the content in the classroom (National Research Council, 1996). As defined here, curriculum is a set of materials that includes both content and instructional guidelines. The set of materials may be from one publisher or developer or may have been selected from a variety of materials organized by the school.

Putting new curricula into practice in the classroom can serve as a powerful professional development opportunity for teachers. Through using a particular curriculum with their students, reporting on what happens, and reflecting with others on different ideas and activities, teachers learn about their own teaching and their students' learning (Cohen and Hill, 1998).

The strategy relies on teachers having access to high quality curriculum materials, developed by people with expertise in content and pedagogy, as well as sufficient resources and time to design, test, and refine the materials for use in classrooms with diverse students (Cohen and Hill, 1998).

Cohen and Hill (1998) further said that teachers and professional developers need to work together to decide how the curriculum will be used with students and the milestones that will be met at different points in the implementation process. Over time, teachers need to be given different kinds of support, tailored to their changing needs. Teachers share insights with one another as they implement the new curriculum. They also coach one another, conducting classroom visits to support the learning of both teachers and students.

It is crucial that school officials acknowledge that implementing curriculum takes time, resources, and a commitment to reform. They must institutionalize the change by ensuring the continued use of the curriculum after the initial phase. Plans must be established for ongoing professional development for all teachers and support of new teachers (Cohen and Hill, 1998).

Finally, mechanisms for evaluation must be developed. While data may include information about student learning outcomes, evaluation of the implementation strategies is essential, especially in the early stages. Teachers and professional developers can then use this information to adjust what they are doing (Cohen and Hill, 1998).

In implementing the curriculum the teacher considers the difficulty level of each topic in the scope and sequence arrangement of concepts prescribed in the curriculum and accompanying syllabus. As a professional teacher he is the “master” of the subject he is teaching. As such, he is expected to be knowledgeable about his field of specialization; he is updated and skilled in imparting such knowledge to his students; and he is willing to accept additional information from others who are likewise experts in the subject (Salandanan, 2007).

As part of curriculum expertise of teachers, teaching methods and techniques are important in classroom teaching. As teachers carry out the various tasks of their profession, their chief concern is that of promoting, stimulating, and guiding learning. A very important aspect of classroom teaching is motivation. According to Bustos, et al. (1980) as cited in Madeja (2002), motivation is one of the aspects of classroom teaching that is sorely neglected, especially in the higher levels of teaching. Many teachers consider mere motive question, or recall of previous lesson sufficient motivation. They seldom go deep into the needs, drives, attitudes, or goals of the individual. Little do they realize that if students were properly motivated, their job in the classroom would be already half done. If the desire and will to learn is present in the student, he would need very little guidance.

After motivation the teacher presents the lesson wherein he uses appropriate teaching methods. According to Salandanan (2006) teaching method assumes a clearly defined way of pursuing an educational objective. Such objective could be stated in terms of knowledge that should be gained or skills and values that should be developed. In undertaking classroom instruction, a particular method may take the form of a strategy or technique resorted to in introducing a topic. In a daily lesson, it is a systematic plan of presenting a topic. Educators view method as “a procedural context that requires close adherence in order to insure the attainment of a learning outcome”

Method then, is an integral part of teaching. It essentially influences a teacher's entire performance in a given learning situation. Therefore, teachers must be knowledgeable and proficient in employing a wide variety of teaching methodologies. Deciding on a particular method to be used, a strategy or technique to be tried, or an innovative approach to be introduced, is a crucial task that every teacher must carefully reflect on (Salandanan, 2006).

The choice of a particular method to use rests upon the crucial decision a teacher arrives at. According to Salandanan (2006) a number of factors must be considered such as the following:

- **Objective to be pursued.** Learning objectives are classified into: (a) knowledge, facts, or information to be learned; (b) skills or proficiency in employing scientific procedures; and (3) values and attitudes to be developed. The teacher should know which of the three, or a combination of

two, or all three he is aiming at. Then provide the students opportunities to attain them.

- **Topic to be taught.** The nature and scope of the topic dictates the method to be employed. Some topics are better taught through focused discussions, others through controlled experimentations, or through out-of-the-classroom explorations.
- **Students' abilities.** Manual skills will be required in manipulating laboratory equipment, handling simple tools, and preparing needed materials. The teacher should carefully consider whether the students are equipped with dexterity before deciding to employ a procedure with such demands. Verbal and writing abilities must likewise be assessed before the students are immersed into oral and written activities.
- **The students' interests.** It is easy to discover the interests of students through informal story-telling. Such occasion can serve as the starting point in selecting the most likely method to follow. It could be interest in reading, or in outdoor games, or in hobbies like gardening. A methodology that caters to their interests will ensure a smooth flow of all the tasks to be done.
- **Previous learning or experience.** Background knowledge is needed to connect the present learning tasks being planned. A review of the past discussions could show if they will be ready to tackle the lesson being planned. Past experience may likewise add background information.

- **Context of the teaching situation.** A teacher should know the place and time, or where and when the teaching course will be conducted. In so doing, a method that is suited for the time of the day the learning activities should be undertaken, and whether said activities shall be employed in a conducive location, such as a laboratory, gym or library, will be easy to choose.
- **The kind of participation expected.** Learning from a method that would need the whole class participation would certainly be different from one which would require an active involvement of each one. The experience that could be gained from individual-oriented procedures will differ considerably. This is a factor that should not be overlooked in selecting a teaching technique.
- **Knowledge and ability of the teacher.** The teacher must be knowledgeable about a wide variety of teaching methodologies and be skilled in employing each of them or else the choice would end up with overused classroom routine teaching. A creative teacher is capable of trying new ways of teaching, thus adding to his repertoire of teaching methodologies.
- **Safety precautions.** The method must consider the safety measures to be undertaken if it will take them to the field as well as the reminders on proper behavior that might be solicited to insure a gainful learning episode.

Salandanan (2007) further said that teachers should be experts in methodologies. Knowledge and skill in planning and implementing appropriate

teaching methodologies and procedures are the winning qualifications of a teacher. With it goes the ability to improvise simple tools, construct audio-visual devices, and execute ways of doing things – truly a facilitative and innovative adeptness that are much needed.

On Instructional Organization and Planning

According to Salandanan (2007) teaching is acknowledged as an art. It is mainly a creative expression of one's intellectual and emotional qualities that are essential in promoting learning. Likewise, teaching is also recognized as a science. It is directed towards the development of an inquiring mind and an analytic mode of accepting the truth in what one thinks and does. As such, instructional planning considers the systematic procedures and strategies similar to the steps followed in a scientific investigation. Teaching is conducted in a carefully sequenced methodology wherein learning activities are planned and organized in a step-by-step manner without much regard for the least signs of difficulties, negative attitudes, and indifference among the students.

Salandanan (2007) also stressed that time is an imperative element in planning and implementing any learning activity. Its consequential consideration is missed if not estimated with accuracy. Teachers know the amount of time needed to acquire different information in order to understand a topic; they therefore should adjust their pace accordingly. Things done hurriedly can result in confusion and end with misconceptions.

Classroom teaching should result to mastery of the lessons. Along this line, Eliot (1996) persuades teachers that mastery could be developed by using the following strategies: **modeling** – which means describing process and tracing the evolution of ideas; **coaching** – provide guidance and feedback by working on memory enhancement program, goal setting, cue awareness, knowledge retrieval, and self – monitoring; **articulation** – provide opportunities for dialogues, discussion, summaries, and descriptions; **reflection** – design classroom activities to provide thinking about the concepts and experiences ; **exploration** – entertain creative expressions; and **scaffolding** – build concepts and skills; knowledge building and skill building that need reinforcement and support.

It is truly essential to give emphasis on the *how* of learning. Gamson and Chickering (1991) said that if you teach a person *what* to learn, you are preparing him for the past. If you teach a person *how* to learn, you are preparing him for the future. It is vital that students acquire the skills of *how* to learn, and that these skills enable them to learn not just while they are in school but for a lifetime.

Since teaching proficiency denotes a masterful execution of the act itself, a proficient teacher is described to be in full knowledge of the “what-when-and-how” sequence of presenting a lesson from start to finish. Allotting sufficient time for each step and making sure that each is properly done contributes to a reliable conclusion of all learning activities. Efficient time management is the key to a smooth flow of all planned activities for the day (Salandanan, 2007).

On Classroom Management

Classrooms are where the action is, where all the participants involved in teaching and learning interact. They are where the lesson is actually taught, where instructional methods and materials are introduced by the teacher, where students deal with learning task and skills and respond to subject matter, and where students are evaluated by the teacher. Classrooms can be organized or disorganized, the climate can be positive or negative, and students can experience success and pleasure or frustration and tension in dealing with the teaching and learning process.

Teachers, to be effective, need a supportive and positive atmosphere. This includes manageable class size, available and suitable instructional materials, high staff expectations for student achievement, an orderly school climate, systems for monitoring student progress, a strong and supportive school head, and a school spirit or identity that is felt in the classroom (Ornstein, 1992).

According to Boisier (2000), classroom management is a means of establishing a routine that enables effective learning to move smoothly and prevent unnecessary discipline problems by students. Since disruptive behaviors are likely to happen in any classroom, strategies such as arrangement of physical space, delegation of responsibilities to students, student leadership techniques, peer relationship and rule setting, and classroom procedures are offered to prevent classroom disruptions.

More so, forms of misbehavior like attention getting, power-seeking, revenge, and display of inadequacy behavior are also expected. To address these, concerned teachers try to use some control techniques such as behavior modification, rewards and punishment policies, and assertive discipline.

To ensure that classroom lessons run smoothly despite disruptive behavior by students, teachers who are steep in management demonstrate competence in keeping the classroom adequately equipped with learning materials, in undertaking learning activities, and preparing step-by-step procedures in conducting classroom chores (Salandanan, 2007).

As an integral part of the teaching process, classroom management suggests providing a classroom environment that is conducive to learning, such as appropriate time scheduling for various activities and an orderly placement of furniture and instructional materials. A clean and well-lighted area, together with a comfortable seating arrangement, make the classroom an inviting place for promoting interaction and a much welcomed feeling of togetherness. Records of performance are well-kept and reported to keep track of progress. Discipline indicating complete behavior control is well-established (Bilbao, et al., 2006).

For many teachers, classroom management is possibly the most difficult aspect of teaching and indeed experiencing problems in this area causes some to leave teaching altogether. Some teachers say they would probably not go into teaching if they had to decide again.

To provide effective learning atmosphere in the classroom, Covaleski and Aileen (2004) suggested the following guideposts for teachers: 1) If appropriate, use the open education approach to pave way for discovery, problem-solving, and meaningful learning; 2) In any learning venue, always establish a relaxed atmosphere; 3) Arrange the discussion-learning situation so that discovery is like to take place; 4) Structure the discussion by posing a specific question, by presenting a provocative mime, or by asking students to choose topics or sub-topics; 5) Consider asking all students to spend three to five minutes or so, individually writing out their initial reactions to the topic before they begin to share ideas; 6) Give students opportunities to make individual or small group discoveries in the form of projects/term papers or other activities; and 7) Make use of advance organizer to introduce what is expected to be learned for the particular period.

One aspect of classroom management is scheduling. Good time management is the key to a smooth flow of planned activities. Proper timing could sustain motivation and interest, resulting in students' active involvement in all class undertakings (Bilbao, et al., 2006).

Wise use of time can make a difference in how much a teacher accomplishes and how well the students' interest is aroused and sustained. Providing sufficient time for every learning task will go a long way in promoting efficiency and precision in the students' performance. Bilbao and others (2006) suggested some reminders for effective use of time as follows:

- Schedule all activities with corresponding time allotment way ahead of time. Early precautions could avoid haste and confusion.
- Provide enough time for everything you expect to happen. Economy in time planning is learned from experience.
- Avoid rushing since you know you have carefully allotted required time for every activity. Quality may suffer.
- Anticipate difficulties or failure of some operations in order to be able to pursue alternative actions.
- Be flexible with time assignments. If students are observed to be very interested and eager to continue working, allow a little more time for them to complete and achieve the objectives with satisfaction.
- Use fillers in case you finish the lesson ahead of time such as reciting a favorite stanza of a poem and let others explain the meaning, or conduct a short contest about the lesson.
- Set the example by showing that you are time conscious. They will develop the same precision regarding time utilization.

Physical environment is another aspect of classroom management. A clean classroom where everything is arranged neatly is both attractive and a comfortable place to stay in. Students and teachers must be alert and fast in maintaining shiny floors and arrangement of instructional tools and materials. Furniture kept in proper places and a well-planned seating assignment speaks of a tidy and organized room (Bilbao, et al., 2006).

Discipline constitutes the next important concern of teachers as part of good classroom management. It means controlled behavior. No matter how well-managed a learning environment is, students will occasionally misbehave. Teachers must be ready to deal with them with utmost care and consideration (Bilbao, et al., 2006).

In line with classroom management and discipline Salandanan (2005) cited some reminders for a teacher-manager as follows:

- The students must be made fully aware of and must understand the set of rules, regulations, and procedures that must be followed. Rules are statements that specify what they are expected to do or not to do. Procedures are systematic steps of how a task must be done.
- The teacher must know that she is likewise following school regulations as a sign of respect and social responsibility.
- Proper guidance and short reminders can develop orderliness, patience, and perseverance while the students are performing learning activities. At the same time a feeling of joy and pride in finishing the task is shared by all.
- Control the volume of sound from loud conversations and careless handling of breakable materials. A lesson needs utmost concentration and deep understanding. An atmosphere of peace and quietness is most conducive to clear thinking.

- Efficient pacing of the parts of the lesson must be planned and followed to completion in order to avoid unnecessary disruptions and waste of time. There should be a clear instruction to perform the lesson sequences.
- Misbehaviors and recurring mistakes must be attended to immediately with calmness and sobriety. Always look for the cause before undertaking any sanction. Be able to spot them early and deal with them tactfully.
- Use cues and signals as warning devices as the need arises. Examples: arm and hand signal for passing orderly; thumbs up or down for good or negative action; tapping surface to start or end an activity; nodding to express a favorable response; and clapping to show praise and appreciation.
- Help students learn self-management skills by setting the example.

Preventative approaches to classroom management involve creating a positive classroom community with mutual respect between teacher and student. Teachers using the preventative approach offer warmth, acceptance, and support unconditionally - not based on a student's behavior. Fair rules and consequences are established and students are given frequent and consistent feedback regarding their behavior (Bear, 2008).

Preventative techniques also involve the strategic use of praise and rewards to inform students about their behavior rather than as a means of controlling student behavior. In order to use rewards to inform students about their behavior, teachers must emphasize the value of the behavior that is rewarded and also explain to

students the specific skills they demonstrated to earn the reward. Teachers should also encourage student collaboration in selecting rewards and defining appropriate behaviors that will earn rewards (Bear, 2008).

Establishing routine is also a part of classroom management. Routine is a regular procedure or a normal practice that is to be followed. It is a schedule of activities that is mostly time-paced and is attuned to the lesson objectives. Following routine efficiently contributes to a good classroom management. Bilbao and others (2006) cited the advantages of sticking to a routine as follows: (1) it helps in accomplishing everything that is planned; (2) it serves as a guide in controlling behavior; (3) the students feel secure since they know every step in the procedure; and (4) it builds a teacher's confidence in following a well-planned procedure.

The design of learning environments is linked to issues that are especially important in the processes of learning, transfer, and competent performance. These processes, in turn, are affected by the degree to which learning environments are student centered, knowledge centered, assessment centered, and community centered. It is also a fact that the process of learning involves more than intellectual ability and mastery of cognitive content. It also includes the psycho-emotional disposition of the students and teachers, and the environmental settings or climates in which teaching and learning take place (Goldhaber, 2002).

On Assessment of Student Learning

Classroom assessment is a method a faculty can use to collect feedback, early and often, on how well their students are learning what had been taught. The purpose of classroom assessment is to provide the teacher and students with information and insights needed to improve teaching effectiveness and learning quality.

In line with instructional evaluation, teachers give tests to measure student achievement. A test is a systematic procedure for measuring an individual's behavior. This definition implies that it has to be developed following specific guidelines. It is a formal and systematic way of gathering information about the learner's behavior, usually through paper and pencil procedure (Brown, 1991). In doing this, teachers are expected to be orderly in recording and interpreting facts, inferences, and other forms of information. Students' reactions and ensuing behavior brought about by factors existing in the learning environment are appraised accurately by systematic observations as well as through widely used assessment and evaluation procedures (Salandanan, 2007).

Testing of students is more objective than evaluation, since it is based on quantifiable data. Evaluation is more subjective, since it involves human judgment. We make evaluations of people and their performance not only in school but also in our job and at home. We use various kinds of information, including test data and other objective measurements. We weigh our information against various criteria and make an evaluation about people or products. As teachers, we strive to reduce

the chance for misjudgment in the evaluation of students by carefully designing evaluation procedures (Ornstein, 1992).

Since the time the first test or the first grade was given, there has been controversy surrounding their use. Some have argued that grades dehumanize education and establish distrust between teachers and students. Others said that grading and comparing students lead to harmful anxiety and low self-esteem for those who receive poor grades. Even those who acknowledge the importance of assessment and evaluation have often condemned current practices for the emphasis on testing basic skills out of context and the excessive competition which results. Still others have commented that grades are only a “rubber yardstick” measuring the whims of particular teachers rather than mastery of important educational goals. Regardless of the criticism and controversy surrounding this topic, the process of assessing and evaluating students has persisted and basic practices have remained essentially constant for most of this century (Arends, 1998).

Aside from instruction, classroom teachers are responsible for assessment, testing, and grading related to their specific courses. In general, a teacher’s assessment activities are aimed at one of the following goals: (1) disposing prior knowledge and skills; (2) providing connective feedback and giving judgments; and (3) grading student achievement. These goals have some similarities but also have some important differences (Arends, 1998).

Assessment does not take time away from learning; they can be learning experiences in themselves. Active assessment strategies enhance students' content understanding and promote skills that will be beneficial to students throughout their lives. The ability to see the big picture, develop effective oral and written reports, and the ability to work cooperatively with their peers are skills that are promoted by active assessment (Science Education Center, 1997).

New forms of assessment are powerful tools for understanding student performance, particularly in areas that require critical thinking and complex problem solving. However, high expectations for success, sufficient opportunity to learn, and challenging instruction are the best standard educational fare for all students (Eliot, 1996).

Included in assessment are measurement and evaluation. Measurement and evaluation are two different terms. Measurement is the process of determining the quantity of achievement of the learners by means of appropriate measuring instruments. It is a systematic procedure of determining the quantity or extent of all the measurable dimensions in the educative process. Such measurable dimensions include intelligence, interest, aptitudes, values, health, and other personality traits of learners plus their scholastic achievement in their school subjects. On the other hand, evaluation is the process of determining the quality of achievement in terms of certain standards. It is a systematic procedure of determining the quality of the results of measurement with the end in view of improving and maximizing the acquisition of desirable educational outcomes such as knowledge, skills, and habits

as well as placing the learners in their proper curricular years in the educational ladder (Calderon and Gonzales, 1993).

According to Garcia (2004) *evaluation* involves measurement and assessment. He said that *measurement* as used in education is the quantification of what students have learned through the use of tests, questionnaires, rating scales, checklists, and other devices. *Assessment*, however, refers to the full range of information gathered and synthesized by teachers about their students and their classrooms (Arends, 1996). This information can be gathered in informal ways, such as through observation or verbal exchange. It can also be gathered through formal ways, such as assignments, tests, and written reports or outputs.

Garcia (2004) said further:

“While measurement refers to the quantification of students’ performance and assessment as gathering and synthesizing information, evaluation is a process of making judgments, assigning value, or deciding on the worth of students’ performance. Measurement answers the question, how much does a student learn or know? Assessment looks into how much change has occurred on the student’s acquisition of a skill, knowledge or value before and after a given learning experience. Since evaluation is concerned with making judgments on the worth or value of a performance, it answers the question, how good,adequate or desirable is it? Measurement and assessment are, therefore, both essential to evaluation.”

There are three general types of classroom assessment teachers are engaged in (Airisian, 1994). These are: official, sizing up, and instructional.

- **Official assessment** is undertaken by teachers to carry out the bureaucratic aspects of teaching, such as giving students grades at the end of each marking period. This type of assessment is done through formal

tests, term papers, reports, quizzes, and assignments. Evidence sought by teachers in official assessment is mainly cognitive.

- **Sizing up assessment** is done to provide the teachers with information regarding the students' social, academic, and behavioral characteristics at the beginning of each semester. Information gathered by teachers in this type of assessment provides a personality profile of each student to boost instruction and foster communication and cooperation in the classroom.
- **Instructional assessment** is utilized in planning instructional delivery and monitoring the process of teaching and learning. It is normally done daily throughout the semester. It includes decisions on lessons to teach, teaching strategy to employ, and instructional materials and resources to use in the classroom.

While Airisian (1994) classified three general types of classroom assessment, Corpus and Salandanan (2007) mentioned that assessment is done in the three phases of instruction as follows:

- **Prior to instruction.** The teacher may give pre-teaching assessment to determine where the students are in relation to the lesson. He can make use of a written pre-test or by simply asking them some questions to diagnose the students' entry knowledge and skills.
- **During instruction.** There are many ways by which learning can be assessed in the process of teaching. The teacher can immediately find out if

the students can follow the lesson by posing oral questions or by observing them as they perform classroom activities or exercises. Giving a quiz is the most popular. Right there and then with their answers, with their quiz scores, and with the way they conduct themselves in class activities, the teacher can already sense whether he is already near or far from the attainment of his objectives.

- **After instruction.** After the teacher has spent an hour or less in teaching, he would like to find out proof of learning. He will do formative evaluation. If he gave a pre-test prior to instruction, then he gives a post-test after instruction. If he discovers that his lesson objectives were not achieved, he finds out why and employs remedial measures like re-teaching, peer tutoring, and the like.

Progress in classroom work could be assessed through the following: a) classroom observation and recording of recitations, seatwork, volunteering, review of homework, active participation in learning activities, and questions students ask; b) interviews that could reveal their difficulties and progress; and c) short conferences conducted for the not-so-active groups. These classroom assessment techniques are useful in providing information on some areas that are sometimes difficult to assess such as appreciation, originality, and adaptability. They are valuable in inferring about personal growth (Salandanan, 2005).

On the other hand, according to Corpus, et al. (2006) assessment serves any of the following purposes: a) to appraise achievement; b) to help identify the students' learning difficulties; c) to determine the effectiveness of a teaching

strategy; and d) to serve as guide in the choice of appropriate assessment tools, thus enhancing the teacher's decision making.

Aware of the purposes for which assessment and evaluation are undertaken, appropriate instruments must be employed to give accurate and reliable evidence of achievement. The more common tools used are the following: a) administering pencil-and-paper tests; b) analyzing work products; c) oral assessment; d) observing formally and informally the students' attitude and behavior; e) performance-based assessment; f) conducting personal interviews and small group conferences; and g) portfolio assessment.

Since teaching means causing learning among students, teachers need to be thoroughly aware of the processes in determining how successful they are in their task of assessing student learning. They need to know whether their students are achieving successfully the knowledge, skills, and values inherent in their lessons. For this reason, it is critical for beginning teachers to build a repertoire of effective strategies for performing their executive function of measurement and evaluation of student learning (Garcia, 2004).

On Laboratory Competence

The competence of a chemistry faculty is also manifested on how he uses the facilities in the chemistry laboratory. The chemistry laboratory is a place to explore ideas, try out theories, and raise problems. In the laboratory, observed data are given meaning. It is after the data have given meaning where laboratory work

has its greatest educational value. This can be attained only by performing laboratory activities or experiments. In doing these, students need to use certain materials and instruments designed for specific purposes. If any of these is not available in the laboratory the students can use their practical skills in improvising a substitute for the specific apparatus (Dionisio and Cerna, 2001). All these take place in the chemistry laboratory under the guidance of a competent chemistry teacher.

Since chemistry is an experimental science, much of the chemistry students' time is spent in the laboratory investigating chemical phenomena, verifying chemical principles, testing hypotheses, or simply exploring the environment. The chemistry laboratory is equipped with scientific apparatus and equipment to ensure that all activities in the laboratory run smoothly and safely. The chemistry teacher must be competent in the different procedures and safety precautions in the laboratory (Mendoza and Religioso, 1997).

On Educational Preparation

Educational preparation is an important factor affecting teacher competencies. Teachers with higher level of education place greater importance to work values. They tend to be more satisfied with their jobs, usually better paid, have better working conditions, and hold jobs that make fullest use of their abilities (Davies, 1997 as cited in Chua, 2005).

On the contrary, teachers' educational levels appear to make a difference when the education is related to the subject taught, but advanced degrees do not appear to serve as a good measure of quality in general (Bruner, 1996).

On Professional Experience

Teaching is a continuing process because so much is to be expected among teachers. They have the sole responsibility of giving the best to the learners. This entails most of the professional teachers to continue upgrading themselves by having earned higher level of educational endeavors, seminar-workshop, trainings, and other related matter. Because of this, Martin (1991) stresses that planning for professional growth is an important part of our professional responsibility. Effective planning involves looking beyond the present and taking a long-term, holistic look at our careers. During this planning process, we articulate both personal and professional goals, and then select those development opportunities that are most effective in helping us reach those goals.

Teachers are advised to continue improve some particular aspects in their career. Ornstein (1990) avers that without continued updating, one's teaching becomes outdated and dry. To keep abreast with developments in one's discipline, a teacher needs to do three things: 1) read professional books and journals; 2) attend professional conferences, at least once or twice a year; and 3) take advanced courses in conjunction with a university-sponsored program or a school district in-service program.

The more training programs related to teaching are attended by a teacher, the better he becomes over those who have fewer. Professional development is a continuing and deliberate organization-sponsored process aimed at assisting, encouraging, and enabling teachers to keep current, maintain competence in their practice, refresh and update their professional and technical vitality, improve their performance, potential and productivity, develop their knowledge, skills abilities, and values, and stay open to new theories, techniques, and approaches (Tracy 1992 as cited in Chua 2005).

Effective and successful teachers have the ability to evaluate their instructional effectiveness and to show professional responsibility for acquiring new skills and knowledge. They also demonstrate their commitment by accepting responsibility for student learning and behavior (Porter and Brophy, 1988 as cited by Caigoy, 2007).

The initiatives for a continuing professional advancement should originate from the individual teacher. Possessing the innate qualification which is positive aptitude towards teaching, one who is “born to teach” is undoubtedly driven to excel in her chosen vocation. Not content with basic competencies she strives to push forward her professional reach by following a consistently enriched professional growth agenda that could be scheduled on a long or short duration. Tired of the traditional practices, she seizes every opportunity to keep attuned to current educational reforms which are planned by higher education institutions. Endowed

with values of creativity and persistence, she is likely to sustain professional and personal growth as well (Salandanan, 2005).

Salandanan (2005) added that professional growth can also be attained by being a member of professional organizations, participating in their important ventures, and at the same time gaining reliable updates during their annual conventions. Reunions of active members foster reciprocal support and assistance for a variety of movements to elevate the profession.

The quality of professional development is the central component in the work endeavor. High quality professional development is an important and necessary pre-requisite to improvement. Professional development's influence on students is accomplished principally through its direct effect on teacher's knowledge and practices (Gushey, 2000).

Throughout the ages, great teachers have taught with authority. As a starter element of good teaching, authority signifies the teachers' enduring influence over their students. The teachers' authority is earned. It is anchored on their stock of knowledge and understanding. It is not only substantial knowledge that is implied, rather a continuous searching and accumulation of knowledge. This element, if missed, will make learning stop as well. A knowledgeable teacher is acknowledged as an authority of the discipline she handles (Salandanan, 2007). Hence, teachers need to engage in lifelong learning in order to maintain professional expertise in relevant areas (Martin, 1991).

On Physiological Status

Physiological status pertains to biological function of a normal person which requires the satisfaction of physiological needs for the human body to function normally. These physiological needs include food, water, air, sleep, sex, and reasonably comfortable temperature. These needs arise from the basic physiology of life and are important for survival and preservation of species.

The state of the physical body affects the mind, and the state of mind affects the physical body. Everyone, therefore, must be treated as a whole: mind and body in one.

Maslow's Hierarchy of Needs gives the importance of a person's primary and secondary needs. Psychologists recognize that needs have certain priority. As more basic needs are satisfied, a person seeks to fulfill the higher-level needs. If one's basic needs are not met, they claim priority, and efforts to satisfy the higher-level needs must be postponed. A need hierarchy of five levels by Maslow has gained wide attention. These five levels include the following: (1) basic physiological needs, (2) safety and security needs, (3) belonging and social needs, (4) esteem and status needs, and (5) self-actualization and fulfillment needs.

Need levels are important because they usually have definite sequence of domination. Second-level needs do not dominate until first-level needs are reasonably satisfied; third-level needs do not dominate until first- and second-level needs have been reasonably achieved; and so on.

In a Conference on Wellness Awareness Week in the United States, the importance of health life including tips were discussed (Coles, 2006). Coles stressed that it is important to take care of our health by scheduling check-ups, exercising, and eating the right amount, and simply taking time to find the health and wellness resources that are available locally. He said that professionals often struggle to fit into daily routines due to many responsibilities at work, family, and social gatherings. He encouraged professionals to learn how to live healthier and make better decisions about health and well-being.

The American Society of Health-System Pharmacists (ASHP) recommends to the consumers to be aware of their medication needs as they prepare for any emergency. The following tips can make you ready:

- Keep a list of all your medication in your wallet. Include list of immediate family members, drug name, and dosage form.
- Wear your medical alert or bracelet.
- Store 3-5 days of medications that are important to your health.
- Include any medication used to stabilize an exciting medical condition or keep a condition from worsening or resulting in hospitalization, such as medications for asthma, seizures, cardiovascular disorders, diabetes, psychiatric conditions, HIV, and thyroid disorders.

- Don't store your medications in areas that are susceptible to extreme heat, cold, and humidity.

According to World Health Organization (WHO), good personal hygiene is important in taking care of one's self physically as well as emotionally. People often have infections and illnesses because they do not take good care of themselves physically which can lead to emotional difficulties as well. To avoid physical problems associated with poor hygiene, consider the following ideas to keep one's self clean and healthy: (1) hair care, (2) dental care, (3) physical care, (4) proper intake of medication, (5) following doctor's prescription strictly, (6) consulting the doctor regularly, and (7) avoiding self-medication.

Management is the ability to systematically put into use, into practice, and into place the most possible resources so as to attain desired goals (Arcaro, 2002). Since health is one of resources of people to do their job regularly, then it must be systematically managed by the concerned individual. Health is wealth. This is observed in people's daily life.

In DECS Primer on Values (1997), health refers to man's physical, mental, and social being and not merely the absence of disease or infirmity. The two basic elements contributing to a person's general health are holistic health and cleanliness and physical fitness.

On Psychological Status

Ethics deals with emotions as factors affecting human motivation and behavior. Instead of resenting them, it calls for their refinement. This means that man is expected to act not only with his mind and body, but precisely with his heart and soul.

Man does not act the way a robot does --- without feelings or emotion. In doing his act, man does not only evoke certain sentiments, but his decision or intention to perform is swayed by his emotions (Agapay, 2008). Emotions are generally instinctive in origin. Neither the degree of their intensity, clarity, or awareness makes the human acts to be judged as good or evil. They become good or evil by the attitude of the person manifesting them. A person who nourishes his feeling of hostility towards another is more prone to acquire the motive for inflicting harm on the object of his hatred. This is not to say that a man is helpless in the tide of his emotions and that man's responses to action are emotionally motivated. It means simply that man's thoughts and actions are colored by his emotions.

The psychological and moral aspects of the inner life of man are expressed positively by affections of love, kindness, humility, reverence, justice, and purity. These have vitalizing, purifying, enriching effect. Here, we have psychic energies which in some manner precede every decision and influence it (Agapay, 2008).

The psychological variables included in this study are: spirituality, values and emotional intelligence.

On Spirituality

Spirituality concerns itself with matters of spirit, a concept closely tied to religious belief and faith. Spirituality as a way of life concerns itself with aligning the human will and mind with that dimension of life and the universe that is harmonious and ordered. As such, spiritual disciplines (which are often part of an established religious tradition) enjoin practitioners (trainees or disciples) to cultivate those higher potentialities of the human being that are more noble and refined (wisdom and virtue).

Sayed (2007) talked about the profound influence of spiritual leader Anandmurti Gurumaa on his life and philosophies. He said, "There are many spiritual leaders, masters, and gurus." He described Gurumaa as one of the most charismatic and beautiful human beings he ever met. According to him, "There is a certain aura about her, you can feel the glow when she walks into the room. But what makes her truly special is the fact that you can discuss any topic under the sun with her and she has sure convincing answers to all your dilemmas. Gurumaa does not only talk about Hinduism; her philosophies and ideologies have roots in Sufism, Christianity, Zen, and Islam, which make her teaching truly unique."

To Bauzon (2000), spirituality refers to the spiral journey which has three directions: the inward, outward, and forward, all of which are directed to develop inner relationship with God, allow people to grow in their relationship with the human community, and consider a better future for all humans and the earth. To Ylagan (2007) spirituality refers to values such as faith in God, inner peace, religious tolerance, and unity of all.

Many people have misunderstood spirituality with being religious. However, being religious does not necessarily mean being spiritual.

On Values

Values are perceptions of what is seen and also an interpretation of the sensations being received. They represent basic convictions that “a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or an end-state of existence.” They contain a judgmental element to carry individual ideas as to what is right, good, or desirable.

According to Bacon (1998) in Sabate (2009), as an individual works, he brings part of his culture, values, attitudes, beliefs, sentiments, and practices with him into the workplace. Values are constellations of attitudes about a concept that contains a moral quality of like or dislike, desirable or undesirable. They are used as a criterion in choosing the between alternative course.

How do one’s values affect teaching competencies? Competence is a matter of attitude. According to Jocano (2000), Filipinos are high performers, having positive attitudes or values, and are happy with their jobs. They gain satisfaction in completing difficult tasks, in finding ways to accomplish challenging jobs.

Values do not exist in isolation of one from the others; rather they tend to cluster in a hierarchy of values (also termed value system) which may also be called value orientation. Each person has his own value system or value orientation.

Hidalgo (1986) stresses that in terms of valuing, an action or behavior is said to have an orientation, if it is guided by the meaning the actor attaches to it in

relation to his goals and interests. She thus identifies three modes of value orientations:

- The **cognitive** mode which involves scanning of several courses of action in a particular situation. This also involves commitment to standards in that culture by which validity of judgment is established.
- The **appreciative** (affective) mode, which commits the “actor” to some notions of appropriateness for himself and others, and some notions of discipline in choosing from alternatives that are equally viable choices.
- The **evaluative** (selective, directive, or cognitive) mode which is the point where choice or selection is to be made and correspondingly the point where value standards become affective as guides to selections.

Hidalgo (1986) further notes that evaluative mode connotes a “directive nature since the authorities see evaluative behavior as the basic force that integrates the cognitive and the affective elements.”

From the above cited definitions, several notions on the nature of values orientation may be derived:

- Values orientation consists of aspects of a person's orientations that guide him in choosing certain norms or standards which he uses in situations that require him to make a choice.
- The choices which a person makes in a situation are not random or taken as a chance. They are general sets of rules inherent in a person's value system or system of value orientations which guides him in decision-making, or in making a choice, or in being motivated to take action or behavior towards a situation.
- An action is said to have value orientation if it is guided by a meaning the person attaches to it in relation to his goals and interests, which is realized by the evaluation process of distinguishing, testing, sorting, and selecting.

The characteristic nature of value orientation presented above describes the notion of values orientation in the context of classroom teaching. The demands of the teaching profession are not confined solely to the transmission of knowledge and information. Lardizabal (1977) in Ibasco (2005) takes into account the teacher's personal influence in promoting the development of basic skills, understanding, work habits, desirable attitudes, value judgment, and adequate personal adjustment of the learner.

Legaspi (1987) defines value as that which is or makes something desirable, attractive, worthy of approval or admiration, that which inspires feelings, judgment or attitudes or esteem, commendation, and that which is useful view of certain ends.

Value is objective because it is a participation, and incarnation of the message of the goodness of God. Values are distinguished from norm, from the point of sociology, values refer to the goal; norm is the means to attain the goal. From the vantage point of theology, value refers to the understanding of certain good for an

individual; norm is the manner and the limits within which the concrete realization of the value is possible; thus norms are descriptive of values, values are the foundation of norms.

Andres (1986) as cited by Ibasco (2005), presented the following characteristics of values:

- **Values are relative.** They vary from person to person. What is good for one may not be good for others.
- **Values are subjective.** Values are associated with past experiences encountered.
- **Values are objective.** A value has absolute character. (Example: Food has its own nutritional value).
- **Values are hierarchical.** They have certain degrees of importance.
- **Values are transmitted.** Parents can hand down, a value for instance, to their children; by teachers to their students; by society to its people.

- **Values are caught** from various sources. There are several environmental structures: social and physical; they may or may not enhance values development.
- **Values are copied** and learned by viewing models.
- **Values are personal.** Values are what we are. If values are internalized, they become part of the person.
- **Values are bipolar** in nature. Since value varies in different degrees, it varies in a long continuum from lack of it (or negative) to presence of it (or positive).
- **Values are dynamic.** Values vary in different generations, cultures, and societies, and within persons themselves.

A thing has value when it is perceived as good and desirable. Food, money, and housing have value, because they are perceived as good and the desire to acquire them influences attitudes and behavior. Not only material goods but also ideals and concepts such as truth, honesty, and justice are valuable. For instance, if truth is a value for one, it commends in one an inner commitment that, in turn, translates itself into one's daily speech and action. Truth is good and desirable; it influences attitudes and behavior. Values such as discipline and concern for the poor are ineffective, unless they are translated into action. Therefore, there is a need for a Value Education Program that is truly meaningful and effective (DECS and UNESCO, 1997).

In response to the need for a meaningful and effective values education, the DECS has embarked in 1997 on the Revised Version of the Values Education Program with the following description of the core and related values:

- In the physical dimension, the core values are health and harmony with nature.
- In the intellectual dimension, the core values are truth and tolerance.
- In the moral dimension, the core values are love and goodness.
- In the spiritual dimension, the core value is global spirituality.
- In the social dimension, the core values are peace and justice.
- In economic dimension, the core value is sustainable human development.
- In the political dimension, the core values are nationalism and globalism.

On Emotional Intelligence

Emotional intelligence has become one of the most publicized and least understood new theories to impact education in recent times. Serious study began in 1980's and prolific data were gathered and analyzed into the 90's. The work of Goleman (1995) and Salovey (1997) furnish us with insight into the assessment of individual's intellect that filters out the purely academic and reflex action-based testing tools that are commonly used like IQ tests to measure intellectual ability. On the most superficial level, emotional intelligence is relegated to the understanding of one's feelings and management of behaviors. It includes reflection of other's

behaviors and the ability to recognize emotional response from others. It is pertinent to adult learning, in that, it is an intelligence that might very well increase with age if developed earlier in life. It is a learned skill that has practical application in the working world and is a modest predictor of success in most life endeavors. The emotional intelligence of an instructor is as important as that of the learner. When learner and instructor interact and collaborate in the learning process, a mutually beneficial environment for transformational learning results.

According to Cooper (1996), Emotional Quotient is not about putting a good face on things or the psychology of control, exploitation, or manipulation. The word emotion may be simply defined as applying movement to core feelings. As emotional intelligence, it is the intellect that motivates us to pursue our unique potential and purpose, and activates our innermost values and aspirations, transforming them from things we think to what we live.

At the center of these traits is something every great leader must have: the capacity to create excitement. This is similar to what is generally called the ability to motivate one and others. On the other hand, scientists now consider Emotional Quotient as a learnable intelligence, one which can be developed and improved at anytime and at any age. It also turns out that emotional intelligence is in effect, an indispensable activator and enhances intellectual prowess or IQ. The fact is, for people with identical IQ's some will outperform others. That is something or a large part of it is IQ. When emotions are acknowledged and guided constructively, they enhance intellectual performance (Rosenthal, 1997).

Emotional Intelligence (EI) describes the ability, capacity, skill or, in the case of the trait EI model, a self-perceived ability, to identify, assess, and manage the emotions of one's self, of others, and of groups (Bradberry and Greaves (2009). Different models have been proposed for the definition of EI and disagreement exists as to how the term should be used (Mayer, et al., 2008). Despite these disagreements, which are often highly technical, the ability EI and trait EI models

(but not the mixed models) enjoy support in the literature and have successful applications in different domains.

There are three main models of Emotional Intelligence: ability EI models, mixed models of EI, and trait EI model.

The ability-based model. Salovey and Mayer's conception of EI strives to define EI within the confines of the standard criteria for a new intelligence. Following their continuing research, their initial definition of EI was revised to: "The ability to perceive emotion, integrate emotion to facilitate thought, understand emotions and to regulate emotions to promote personal growth" (Mayer and Salovey, 2008).

The ability based model views emotions as useful sources of information that help one to make sense of and navigate the social environment (Salovey and

Grewal, 2005). The model proposes that individuals vary in their ability to process information of an emotional nature and in their ability to relate emotional processing to a wider cognition. This ability is seen to manifest itself in certain adaptive behaviors. The model proposes that EI includes 4 types of abilities:

- **Perceiving emotions** — the ability to detect and decipher emotions in faces, pictures, voices, and [cultural artifacts](#)- including the ability to identify one's own emotions. Perceiving emotions represents a basic aspect of emotional intelligence, as it makes all other processing of emotional information possible.
- **Using emotions** — the ability to harness emotions to facilitate various cognitive activities, such as thinking and problem solving. The emotionally intelligent person can capitalize fully upon his or her changing moods in order to best fit the task at hand.
- **Understanding emotions** — the ability to comprehend emotion language and to appreciate complicated relationships among emotions. For example, understanding emotions encompasses the ability to be sensitive to slight variations between emotions, and the ability to recognize and describe how emotions evolve over time.
- **Managing emotions** — the ability to regulate emotions in both ourselves and in others. Therefore, the emotionally intelligent person can harness emotions, even negative ones, and manage them to achieve intended goals.

Mixed models of EI. These include the **Emotional Competencies (Goleman) model** and the **Bar On model of Emotional-Social Intelligence (ESI)**.

- **The Emotional Competencies (Goleman) model.** The model introduced by **Goleman** (1995) focuses on EI as a wide array of competencies and skills that drive leadership performance. Goleman's model outlines four main EI constructs:
 - Self-awareness — the ability to read one's emotions and recognize their impact while using gut feelings to guide decisions.
 - Self-management — involves controlling one's emotions and impulses and adapting to changing circumstances.
 - Social awareness — the ability to sense, understand, and react to others' emotions while comprehending [social networks](#).
 - Relationship management — the ability to inspire, influence, and develop others while managing conflict.

Goleman (1995) includes a set of emotional competencies within each construct of EI. Emotional competencies are not innate talents, but rather learned capabilities that must be worked on and can be developed to achieve outstanding performance. He posits that individuals are born with a general emotional intelligence that determines their potential for learning emotional competencies. Goleman's model of EI has been criticized in the research literature as mere "pop psychology" (Mayer, et al., 2008).

- **The Bar-On model of Emotional-Social Intelligence (ESI).** Bar-On (1997) defines emotional intelligence as being concerned with effectively understanding oneself and others, relating well to people, and adapting to and coping with the immediate surroundings to be more successful in dealing with environmental demands. He posits that EI develops over time and that it can be improved through training, programming, and therapy. He hypothesizes that those individuals with higher than average E.Q.'s are in general more successful in meeting environmental demands and pressures. He also notes that a deficiency in EI can mean a lack of success and the existence of emotional problems. Problems in coping with one's environment are thought to be especially common among those individuals lacking in the subscales of reality testing, problem solving, stress tolerance, and impulse control. In general, he considers emotional intelligence and cognitive intelligence to contribute equally to a person's general intelligence, which then offers an indication of one's potential to succeed in life Bar-On (2006). However, doubts have been expressed about this model in the research literature (in particular about the validity of self-report as an index of emotional intelligence) and in scientific settings, it is being replaced by the trait EI model (Kluemper, 2008).

The Trait EI model. Petrides and colleagues (2007) proposed a conceptual distinction between the ability based model and a **trait** based model of EI. Trait EI is "a constellation \ of emotion-related self-perceptions located at the

lower levels of personality". In lay terms, trait EI refers to an individual's self-perceptions of their emotional abilities. This definition of EI encompasses behavioral dispositions and self perceived abilities and is measured by **self report**, as opposed to the ability based model which refers to actual abilities, which have proven highly resistant to scientific measurement. Trait EI should be investigated within a **personality** framework (Petrides and Furnham, 2001). An alternative label for the same construct is trait emotional self-efficacy.

The trait EI model is general and subsumes the Goleman and Bar-On models discussed above. The conceptualization of EI as a personality trait leads to a construct that lies outside the taxonomy of human cognitive ability. This is an important distinction in as much as it bears directly on the operationalization of the construct and the theories and hypotheses that are formulated about it (Petrides and Furnham (2000).

However, there are criticisms on the theoretical foundation of Emotional Intelligence as follows:

- **Emotional Intelligence is too broadly defined and the definitions are unstable.** One of the arguments against the theoretical soundness of the concept suggests that the constant changing and broadening of its definition- which has come to encompass many unrelated elements — had rendered it an unintelligible concept. Other critics mention that without some stabilization of the concepts and the measurement instruments, meta-

analyses are difficult to implement, and the theory coherence is likely to be adversely impacted by this instability (Landy, 2005).

- **EI cannot be recognized as a form of intelligence.** Goleman's early work has been criticized for assuming from the beginning that EI is a type of intelligence. Eysenck (2000) writes that Goleman's description of EI contains assumptions about intelligence in general, and that it even runs contrary to what researchers have come to expect when studying types of intelligence. Similarly, Locke (2005) claims that the concept of EI is in itself a misinterpretation of the intelligence construct, and he offers an alternative interpretation: it is not another form or type of intelligence, but intelligence—the ability to grasp **abstractions**--applied to a particular life domain:
- emotions. He suggests the concept should be re-labeled and referred to as a skill.
- **EI has no substantial predictive value** Landy (2005) has claimed that the few **incremental** validity studies conducted on EI have demonstrated that it adds little or nothing to the explanation or prediction of some common outcomes (most notably academic and work success). He proposes that the reason some studies have found a small increase in **predictive validity** is in fact a **methodological** fallacy — incomplete consideration of alternative explanations. EI is compared and contrasted with a measure of abstract

intelligence but not with a personality measure, or with a personality measure but not with a measure of academic intelligence.

Emotional Intelligence Theory (EQ - Emotional Quotient). The early Emotional Intelligence theory was originally developed during the 1970s and 80s by the work and writings of psychologists Howard Gardner (Harvard), Peter Salovey (Yale) and John 'Jack' Mayer (New Hampshire). Emotional Intelligence is increasingly relevant to organizational development and developing people, because the EQ principles provide a new way to understand and assess people's behaviors, management styles, attitudes, interpersonal skills, and potential. Emotional Intelligence is an important consideration in human resources planning, job profiling, recruitment interviewing and selection, management development, customer relations and customer service, and more.

Emotional Intelligence links strongly with concepts of love and spirituality: bringing compassion and humanity to work, and also to Multiple Intelligence' theory which illustrates and measures the range of capabilities people possess, and the fact that everybody has a value.

The EQ concept argues that IQ, or conventional intelligence, is too narrow; that there are wider areas of Emotional Intelligence that dictate and enable how successful we are. Success requires more than IQ (Intelligence Quotient), which has tended to be the traditional measure of intelligence, ignoring essential

behavioral and character elements. We've all met people who are academically brilliant and yet are socially and inter-personally inept. And we know that despite possessing a high IQ rating, success does not automatically follow.

Emotional Intelligence --- Two Aspects. This is the essential premise of EQ: to be successful requires the effective awareness, control and management of one's own emotions, and those of other people. EQ embraces two aspects of intelligence: (1) Understanding yourself, your goals, intentions, responses, behavior and all; and (2) Understanding others, and their feelings.

Emotional Intelligence --- The Five Domains. Goleman identified the five 'domains' of EQ as: (1) Knowing your emotions; (2) Managing your own emotions; (3) Motivating yourself; (4) Recognizing and understanding other people's emotions; and (5) Managing relationships, ie., managing the emotions of others.

Emotional Intelligence embraces and draws from numerous other branches of behavioral, emotional and communications theories, such as Neuro-Linguistic Programming (NLP), Transactional Analysis, and empathy. By developing our Emotional Intelligence in these areas and the five EQ domains we can become more productive and successful at what we do, and help others to be more productive and successful too. The process and outcomes of Emotional Intelligence development also contain many elements known to reduce stress for individuals

and organizations, by decreasing conflict, improving relationships and understanding, and increasing stability, continuity and harmony.

A major block to the learning process in any environment is the presence of distractions that inhibit the reception of information. The learners themselves can be a distraction because of problems they bring from outside the classroom, or lack of focus. This, combined with other students' disruption may result to instructor personality conflict, or poor delivery can ensure that little effective learning takes place. Varying the delivery method, asking questions, or repeating the topic in different manners, can help to maintain focus for the learner. Drawing them into discussion with the exchange of the instructor's personal experiences and drawing on the learner's experiences tends to realign focus and make the material personally rewarding. This technique employs the emotion management aspects of the group's emotional intelligence (Ponciano, 2007).

On Teacher's Personality Traits

Personality is derived from the Latin word *persona*, meaning "masks" which are used to refer to central and enduring aspects of the individual (Kahayon and Aquino, 1999). On the other hand, Santos (1996) said that:

"Personality as the sum total of the qualities and characteristics of a person as shown in his manner of walking, talking, dressing, acting and attitudes, interests, and ways of reacting to other people. It includes all the factors within the individual that influence his way of behaving, thinking and feeling. The self-projected image and how others regard him is the mirror of one's personality."

In contrast, Mison, et al. (1990) defines personality as the organization of biological, psychological, socio-cultural, and educational factors that underlie a person's behavior. It is a product of multifarious factors that include a man's innate biological heritage, his environmental experiences, and his cultural linkages. However, according to Salandanan (2005):

“Personality is the totality of one's “outward character” and charm. It is the sum of feelings and reactions evoked by a person. A teacher's personality is her own identity and individuality. No two persons can project the same type of personality. Some could be affable and exude a distinct charisma, which could win student's attention, while others may appear less attractive and too passive for them. In the chosen career of teaching, her personality could serve as an inspiration or otherwise to the student whom she pledge to “lead by the hand.” A pleasing one could be admired to no end and she can become a “secret hero.” The profound effect a teacher's personality can bring about in a student cannot be over emphasized. It exerts tremendous influence in the making of a student.”

Following are some outstanding personal traits that are easily perceived and enjoyed by students (Salandanan, 2005): a) friendly and kindhearted; b) active and lively throughout the day; c) with a ready smile; d) humble in speech and action; e) understanding and approachable; f) witty and full of humor; g) time-conscious and punctual; h) regular in attendance; i) very simple, honest, and sincere; and j) respectable and respectful.

In [psychology](#), Trait theory is a major approach to the study of human [personality](#). Trait theorists are primarily interested in the measurement of traits, which can be defined as habitual patterns of behavior, thought, and emotion (Kassin, 2003). According to this perspective, traits are relatively stable over time,

differ among individuals (e.g. some people are outgoing whereas others are shy), and influence behavior.

Gordon Allport was an early pioneer in the study of traits, which he sometimes referred to as dispositions. In his approach, *central traits* are basic to an individual's personality, whereas *secondary traits* are more peripheral. *Common traits* are those recognized within a culture and may vary between cultures. *Cardinal traits* are those by which an individual may be strongly recognized. Since Allport's time, trait theorists have focused more on group statistics than on single individuals. Allport called these two emphases "nomothetic" and "idiographic," respectively (Eysenck, 1991).

There is a nearly unlimited number of potential traits that could be used to describe personality. The statistical technique of factor analysis, however, has demonstrated that particular clusters of traits reliably correlate together. Eysenck (1991) has suggested that personality is reducible to three major traits. Other researchers argue that more factors are needed to adequately describe human personality (Saucier and Goldberg, 1998). Many psychologists currently believe that five factors are sufficient (McCrae and Costa, 1992).

Virtually all trait models, and even ancient Greek philosophy, include [extraversion vs. introversion](#) as a central dimension of human personality. Another prominent trait that is found in nearly all models is Neuroticism, or emotional instability (Eysenck, 1991).

Eysenck's three-factor model contains the traits of [extraversion](#), neuroticism, and psychoticism. The five-factor model contains openness, [extraversion](#), neuroticism, agreeableness, and conscientiousness. These traits are the highest-level factors of a hierarchical taxonomy based on the statistical technique of factor analysis. This method produces factors that are continuous, bipolar, can be distinguished from temporary states, and can describe individual differences (Goldberg, 1993). Both approaches extensively use self-report questionnaires. The factors are intended to be [orthogonal](#) (uncorrelated), though there are often small positive [correlations](#) between factors (Eysenck, 1990). The five factor model in particular has been criticized for losing the orthogonal structure between factors (Block, 1995; Daycott, 1995). Eysenck (1992) has argued that fewer factors are superior to a larger number of partly related ones. Although these two approaches are comparable because of the use of factor analysis to construct hierarchical taxonomies, they differ in the organization and number of factors.

Whatever the causes, however, psychoticism marks the two approaches apart as the five-factor model contains no such trait. Moreover, apart from simply being different high-level factor psychoticism, unlike any of the other factors in either approach, does not fit a [normal distribution curve](#). Indeed, scores are rarely high thus skewing a normal distribution (Matthews, et al, 2003). However, when they are high there is considerable overlap with psychiatric conditions such as antisocial and [schizoid personality](#) disorders. Similarly, high scorers on neuroticism are more susceptible to sleep and [psychosomatic](#) disorders (Eysenck and Eysenck, 1991).

Five factor approaches can also predict future mental disorders (Costa and McCrae, 1990; Lynam, et al., 2005).

Eysenck suggests that different personality traits are caused by the properties of the brain, which themselves are the result of genetic factors (Eysenck and Eysenck, 1985). In particular, the three factor model identifies the [reticular system](#) and the limbic system in the brain as key components, with the specific functions of mediating cortical arousal and emotional responses respectively. Eysenck (1994) advocates that extraverts have low levels of cortical arousal and introverts have high levels, leading extraverts seek out more stimulation from socializing and being venturesome. Moreover, he surmised that there would be an optimal level of arousal after which inhibition would occur and that this would be different for each person. In a similar vein, the three-factor approach theorizes that neuroticism is mediated by levels of arousal in the limbic system with individual differences arising because of variable activation thresholds between people. Therefore, highly neurotic people when presented with minor stressors will exceed this threshold, whereas people low in neuroticism will not exceed normal activation levels, even when presented with large stressors. By contrast, proponents of the five-factor approach assume a role of genetics and environment but offer no explicit causal explanation.

The teachers are no exception to the Trait theory. According to Salandanan (2007) a teacher in the classroom exudes a personality all his own – truly distinct or “one-of-a-kind.” No two teachers can form exactly the same personalities. It is this uniqueness of one’s character that places it at the forefront in considering its effects on students’ learning.

The teachers’ personality is akin to authority and ethics in paving the way towards students’ learning. Personable teachers likewise show their natural self, devoid of pretensions. They are consistently aware of a teacher’s role in credibly developing and sustaining positive characteristics and outlook towards a better life through their commendable words and deeds (Salandanan, 2007). She also said that personality is an element of teaching that is highly dependent on the teacher’s true character, not on one that is assumed for the sake of being branded a classroom icon.

Teacher characteristics have also been accepted as valid measures or description of teacher’s competence and they have formed the basis of much instructional analysis. These factors have been referred to as the presage variables, which cannot possibly be developed by teacher training institutions (Mitzel, 1982 as cited in Ponciano, 2007).

Because teachers serve as role models for students, their self-concept, methods of teaching, attitudes toward learning, and social values and attitudes are likely to be shared and mimicked by students.

Ornstein (1990) as cited in Caigoy (2007) defined twelve (12) successful characteristics of an effective teacher: a) resourcefulness; b) intelligence; c) emotional stability; d) considerateness; e) buoyancy; f) objectivity; g) drive; h) dominance; i) attractiveness; j) refinement; k) cooperativeness; and l) reliability. Similarly, Tuckman as cited by Caigoy (2007) clustered the characteristics of an effective teacher into four “dimensions.” These are: a) Creative (The creative teacher is imaginative, experimenting, and original; the noncreative teacher is routine, exacting, and cautious); b) Dynamic (The dynamic teacher is outgoing, energetic, and extroverted; the non-dynamic teacher is passive, withdrawn and submissive); c) Organized (The organized teacher is purposeful, resourceful, and in control; the disorganized teacher is capricious, erratic, and flighty); and d) Warm (The warm teacher is sociable, amiable, and patient; the cold teacher is unfriendly, hostile, and impatient).

On the other hand Salandanan (2007) mentioned twelve (12) qualities inherent in the teacher. These are the winning qualities that make teachers true to their chosen career:

- **Enthusiasm.** Enthusiasm is like a spark that is easily noticed. It is one of the most needed “energizer” that could motivate students. It is evident in a teacher’s eagerness and excitement in getting students involve in a learning activity. Originating from her interest, her unmistakable exuberance emerges, as if convincing the students that “this is the day they have been waiting for.”

An enthusiastic teacher will surely incite the same degree of enthusiasm among her students.

- **Commitment.** Commitment makes up the qualities of passion and persistence. A passionate teacher never fails to honor her commitments. A persistent teacher is committed to work unceasingly. Both create relationships that are sustained by undying commitment. A teacher's commitment is a solemn promise to perform the duties and responsibilities mandated by the laws and code of ethics of the teaching profession. It is an unwavering pledge to perform all teaching and learning activities with consistency and intensity for the best interest of the students under her care.
- **Honesty.** Honesty is simply truthfulness. An honest person is one who is sincere and "authentic." He can be trusted because he is open and there are no signs of deceit or fraud. He has integrity. As used in teaching, honesty is a moral virtue that implies uprightness and trustworthiness. An honest teacher is true to his words and can be relied upon. Likewise, an honest teacher is incorruptible.
- **Compassion.** Compassion suggests "feeling with," "profound concern," or "suffering with." It is the element which must be enshrined permanently in the classroom for its elevating and humane effect on both the teacher and the students. Compassion in teaching signifies a powerful reaction that shows one's awareness of the difficulties that afflict others. It is not simply an

emotion or feeling. It is identification by the teacher with the students' travails and "ignorance." Hence, patience, tolerance, and understanding become the bases of compassion.

- **Persistence.** To persist means "to work unflaggingly." Described as persistent, one will not give up easily. Persistence is the quality that keeps teachers' determination to teach and help students to learn. They are steadfast in "forcing" them to try, should they be faced with difficulties and obstacles, and not to hang up. Teachers should not give up easily, students too. Unmindful of the toll on their own health, peace of mind, and interests, they keep on teaching.
- **Fairness.** Fairness is adjudged as one's impartiality. It is an important quality of teachers as they face a wide range of personalities every minute of their waking hours – young and adults, schooled and non-schooled, affluent and impoverished. Evaluating students' behavior and performance in the subject is one of the most exacting duties of a teacher. They have to discern how students express their feelings and settle any disputes that may occur. Their behaviors are reviewed and analyzed before a verdict is arrived at.
- **Integrity.** A common perception of a person with integrity is "upright" or morally sound. The teachers, more than any other professional, should possess an inimitable probity, honesty in thoughts and stature, and indisputable fairness in making decisions. Indeed, teachers must be worth

the trusteeship bestowed by parents whose undying hope for the future of their children is valued more than their lives. They must be paragons of all the virtues that will enable them to mold the youth.

- **Adventure.** For a teacher adventure suggests one's endless "quest." It is used in teaching since students, young or old, are observed to be always seeking excitement in everything they do. To some extent, they could be described as daring, bold, and courageous. Adventure regarded as an act of teaching never fails to get students highly motivated and excited, thus automatically stirring them to get actively involved in any learning activity. Mostly conducted in natural settings, such ventures for educational purposes could serve as the answer to a dull and boring classroom routine.
- **Resilience.** Resilience is the quality that describes one as flexible and irrepressible. For a teacher who is employed in a personality-complex school, performing daily activities can turn out into a threatening, sometimes discouraging and depressing experience. His resilience, which hopefully he possesses or else he will not stay in the profession, will save his day before it drives him to routine depression. The ability to forego negative results for appropriate alternatives is the answer instead of dejection and ruefulness.
- **Appreciation.** Appreciation is a sign of gratitude. An appreciative person is one who shows admiration for a thing done or received. He is cognizant of other peoples' worth. A teacher's sincere feeling of gratitude is most

important in making an impact in his dealings with close associates – administrators, co-teachers, support staff, and students. He is likewise thankful for the trust bestowed by parents in guiding their children to become better day after day. Being an appreciative teacher, he regards teaching as a gift, a mission, and a way of “paying back.”

- **Encouragement.** Encouragement signifies support, sometimes praise. A word of encouragement is meant to inspire or to express confidence for any undertaking. Teachers meet students with varying moods at one time or another, some positive, others negative. Some lessons during the week may turn out to be a little more difficult. It is no surprise to see students about to give up, especially when the activity such as an experiment in Chemistry does not end with an expected product. Encouraging words express confidence, in the end instill hope and optimism.
- **Joy.** Joy stands for happiness, which is linked with a feeling of satisfaction. Joy is a feeling of delight and gaiety. A joyful teacher is a sight to behold. He appears in high spirits and pleasant at all times. Though teaching is not all fun, his countenance covers up for its demanding nature. It attracts the unwilling and disinterested. His humor and wittiness creates ease and openness to fresh ideas and issues, thus contributing to the learning and mastery of the subject.

Salandanan (2005) also mentioned the ABC of desirable teacher attributes. These are: a) amiable, affectionate, accountable, keeps abreast; b) well-behaved,

conduct becoming of a professional, believable, exhibits feeling of belonging, benevolent; c) with a cheerful and caring attitude, creative, compassionate, charming, competent, cultured; d) dynamic, dependable, dignified, with strong determination; e) energetic, enthusiastic, with high self-esteem, with exemplar traits; f) friendly, fun to work with, fair in dealing with others, with finesse; g) generous, gracious, gentle, grateful; h) with a healthy sense of humor, humble, honest; i) with unquestionable integrity, ingenious, inspiring, intelligent, innovative, incorruptible, industrious; j) full of joy, delight, and happiness, just; k) knowledgeable and well-informed, kindhearted, keen observer; l) loving and tender, a leader, lively, likeable; m) with managerial ability, merciful and humane, methodical, modest, a model of virtues; n) with a noble character, novel ways, capable of nurturing a student's mind; o) open-minded, orderly and neat, optimistic in outlook; p) punctual, professional, persistent, progressive-minded, with pleasing personality, principled; q) highly qualified and well-trained, quick witted; r) responsible, righteous and ethical, reliable, rational, with refined manners; s) sincere, simple, systematic, straightforward, skilled, self-confident; t) trustworthy, tactful, thoughtful; u) updated, understanding, unassuming, upright; v) with vigor and enthusiasm, value-laden, virtuous; w) with warm and winsome personality, witty, well-bred; x) with x-ray vision, Christmas spirit; y) youthful; and z) zestful and passionate.

Because of all these, John Holland (cited in Ramirez and Beltran, 2004) in his Personality-Job Fit theory describes the relationship between personality characteristic and job performance. The theory is based on the notion that an individual's personal characteristics should be appropriate for his occupational

environment. In this theory, he cited that together with social workers, counselors, and clinical psychologists, teachers are of the *social* personality type which prefers activities that involve helping and developing others. Their personality characteristics include: *sociable, friendly, cooperative, and understanding*.

On InformationTechnology

Technologies as link to new knowledge, resources, and high-order thinking skills have entered classrooms and schools worldwide. Personal computers, CD-ROMS, on-line services, the World Wide Web, and other innovative technologies have enriched curricula and altered the types of teaching available in the classroom. School's access to technology is increasing steadily everyday and most of these newer technologies are now even used in traditional classrooms (Bilbao, et al., 2006). With the diversity of learners, breakthroughs in technology and multiple teacher perspectives, an innovative teaching is one of the answers to the global demands for quality education.

Bilbao and others (2006) further said that the use of technology in the classroom has never been underscored than now. However, survey data suggest that technology remains poorly integrated into schools, despite massive acquisition of hardware. Some observations indicate that the most frequent use of computers is for drill-and-drill practice that supplement existing curricula and instructional practices. Some thirty years or more ago, the dominant model of teaching was directed instruction or lecture in which student memorized facts. Because of its limitations, educationist began exploring the use of technology that supports models

of teaching that emphasize learning with understanding and more active involvement. Thus a decision to use technology to go beyond facts-based, memorization-oriented curriculum to a curriculum in which learning with understanding are emphasized was embraced. When to use technology, what technology to use, and for what purpose cannot be isolated from theories of teaching and learning that support learning with understanding.

For teachers who are users of technology, Bilbao and others (2006) provide the Technology Standards and Performance Indicators for Teachers as follows:

- **Technology operations and concepts.** Teachers should demonstrate an understanding of sound technology operations and concepts. They should: (1) demonstrate introductory knowledge, skills, and understanding of concepts related to technology; and (2) demonstrate continuous growth in technology knowledge and skills to keep abreast of current and emerging technologies.
- **Planning and designing learning environments and experiences.** Teachers plan and design effective learning environments supported by technology. They should: (1) apply current research on teaching and learning with technology when planning the learning environments and experiences; (2) identify and locate technology resources and evaluate them for accuracy and suitability; (3) plan for the management of technology resources within the context of learning activities; and (4) plan strategies to manage student learning in a technology-enhanced environment.

- **Teaching, learning, and the curriculum.** Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning. Teachers should: (1) use technology to support learner-centered strategies that address the diverse needs of students; (2) apply technology to develop students' higher-order skills and creativity; and (3) manage student learning activities in a technology-enhanced environment.
- **Assessment and evaluation.** Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. They should: (1) use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning; and (2) apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.
- **Productivity and professional practice.** Teachers use technology to enhance their productivity and professional practice. They should: (1) use technology resources to engage in on-going professional development and life-long learning; (2) continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning; (3) apply technology to increase productivity; and (4) use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.

- **Social, ethical, legal, and human issues.** Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in schools and apply those principles in practice. They should: (1) apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities; (2) identify and use technology resources that affirm diversity; (3) promote safe and healthy use of technology resources; and (4) facilitate equitable access to technology resources for all students.

Meeting these standards will guarantee the teachers' ability to cope with the rapid demand for use of technology in the global classrooms. With substantial knowledge, skills, and appropriate attitude in the use of technology, they can apply innovative teaching strategies in the classroom (Bilbao, et al., 2006).

Essentially, technology helps to improve the overall efficiency of the teaching-learning process. This is done through the following ways: a) increasing quality of learning or the degree of mastery; b) decreasing the time taken for learners to obtain desired learning objectives; c) increasing the efficiency of teachers in terms of numbers of learning taught without reducing the quality of learning; and d) reducing educational cost without affecting educational quality (Lucido and Borabo, 1997).

Regarding computer technology, Resta and Burson (1997) said that as the twenty-first century advances, the literate citizen's need to use computer technology to access and manage information continues to increase. Today's student must

develop computer skills and proficiency in using a variety of technology tools. The development of these skills, as in other basic areas of knowledge, is the responsibility of the schools and teachers.

According to Relan And Gillani (1997):

"The World Wide Web through web-based instruction has the potential of revolutionizing college science teaching by replacing didactic, lecture-laden instruction with active learning strategies through flexible access to people and information. It is the application of a repertoire and cognitively oriented instructional strategies implemented with a constructivist and collaborative learning environment, utilizing the resources and attributes of the World Wide Web. It can also provide a wide array of materials that can significantly contribute to student exploration and learning."

According to Lucido and Borabo (1997) information technology in all its various forms and manifestations is making an increasing impact on education as the years go by and it is expected that the current trend will speed up rapidly. Aiding this spread of the use of the computer is the availability of cheap desktop micro-computers. Micro-computers become progressively cheaper and the consequences can be compared with those which resulted from the universal use of the old information technology of the printing press.

They added that schools should ensure that teachers are prepared for this technology challenge and that they should develop a set of competency standards for current and future teachers. These standards identify the skills teacher's need in order to incorporate the use of technology into their curricula and to effectively teach technology skills to students.

Why use educational technology? Salandanan (2006) avers that technology-aided strategies provide valuable experiences through instructional devices that can be viewed and heard. Updated information such as recent discoveries and inventions, improved procedures in doing things, and better products are communicated and learned through pictures, films, tapes, and television. Oral communication lessons could be presented through broadcasts and instructional tapes. Television episodes serialize concepts in Science, English, and Mathematics. Three-dimensional presentations could be in the form of models such as body systems, globe, and miniatures. In chemistry, these could be atomic and molecular models.

Salandanan (2006) added that simple investigations, special reports, and research findings are accomplished through the help of computers, other multimedia facilities, and the internet. Electronically operated gadgets facilitate classroom operations, thus saving on time and effort.

Computers could be used in presenting the day's lesson, solving problems, and providing educational games. Schools should aim for achieving 'computer literacy' and providing experience in operating a unit. Students will eagerly attempt to become familiar with the components such as the computer hardware (equipment) and the software (program), and how it functions. In recent years, computer literacy has been included as part of the curriculum of many schools. Some schools that could afford make use of computer-assisted instructional

applications such as drill-and-practice programs, tutorials, simulations, and game programs (Salandanan, 2006).

Why use information technology? The CTI is challenging all academic staff to rethink their approach to teaching and learning. The past five years have seen dramatic changes in UK higher education: increased student numbers and class sizes; reductions in unit costs; students arriving at university with more diverse academic backgrounds; and Teaching Quality Audit (TQA).

Information technology has a role to play in addressing many of the issues raised by these changes. Our view is that computers should empower good teachers, not de-skill. Computers offer the opportunity to depart from the traditional constraints of the curriculum, allowing teachers and learners to schedule the place, time and pace of learning. Their capabilities can facilitate experiences that would be too expensive, dangerous or time-consuming to generate in conventional terms. Visualization techniques will enable teachers to illustrate their teaching in more dynamic fashion than the current norm.

New generations of authoring tools will broaden the base of courseware authorship and students themselves will increasingly act as authors in their coursework. IT will support important teaching strategies such as collaborative learning as well as assessment.

Promoting the effective and appropriate use of learning technologies will meet the needs of the future and enable change in higher education. The use of

information technology can enhance teaching quality. With higher education institutions finding it ever harder to sustain conventional approaches to teaching and learning the CTI is demonstrating the growing viability of technology-based alternatives.

In the classroom, technology is used to improve the curriculum particularly in small rural schools. The most attractive applications of information technology involve combinations of the two types of technology in ways that depart significantly from traditional thinking about the delivery of instruction and the role played by teachers (Cuban, 1986). On the one hand, microcomputers are becoming a more familiar part of the educational landscape, and teachers are using programmed instructional materials more and more frequently. On the other hand, improvements in telecommunications make it increasingly easy to transmit instructionally useful images and sound over geographically forbidding distances.

Computerized learning programs are now available. A critical feature of programmed learning package computerized, otherwise can be their "stand-alone" feature (Levin & Meister, 1985). Stand-alone programs are completely self-contained in the sense that they do not require the presence or involvement of an on-site teacher. To the extent that effective stand-alone programs become available, it will be relatively easy to enlarge curricular offerings in small rural as well as in other kinds of schools.

In fact, it is not yet clear if the market for the kinds of stand-alone programs desired by small schools will be sufficiently large, even under the most favorable

circumstances, to prompt their development (Carnoy, et al., 1986). Students may learn more, thanks to the innovation, but unless the programs have a stand-alone quality they will not enhance the ability of small rural schools to enlarge and broaden their curricular offerings. Indeed, concluded that microcomputers would actually add to, rather than reduce, the costs of education.

If programmed instruction merely supplements on-site teaching resources, that is, if programmed materials with stand-alone qualities cannot be developed and widely used, their potential for making small rural schools more viable will be minimal. New course offerings will require additional teachers with subject matter expertise, just as is currently the case. No teaching resources will be freed for other uses; thanks to the arrival of programmed materials (Monk, 1989).

On the other hand, a simplistic view of what is required will not serve development well. The requirement for an on-site teacher is not an all-or-nothing matter. It is not so much a question of whether programmed instruction can succeed without any involvement of an on-site teacher as it is a question about the kind of skills and experience the on-site teacher will need to have. If learning programs can be developed which reduce, but do not eliminate the level of subject matter expertise required of on-site teachers, then there can still be considerable potential for improved curriculum and instruction in small rural schools. The possibilities for such improvement are enhanced if the use of programmed materials with some stand-alone qualities is coupled with use of the evolving distance technologies (Barker, 1987).

According to Salandanan (2005) a teacher who is updated on the benefits derived from the use of appropriate technology such as computers, audiovisual devices electronically operated, and various multi-media equipment could enhance her skill in generating new information.

Advances in information and communications technology (ICT) have dramatically ushered teachers into a truly interactive mode of teaching and learning. Access to information-search through telecommunications networking and television broadcasts offers broadening of knowledge dissemination and exchange (Salandanan, 2005).

On Faculty Development Program

According to McNamara (2010), the term "management" traditionally refers to the activities (and often the group of people) involved in the four general functions: planning, organizing, leading and coordinating of resources. Emerging trends in management include assertions that leading is different than managing, and that the nature of how the four functions are carried out must change to accommodate a "new paradigm" in management.

Management development is an effort (hopefully, planned in nature) that enhances the learner's capacity to manage organizations (or oneself). Simply put, managing includes activities of planning, organizing, leading and coordinating resources. A critical skill for anyone is the ability to manage their own learning.

One is much more likely to learn useful skills in management if he develops and implements a training plan. The following will guide him to develop his own complete, highly integrated (and performance-oriented) management development plan: 1) Preparation for designing the management training plan; 2) Identifying the overall goals in management training; 3) Determining the learning objectives and activities; 4) Developing the materials that may be needed; 5) Planning for implementation of the management training plan; 6) Evaluating the management training plan and experiences; and 7) Follow-up after completion of the plan.

For educational institutions, the focus of Human Resource Management is on faculty development. In order to have more competent faculty, plans for developing them should be formulated and consequently implemented. Faculty whose performance needs upgrading and newly hired faculty can be assisted by the Human Resources Department through a carefully prepared training program (Martirez, 1999).

On Total Quality Management (TQM)

The responsibility for quality in higher education is not something that resides in special offices or with selected persons. Causing quality requires the energy, commitment, and knowledge of everyone within the organization (Lewis and Smith, 1994).

Organizations committed to quality through continuous improvement succeed when a work team functions effectively. While the focus is appropriately placed on

the team, to ensure organizational success, the team is comprised of people. The success of the team is dependent on every person of the team. A college or university is only as good as its people, and total quality is ultimately dependent on people – the faculty, the administration, and the professional, technical, and clerical staff (Lewis and Smith, 1994).

One level in the initiation of total quality is individual/task management. The focus is on the development of each person within the framework of his/her work or task. It should be noted that the faculty or the teachers comprise the majority of the people in colleges or universities.

According to Sallis (1993), there are six (6) characteristics of Total Quality Management (TQM) namely:

- *Continuous improvement.* TQM is a practical but strategic approach in running an organization focusing on the needs of our customers and clients. To achieve excellence, design a long-term quality improvement plan that enables constant implementation of innovations, improvement, and changes.
- *Kaizen.* While the philosophy of TQM is large scale, inspirational, and all-embracing, its practical application is small-scale and incremental or what the Japanese call “kaizen,” hence, total drastic changes of implementation must be avoided.
- *A change of culture.* This is difficult to bring about but takes time to implement since it requires a change of attitudes and working methods, and

how people are managed and led. Success requirements include: suitable work environment, encouragement and recognition of achievements, a leadership style and an atmosphere which heighten self-esteem, and individual empowerment.

- *The up-side organization.* The key to success is an effective internal and external customer-supplier chain. Senior and middle management must support and empower the teaching and support staff and the learners, not to control them.
- *Keeping close to the customer.* The primary mission of a TQM institution is to meet the needs and wants of its customers and has an obsession with quality. Quality is what the customer wants and not what we decide is best for them.
- *The quality of learning.* Learners learn best in a style suited to their needs and inclinations. Unless the learning style meets individual requirements, one cannot claim that total quality is achieved.

Among the most important models of quality, three models can be adapted to education. They are the following:

- **Deming's Wheel** (Edward Wilhelm Deming, Father of TQM). Deming sees that the problem of quality is due mainly to management's failure to plan ahead. His theory of management includes the 14-point agenda such as: (1) Create constancy of purpose for improvement of the products and services, with the aim to become competitive and to stay in business, and to provide

jobs; (2) Adopt the new philosophy; (3) Cease dependence on mass inspection to achieve quality; (4) End the practice of warding business on the basis of price; (5) Improve constantly and forever the system of production and service, to improve quality and productivity, and thus to constantly decrease costs; (6) Institute training the job; (7) Institute leadership; (8) Drive out fear, so that everyone may work effectively for the company; (9) Breakdown the barriers between departments; (10) Eliminate slogans, exhortations, and targets, asking for new levels of productivity without providing the workforce with the methods to do the job better; (11) Eliminate work standards that prescribe numerical quotas; (12) Remove the barriers that rob people of their right to pride of workmanship; (13) Institute a vigorous program of education and self-improvement; and (14) Put everyone in the company to work to accomplish the transformation.

- **Juran's Project Management on Strategic Quality Management (SQM).**

This rule claims that 85% of all quality problems of an organization are the results of poorly designed processes. To address these, a 3-part process can be applied based on staff at different levels enabling them to make their own unique contributions to quality improvement: (1) The senior management (first level), has the strategic view of the organization and is in-charge of setting the vision, priorities, and policies of the organization; (2) The middle management (second level), takes an operational view of quality by coordinating the function and relationship between and among teams,

checking on the effectiveness and transmitting, monitoring and evaluation results of teams to senior management; and (3) The team management (third level), takes charge of designing the characteristics and standards of team projects and activities so that they conform to the needs and requirements of their clients.

- **Crosby's 14 Steps to Quality.** This model is pure prevention model, that is, it is possible to deliver error-free work and the only standard is perfection. Crosby's 14-programs of action include: (1) Management issues its policy and commitment to quality; (2) Organize a quality improvement team; (3) Establish bases for quality measurement; (4) Compute cost of quality; (5) Build quality awareness among the staff; (6) Set corrective action; (7) Plan for zero defects; (8) Conduct training for supervisors; (9) Celebrate a zero-defects day; (10) Set goals; (11) Remove causes of errors; (12) Ensure recognition of achievers; (13) Establish a quality council; and (14) Do it over again.

Research Literature

On Teaching Competencies

Teaching competencies have much to do with instructional effectiveness and therefore with the quality of students. Along this line, many factors should be considered.

Bolton (1980) as cited in Ponciano (2007) summarized the pertinent factors for ascertaining the quality of a teacher's competencies as follows: a) in-class behaviors of the teacher as perceived by administrators and others; b) students accomplishments as measured by standardized tests, teacher-made tests, student's project, and observation of student's behaviors.

As Vongyuttakrai (1992) said, teachers should be assigned to an area of specialization that they are academically prepared so they can determine the best mechanics and procedures for attaining their goals. They should not be assigned to other areas.

Ibanez (2007) mentioned that instructional competence and teaching effectiveness is one component and behavior indicator of professionalism in teaching. This component includes the following characteristics: competence, expertise, and autonomy since competence and expertise possessed by teachers are manifested in the delivery of their instruction. For teaching to be effective, teachers should be given certain degree of autonomy to decide on the manner or conduct of practice of the profession to achieve desired goals.

Ponciano (2007) cited the concepts of Tang (1973) on the use of Teacher Behavior Inventory questionnaire for assessing teacher effectiveness; Mitzel (1982) on the teacher characteristics as acceptable descriptors of teacher competence; Nava (1986), on teachers' personal characteristics and behavior as indicators of effective teachers; Salovey & Mayer (1990) and Goleman (1995) on teachers' emotional intelligence as measure related to, or predictors of effective performance;

and Bandura (1986) on teacher's self-efficacy as a major construct for explaining how personalization and modeling are used to enhance the capabilities of students' learning, among others, provided the conceptual underpinnings of his study on the teaching competencies of college mathematics faculty.

The aforementioned study revealed the following:

- The teaching competencies level of the college math teachers in terms of classroom management and instructional planning and student evaluation was due to the teachers' personal characteristics: age and academic rank; curriculum expertise was due mostly to his GPA in college, self-beliefs, and emotional intelligence.
- Math teachers having higher GPA in college and emotional intelligence are associated with better classroom management and curriculum expertise skills, but wanting in instructional planning skills and in the use of information technology inside the classroom.
- There are seven (7) best predictors of the teacher's teaching competencies namely: emotional intelligence, use of information technology, self-beliefs, membership in professional organizations, GPA in college, personality traits, and field of specialization.
- Teachers with higher mean GPA in college, educational attainment, self-beliefs, and emotional intelligence tend to have higher mean ratings in the curriculum expertise dimension.

- Teachers who utilized either the cooperative learning or the active learning approach tend to have higher mean ratings on the instructional planning and evaluation dimensions.

A study of 132 teachers and their 4,535 students in Hong Kong showed that teacher's social self, pedagogical self, and personal self were predictors of teacher behaviors, which in turn predicted student achievement (Chan, 1992).

According to Alexander (2005), few educators, economists, or politicians would argue with the contention that "all things being equal, highly qualified teachers produce greater student achievement than comparatively less qualified teachers." Similarly, a research conducted by Wong (2004) confirmed that teacher and teaching quality are the most powerful predictors of student success. Hence, school can ensure higher student achievement by ensuring better teaching.

On Curriculum Expertise

The link between teacher competence and student achievement is evident in conclusions drawn by Glasser (1985) as cited in Ponciano (2007) in which he explained that the focus of what is learned in the classroom is much more the responsibility of the teacher than that of the student. Glasser's contention was that classroom instruction to learn. "Teaching is not doing things to or for students. Teaching is structuring your whole approach in a way that they want to learn."

In science teaching, Pajarillo (1998) said that one of the most serious handicaps to an adequate science program is the feeling of inadequacy to teach

science subjects as experienced by majority of the science teachers. Taking other variables constant, one can assume that the majority of the science teachers who are teaching chemistry and physics lack interest in teaching the subjects since they feel the inadequacy of their preparation. This feeling is aggravated by the inadequacy of instructional materials. This seems more logical and is widely accepted by both the administrators and teachers.

No matter what the academic preparation of the teacher is, he should be guided by the suggestions of Esguerra (1997). She said:

“Science can be viewed as a conceptual system. It is usually referred to as a field of information or knowledge organized in definite areas of study. Teachers should not be contented with rote learning but rather be concerned with a meaningful learning. However, it cannot be denied that most traditional schools still view science teaching as a transmission of knowledge and relegates a passive status to the learner as the receiver of information.”

Science classrooms also have the potential to provide those opportunities needed to induct students into the practices of scientists. School science laboratories provide such opportunities to begin using the practical and linguistic tool of science.”

The affective and cognitive aspects of the science classroom learning environment are basically determined by the teacher. Attempts are made to engage students in the learning and understanding of science. In order to develop positive attitudes and understanding of science, science teachers need to recognize the relationship between the manner by which students initially experience and process information and their subsequent ability to retrieve and transfer that knowledge to novel situations (Minstrell, 1989 as cited in Esguerra, 1997).

In Chemistry, many approaches and techniques have been tried to facilitate understanding of chemistry concepts. One approach is peer-tutoring. In this approach, the student who instructs a peer is an expert and the one who receives assistance is a novice. This approach provides opportunities for the expert, who has mastered a concept, to share or impart the concept to students who asked for assistance. Wallace (1996) states that learning atmosphere that is relaxed, informal, and that emphasizes interactive peer learning leads to an increased academic achievement.

As a teaching approach, peer tutoring allows students to discuss misconceptions, confusions, and misunderstanding in a cooperative group setting outside of regular class. It also allows students to “master course concepts and, at the same time, to increase their competence in reading, reasoning, and study skills (Martin, et al., 1992). It is utilized as an interactive learning approach to combat the features of traditional chemistry teaching techniques, with the hope of increasing the conceptual knowledge and retention rate of Introductory Chemistry students (Webster and Hooper, 1998).

Studies on peer-tutoring as Supplemental Instruction (SI) program applied to Chemistry and Mathematics subjects in the United States have shown that it improves students' grades, reduces rates of dropout, and provides a forum for learning essential study strategies and developing skills in comprehension, analysis, critical thinking, and problem solving. It also develops leadership skills among students (Rye and Wallace, 1994).

SI provides the opportunity for all students in historically difficult courses to benefit from voluntary involvement in cooperative small group learning in a structured or formalized way, thus providing the much needed support. When they enter the university students typically perceive their needs of being content-centered. However, experience shows that marginal students tend to show a common need for learning and thinking skills, which are basic to content mastery (Martin, et al., 1992).

Along this line, Lazaro (2003) determined whether participation of First Year *students* in peer tutoring program helps improve their performance in Chemistry 100. The study concluded that: a) Peer tutoring influenced the students' attitude in Chemistry 100 (those who attended the program learned to appreciate Chemistry); b) It improved the achievement of students and it has developed in them a sense of responsibility to each other; c) No significant correlation was found between the students' attitude towards Chemistry 100 and their achievement test scores; d) Its learning atmosphere was found to be relaxed and informal (students are free to ask questions and are not hesitant to voice their difficulties); and e) the tutees showed a positive attitude towards peer tutoring.

Teachers who view and present science as a list of unrelated terms, rather than as a concept building process, perpetuate science classroom learning environment which foster negative attitudes and alienate students. According to Tullock (1986) as cited in Esguerra (1997), effective science teachers demonstrate an understanding of facts, concepts, and principles by not only presenting accurate

science lessons which include explanations and scientific examples, but also by reacting confidently expertly to an expected changes of direction during the lesson. Peterson (1988) and Treagust, et al. (1988) as cited in Esguerra (1997), added that thoughtful and effective teaching comes from being reflective practitioners who actively and carefully consider what science education is all about.

On Instructional Organization and Planning

One aspect of classroom teaching is organizing student learning activities. To do this, the teacher plans these learning activities in advance and sees to it that he is always well prepared for the class. Garcia (1989) in Gan (2004), said that the best classroom management technique is to be well prepared for the lesson. Preparing visual aids, seatwork, and other activities well and in advance gives the confidence that the teacher knows exactly what he is going to do for the next period. It is usually when he hesitates and shows tentativeness when students get uncomfortable, uneasy, and distracted, and in some way starts getting unruly. Knowing one's business well evokes respect, not only with young students.

On Classroom Management

To manage means to direct and to take care of everything. In the classroom it would mean to supervise or control (Salandanan, 2007). Once a teacher loses control of their classroom, it becomes increasingly more difficult for them to regain that control. Research from Berliner (1988) and Brophy & Good (1986) shows that the time that teacher has to take to correct misbehavior caused by poor classroom

management skills results in a lower rate of academic engagement in the classroom.

Berliner (1988) further said that classroom management is closely linked to issues of [motivation](#), [discipline](#) and [respect](#). Methodologies remain a matter of passionate debate among teachers; approaches vary depending on the beliefs a teacher holds regarding educational psychology. A large part of traditional classroom management involves behavior modification, although many teachers see using behavioral approaches alone as overly simplistic. Many teachers establish rules and procedures at the beginning of the school year. They also try to be consistent in enforcing these rules and procedures. Many would also argue for positive consequences when rules are followed and negative consequences when rules are broken. There are newer perspectives on classroom management that attempt to be [holistic](#). One example is [affirmation](#) teaching, which attempts to guide students toward success by helping them see how their effort pays off in the classroom. It relies upon creating an environment where students are successful as a result of their own efforts.

Classroom management and management of student conduct are skills that teachers acquire and hone over time. These skills almost never "jell" until after a minimum of few years of teaching experience. To be sure, effective teaching requires considerable skill in managing the myriad of tasks and situations that occur in the classroom each day. Skills such as effective classroom management are central to teaching and require "common sense," consistency, a sense of fairness,

and courage. These skills also require that teachers understand in more than one way the psychological and developmental levels of their students. The skills associated with effective classroom management are only acquired with practice, feedback, and a willingness to learn from mistakes (Brophy and Good, 1986).

A teacher's classroom-management system communicates information about the teacher's beliefs on content and the learning process. It also circumscribes the kinds of instruction that will take place in a particular classroom. A classroom in which the teacher takes complete responsibility for guiding students' actions constitutes a different learning environment than one in which students are encouraged and taught to assume responsibility for their own behaviors. Content will be approached and understood differently in each of these settings. Furthermore, more intellectually demanding academic work and activities in which students create products or encounter novel problems require complex management decisions. This correlation between instructional activity and management complexity further reinforces the interrelated nature of classroom management and curriculum (Brophy and Good, 1986).

Research shows that a high incidence of classroom disciplinary problems has a significant impact on the effectiveness of teaching and learning. In this respect, it has been found that teachers facing such issues fail to plan and design appropriate instructional tasks. They also tend to neglect variety in lesson plans and rarely prompt students to discuss or evaluate the materials that they are learning. In addition, student comprehension or seat work is not monitored on a regular basis. In

contrast, strong and consistent management and organizational skills have been identified as leading to fewer classroom discipline problems (Froyen and Iverson, 1999).

Researchers have pointed out the importance of assisting students in positive behaviors. In planning classroom management, teachers should consider using an assertive communication style and behavior. In addition, they should always know what they want their students to do and involve them in the respective learning activities, under the general conditions of clearly and explicitly stated school-wide and classroom rules (Froyen and Iverson, 1999).

On Assessment of Student Learning

A study reported that teachers spend as much as 10% of their time on matters related to assessment and evaluation (Shaeter and Lissily, 1987 in Ignacio, 2006). However, research suggests that teachers spend as much as one-third of their time involved in some types of assessment. Teachers are continually making decisions about the most effective of interacting with their students. These decisions are usually based on information they have gathered from observing their students' behavior and performance on learning tasks in the classroom (Eliot, et al., 1994).

Research found that “teachers in schools with high achievement rates use pre-assessments (assessments prior to instruction) to support targeted teaching of skills important to learn for standardized tests, as well as to group students for re-teaching” (Corpus and Salandanan, 2007).

As an important device to discover the personality and behavior of the students, evaluation helps teachers to know where to pay attention and give remedial measures on the weaknesses of the learner. This can be achieved in terms of educational purposes which the program is intended to serve (Blancia, 2003).

The result of any evaluation should be communicated at once to the students. Student excitement is greatly rewarded by the teacher if she returns the test papers at once after correcting them. She should also be ready to praise a job well done and to correct at once any misbehavior. The teacher is looked upon as a fountain of wisdom, so she should be ready to encourage students to make the best of whatever they are (Sevilla, 1992).

On Educational Preparation and Professional Experience

Gan (2004) conducted a study on the professional preparation and instruction skills of laboratory high school teachers in a state college. 28.57% of the teacher respondents were graduates of Bachelor of Secondary Education (BSE); another 28.57% are BSE graduates with MA units; another 28.57% are graduates of BS Agricultural Education; only 14.29% are graduates of MA Education.

The study also found out that all of the teachers (100%) passed the Professional Board Examination for Teachers (PBET); 42.86% passed the Civil Service Professional examination; 28.57% passed the Civil

Service Sub-Professional Examination. Based on teaching experience, 57.14% had 21-30 years

teaching experience; 28.57% had 11-20 years teaching experience; only 14.28% had more than 30 years teaching experience. The teacher respondents had high level of instruction skills as revealed by weighted mean value of 3.9.

Through a study on the professional growth of elementary school administrators, it was concluded that attending workshops, conferences, seminars, and the like are ways of improving the professional qualifications of school personnel (Reyes, 1981 in Gan, 2004). It was further emphasized that professional growth of personnel is dependent upon educational attainment and civil service eligibility. However, according to Albus (1980) in Gan (2004), public elementary school teachers occasionally find it difficult to grow professionally for lack of time, since much of their time is devoted to their heavy teaching loads and heavy curricular activities aside from their family responsibilities and out-of-school activities. This explains that teaching loads must be properly distributed to give equal opportunity for every teacher to upgrade themselves professionally in their chosen field of specialization.

Valencia (2003) conducted an integrative review of the educational researches produced by Graduate Schools in Region II. In her study, she concluded that educational attainment, teaching experience, and in-service

trainings affect the instructional performance of teachers. Educational attainment, administrative experience, and management in-service trainings likewise affect administrative competence of school administrators.

Shavelson, et al. 1976 as cited in Caigoy (2007) elucidate on the current goals of teacher enhancement. There are various programs and goals especially the extent to which the teacher rather than the student is the primary target of program impact. While in general terms all programs acknowledge that the goal of teacher enhancement is to provide improved instruction that will contribute to improve the student achievement, many have traditionally considered student achievement to be too distant or affected by too many different factors. Changing or assisting teachers is seen as an important and sufficient end. The potential goals are:

- **Increasing teacher knowledge.** A primary goal in teacher enhancement continues to be increasing teacher knowledge. One reason for the need to increase teacher knowledge is that mathematics and science teachers, especially those who teach elementary students, often receive inadequate preparation, many teachers do not feel confident about their teaching abilities in much less enjoy teaching these subjects. Thus, many programs seek to increase teachers' confidence by giving them the opportunity to understand more about mathematics or science and more about methods for teaching the subjects. Another reason for increasing teacher knowledge is that

teachers today are expected to be knowledgeable and capable in areas that they may not have dealt with as undergraduate, such as computers, environment issues, and new techniques.

- **Increasing leadership and empowerment.** Many programs emphasize the development of teacher leaders who are very useful in reaching out to and teaching other teachers. Enhancement programs that develop teacher leaders can indirectly reach many more teachers when they share their knowledge with others. Teacher enhancement programs also may serve to empower teachers. In addition to increasing teacher empowerment through leadership development, many current programs emphasize teacher empowerment through their methods of teaching teachers. An assumption in many of the new programs is that teachers would have direction and control over their own learning and professional development. Instead of top-down programs in which teachers possibly receive knowledge, the emphasis today is on the active participation of teachers in their own learning. When teachers have more ownership of their education, they are expected to be more invested in the changes brought about by it.
- **Changing classroom practice.** Changing classroom instruction is another major goal of teacher enhancement programs. Most programs help teachers in some way to apply what they learn in the program to the classroom, for example, by giving teachers materials or equipment for classroom activities or having teachers write detailed plans on how they intend to use what they

learned in the classrooms. Some programs focus on these aspects more directly and give teachers the opportunity to field test what they have learned with the students in the program and/or give teachers coaching or feedback in the use of new instructional tools or materials in their classrooms.

- **Increasing student interest and achievement.** An underlying goal of teacher enhancement programs is to increase student's interest in mathematics and science and to improve achievement. In some programs, this is often not an explicitly stated goal; however, through improved curricular and improved teacher knowledge and teaching methods, it is expected that students will benefit from these improvements. Programs aim both at providing instruction that will help students become more "world class" performers and at creating a more scientifically literate society.

Teachers should have the professional preparation for his work. The key figure responsible for the success of classroom management is the teacher who is clothed with the necessary authority and responsibility in managing teaching-learning activities. The professional preparation that a teacher possesses makes him a superior organizer and skilled manager (Fetalcorin, 1990 in Gan, 2004).

Cruz (2009) studied the professional, physiological, and psychological variables and supervisory skills of public elementary school managers as basis for the development of a primer

On Values

Researches in the domain of value and its implications in various aspects of education have been acknowledged by many of those involved in the field of education.

The research of Pandaliday (1993) on work values and interpersonal relationship of public elementary school teachers and principals showed tendency to attach great importance on all identified work values like achievement, competence, recognition, chances for experience, and development. Also, it found out that the more wholesome the interpersonal relations between the teachers and principals, the more likely they would attach great importance to work values.

Another study by Valencia (1999) identified and analyzed some prevailing work values of leaders from public and private schools in the elementary, secondary, and tertiary levels in Metro Manila. She categorized work values into professional and organizational values. Professional values found prevalent among teachers were as follows: fairness, competence, altruism, openness to criticism, communication skills, self-regulation, professional autonomy, and public service. Organizational work values prevalent were: conformity to administrative policies, involvement in faculty and school organizations, awareness of issues affecting teachers, and desire to share in decision-making.

Wurzel (1981) studied value orientation differences in an urban school and their implications to the amelioration of conflict in the classroom. Wurzel's value

orientation model focused on two domains: the rational and the men-nature orientation, to analyze the value orientation differences between students in Puerto Rican and Anglo American Junior High Schools in urban areas. He used a forced-choice framework, instead of rank ordering preferences. The respondents were presented with problem-solving situations wherein they were asked to choose the better solution from the limited alternatives. Wurzel concluded that the differences in value orientation must be seen by both students and educators as cultural traits embedded in the people's cultural history.

Having inquired into the aims and methods of moral education, Prabash (1982) observed that the sociological context of modernity has brought about the rise of individualism, championing the freedom and equality of all. Nevertheless, modernization has doomed individuals to the loss and homeless lives in a normally or mobile world which has relegated morality to a relative and private domain. He proposes a pedagogy of strong normation to develop obedience to the moral norm attachments to society. This pedagogy promises to counteract the homelessness of rugged individuals. From the point of view of the pedagogy of strong normation, other approaches such as those of value classification and cognitive developmentalism are critical for their ineffectiveness in providing moral nurture.

Grageda (1991) also did a similar study on the moral values, as practiced by public school teachers in the Divisions of North Cotabato City and Sultan Kudarat. Teachers' values of God, authority, life, sexuality, justice, and truth are outstanding, though implemented and practiced with traditional strictness. She found out that

morality of teachers is highly individualistic. They have high positive responses to items which call for personal values or those pertaining to faith in God and other self-related values. However, they fall short on items which call for social involvement or reaching out to others. She said that teachers need to update their moral and religious concepts and practices in relation to authority, life, justice, truth,

sex, temporal goods, and charity and community spirit. She recommended that school administrators provide avenues for their teachers to get involved in charitable work and community servicing projects.

A study on the work values of 264 Central Luzon State University employees and their implications to educational management was conducted (Agnes, 1991). The respondents were grouped as service-related workers, production-related workers, clerical-related workers, professional-related workers, and administrative-related workers. Findings showed that in terms of personality traits, the CLSU employee-respondents are highly ambitious and helpful, but they scored lowest in perseverance influence their personality traits. All the ten work values subscales were considered important by the respondents, although in varying degrees. Rated most important were intellectual - achievement, occupational, and material.

The above study also revealed the following: Socio-economic factors such as income and size of the family significantly related to work values of respondents, except material and religious. Some personality traits were significantly related to work values subscales. Responsibility, ambition, perseverance, and helpfulness

were equally significantly related to intellectual - achievement orientation. Perseverance was also significantly, but negatively related to interpersonal, managerial, occupational, and organizational values. This is because the production and service related workers who scored highest in perseverance scored lower in these subscales.

The result of ANOVA indicates that the five occupational groups scored differently in the following traits: responsibility, perseverance, and helpfulness, but not in ambition and respectfulness. They also differed significantly in work values intellectual –achievement orientation, interpersonal and organizational values. The professional and administrative groups scored higher in these subscales than the other groups. Regardless of their occupational group, the respondents consider familial, material, managerial, and environmental values important in their world of work.

In her descriptive study, Anier (1991) determined the value system of 41 English faculty of Kong Hua School in Cagayan de Oro City for SY 1990-1991 when taken as a whole in four value components and when grouped according to age, educational qualification, length of teaching experience, and level of teaching assignment. The questionnaire consisted of two parts: the first dealt with information regarding the experience and the level of teaching assignment of the respondents; the second focused on the value system of the teachers which was subdivided into four value components.

Findings of the study revealed that: the value system was high; the value component “spirit of community” was moderately high; those with MA units had higher value scores than those without; those with shorter teaching experience had slightly higher value scores than those with longer teaching experience; the secondary teachers had higher value scores than their elementary counterpart.

The perception of 200 selected elementary and secondary students regarding the DECS core values suggested in the DECS Values Education Framework was also determined (Alpino, 1993). These core values include health, spirituality, truth, love, social responsibility, economics, efficiency, and nationalism/global solidarity. It also attempted to determine if there is significant difference in the responses of the high school students and elementary pupils. Furthermore, developmental trends in the subjects’ responses were studied.

Analysis of the data gathered revealed four (4) categories of respondents: sensory, attitudinal, conceptual, and religious. The values described by the elementary and high school levels did not differ significantly, nor was there distinction or unlikeness in the respondents’ definitions among levels. The delineation however, was found in the trends that the respondents tackled in the definitions, as shown in the categories: the definitions of the lower elementary respondents were sensory in nature; those in the upper elementary respondents were attitudinal; and those of the high school respondents were conceptual. There was a difference in the grade level responses in the religious category, since more

elementary pupils than their high school counterpart reflected their religious beliefs in their responses.

The values orientation of the college students of the University of Northern Philippines was studied (Santiago, 1999). The study also investigated the differences in the socio-cultural and moral-spiritual values when the students were grouped according to academic units and year levels. Furthermore, it determined the relationship between the students' values orientation and some selected personal and socio-economic factors such as sex, year level, academic unit, religious affiliation, place of residence, type of school graduated from, mother's educational attainment, father's educational attainment, mother's occupation, father's occupation, and mass media exposure.

Findings of this study revealed that the level of values orientation of the respondents in terms of socio-cultural and moral spiritual values is high. When grouped according to academic units, respondents from the Institute of Nursing got the highest overall mean rating, while the students from the Institute of Technical Education got the lowest. When the respondents were grouped according year level, the fourth year students obtained the highest overall mean rating, while the first year students got the lowest.

Of the four (4) dimensions of socio-cultural values - - - social acceptance, family solidarity, economic security, and social mobility, social acceptance ranked first. As to the dimensions of moral-spiritual values, moral equality ranked first; human personality, second; pursuit of happiness, third; moral responsibility, fourth;

devotion to truth, fifth; brotherhood, sixth; respect for excellence, seventh; and spiritual enrichment, last.

When the respondents were grouped according to academic units and year level, there is a significant difference in their levels of values orientation. Personal and socio-economic factors had significant relationship with the values orientation of the respondents. Religious affiliation did not affect significantly the values orientation of the UNP college students.

The values development of Grade IV and V pupils was correlated with the following factors: pupil-related, parent-related, teacher-related, and school-related factors (Marinas, 2001). Findings of the study revealed that the pupils had high level of values development in the following: physical, moral-spiritual, social responsibility, socio-cultural, and political; but an average level along intellectual values.

Pupil-related factors such as sex, average grade, mass media exposure, organization affiliation had no significant relationship to each of the values development of the pupil respondents. Among parent-related factors, only father's occupation is significantly related to the intellectual values of the pupils as it yielded significant correlation with the teacher's performance rating. On school-related factors, class size had a significant relationship with the socio-cultural values of the pupils. School location had a significant negative relationship with intellectual values while having a significant positive relationship with socio-cultural values of the pupils. Similarly, the values of physical, spiritual, and social responsibility, socio-

cultural, and political had been influenced by instructional materials. Likewise, school facilities had a significant overall values of the pupils.

As a whole, the Grade V pupils' values development differs greatly from the Grade IV pupils' values development.

In his study, Bertos (2000) investigated the values orientation of teachers in the public secondary schools in the Division of Makati City as related to their demographic attributes and teacher's behavior. It involved 100 respondents, half of whom are Values Education teachers and the other half are other subject area teachers.

Bertos' findings revealed that teachers had strong value orientation towards nationalism and globalism, peace and justice, sustainable human development, global spirituality, health and harmony with nature, love and goodness, and truth and tolerance with a mean that ranges from 3.84-4.30.

With regard to the difference between the values orientation of the Values Education teachers and other subject area teachers, no significant difference exists. There is a very high positive correlation between age and values orientation ($r = 0.97$); there is a highly significant relationship between length of service and values orientation ($r = .94$); educational attainment is closely associated with values orientation ($r = 0.85$); teachers' behavior (such as personality traits, mastery of subject matter, and teaching process skills) and values orientation are significantly related to each other ($r = .95$).

The research concluded that the teachers have strong values orientation with respect to the seven core values of the 1997 Revised Version of the DECS Values Education Program. There is no significant difference in the values orientation of the Values Education teachers and other subject area teachers; there is no significant relationship between certain demographic variables (like age, length of service, educational attainment, teacher's behavior) and values orientation of the respondents.

Gonzales (1990) explored the values orientation, education goal priorities, and teaching commitment of prospective teachers and their relationship to several personal learner background variables in selected universities in Metro Manila: PNU, RTU, UST, PUP, and TUP. The values orientation held by prospective teachers include: self-interests and satisfaction; self-competence and social cooperation, self-direction and social sensitivity; and self-commitment for social transformation. Religion and monthly family income are positively and significantly related to teaching commitment; private school type and schools offering industrial education programs are significantly but negatively related to teaching commitment. The study concluded that values orientation and education goal priorities held by prospective teachers are related to high level of teaching commitment.

In his study, Hidalgo (1986) examined the values orientation Filipino elementary school teachers in two school divisions in the Philippines. Her main concern was to determine whether or not Filipino elementary school teachers have

a clear set of values orientation. The research instrument consisted of problem-situations which presented alternative solutions and choices. The respondents were asked to choose the preferred solutions and further to comment on value alternative. These comments were used to interpret the patterns that emerged from the analysis of their responses. The result indicated that there was no clear direction in the form of the five sets of values orientation examined. There was, however, a clear direction in one set which involved achievement orientation.

The characteristic nature of values orientation in the preceding studies describes the notion of values orientation in the context of classroom teaching. A teacher who endeavors to fulfill his role in communicating to his learners the larger values of a community and of the society at large must first be aware of the values he does not hold as a person. A teacher who is confused about his own values may look at his work merely to transmit skills and knowledge to the learners and not values and social attitudes (Ibasco, 2005).

On Emotional Intelligence

Resta and Burson (1997) said that in the new learning economy context and its rapid diffusion of knowledge, the nature of work is changing in response to the processes of globalization, the availability of information technologies and instant communication networks. Teachers' work, as for other jobs, has not escaped the need to change. Changes contribute to the intensification and pressure of people work.

In such a changing context, the success of individuals, teacher and students-future workers as well, may reside not only in the ability to learn but, also, to cope with new rhythm, tensions and pressures in labor, therefore in the ability to share and work together in a smooth and trust atmosphere, involving a balance between personal and social emotional competencies (Resta and Burson, 1997).

In school, the teachers' work has been redesigned, and the skills teacher needs today are different from the skills teachers needed in the past. Indeed, in teachers' work, number of changes and tensions can be traced which implies new skills and professional competencies. For instance, coaching, supporting, mentoring and developing other staff have become increasingly important in teachers' work: from teaching to learning, to educate for adaptability (Resta and Burson, 1997).

Moreover, for some teachers the work environment is proving personally and professionally damaging (facing more violence, crisis of authority, under social recognition, parents and students' pressures and demands...). Thus, it requires new competencies to cope with those pressures and to develop teachers' resilience. Emotional competencies belong to those crucial professional competencies nowadays (Resta and Burson, 1997).

Beside the institutionalized 'powerful' teacher, the teacher leadership style with developed emotional competencies remind us that 'teaching', is not only a pure cognitive act but also a social and affective and emotional work where emotions are involved in the work atmosphere (Gendron, 2008).

Emotional competencies are essential to perform teaching work and for a leadership and ethic teaching style - vehicle of a democratic and professional socialization and an exemplarity subject for learners. Those emotional competencies refer to the 'Savoir-être'. Beyond the 'Savoirs' (Knowledge) and the 'Savoir-Faire' (Know-How) defined in G.S. Becker Human Capital approach, this set of social and personal emotional competencies constitutes the Emotional Capital defined by Gendron (2004).

Resta and Burson (1997) further said that his capital is essential in nowadays teachers' work and in all emotional works in a broader view. Those emotional competencies are key-competencies in all social interactions whatever the context. The management of a class, a group or a team of learners could be related with the human management models at work, for instance the management of a team of workers.

Resta and Burton (1997) also conducted a research which draws a typology of management styles and the emotional competencies required. It shows that teacher with leadership styles who have developed emotional competencies referring to emotional capital can facilitate teamwork, work atmosphere, and enhance efficiency and quality of their students. They teach for learning or they manage to develop the person. At the opposite, teachers or managers with a poor emotional capital which fulfill the exact task prescribed (instruction or task-goals oriented) can lead to a disaster: decrease of teams' productivity, workers burnout, higher rate of health problem, and growing missing working days. This research

concludes that those emotional competencies belong to the teacher professional competencies essential nowadays to perform their teaching job.

Research of EI and job performance show mixed results: a positive relation has been found in some of the studies, in others there was no relation or an inconsistent one. This led researchers Cote and Miners (2006) to offer a compensatory model between EI and IQ, that posits that the association between EI and job performance becomes more positive as cognitive intelligence decreases, an idea first proposed in the context of academic performance (Petrides, et al., 2004). The results of the former study supported the compensatory model: employees with low IQ get higher task performance and organizational citizenship behavior directed at the organization, the higher their EI.

There was a time when IQ was considered the leading determinant of success. In his fascinating book, based on brain and behavioral research, Goleman (1995) argues that our IQ-idolizing view of intelligence is far too narrow. Instead, he makes the case for "emotional intelligence" being the strongest indicator of human success. He defines emotional intelligence in terms of self-awareness, altruism, personal motivation, empathy, and the ability to love and be loved by friends, partners, and family members. People who possess high emotional intelligence are the people who truly succeed in work as well as play, building flourishing careers and lasting, meaningful relationships. Because emotional intelligence isn't fixed at birth, he outlines how adults as well as parents of young children can sow the seeds.

Goleman (1995) also argues that our emotions play a much greater role in thought, decision making and individual success than is commonly acknowledged. He defines "emotional intelligence" as a trait not measured by IQ tests? a set of skills, including control of one's impulses, self-motivation, empathy and social competence in interpersonal relationships. Although his highly accessible survey of research into cognitive and emotional development may not convince readers that this grab bag of faculties comprise a clearly recognizable, well-defined aptitude, his report is nevertheless an intriguing and practical guide to emotional mastery. In marriage, emotional intelligence means listening well and being able to calm down. In the workplace, it manifests when bosses give subordinates constructive feedback regarding their performance.

On Teacher's Personality Traits

Personality traits are intrinsic differences that remain stable throughout most of our life. They are the constant aspects of our individuality.

Personalities are distinctive. Each individual behaves according to certain distinctive patterns in a variety of situations. Humans are finely tuned to observe these behavior patterns and to notice behavior differences among people.

You might use words such as talkative, cheerful, cold, disorganized, compulsive, intellectual, shrewd, shortsighted, flirtatious, or ruthless to describe various people you know. Also, you have probably observed that these various behaviors stay with the person consistently over time and throughout a variety of circumstances. These persistent behavior patterns, called *personality traits*, are

stable over time, consistent in a variety of situations, and differ from one individual to the next. Personality can be defined as the psychological qualities that bring continuity to an individual's behavior in different situations and at different times (Zimbardo, 2000).

Personality is stable over very long periods of time; personality traits do not change. Understanding, accepting, and applying your personality traits are an important part of knowing yourself.

A study was conducted which focused on descriptive nouns (Saucier. 1998). An analysis of the results extracted eight factors. Their names, along with the five nouns having the highest correlation for each factor are as follows: (1) Social Unacceptability: trash, dumbbell, dummy, wit, and moron; (2) Intellect: philosopher, nonconforming, pioneer, poet, and artist; (3) Egocentrism: snob, gossip, eavesdropper, critic, and materialist; (4) Ruggedness: tough, jack, sportsman, machine, and aggressor; (5) Delinquency: lawbreaker, pothead, drunk, alcoholic, and rebel; (6) Attractiveness: babe, darling, sweetie, honey, and beauty; (7) Liveliness: joker, clown, goof, comedian, and comic; and (8) Disorientation: klutz, worrywart, sleepyhead, daydreamer, and speculator.

These factors may relate directly to the primal concerns of people as follows:

- **Factor 1: Social Unacceptability**, relates to inclusion or exclusion from a social group. This is a basic decision humans make as social animals. The

poles, or underlying primal decision, can be thought of as: Exclude < > Include.

- **Factor 2: Intellect**, relates to human intelligence and higher levels of cognition. Smart is sexy and it has been said that the brain is the most important sex organ. Many believe that intelligence distinguishes us as humans, and it may be interpreted as an indicator of evolutionary advancement. Intelligence is an important indicator of stature. The poles can be described as: Bright < > Dull.
- **Factor 3: Egocentrism**, relates to a lack of empathy and respect for others. It may be related to an overzealous display of status, a generous or false self-image, failure to counterbalance the first-person viewpoint, or a counterfeit display of stature. Its poles can be labeled: Arrogant < > Humble or Narcissistic < > Empathetic.
- **Factor 4: Ruggedness**, relates to dominance, aggression, and power. Its poles can be labeled: Dominant < > Submissive.
- **Factor 5: Delinquency**, relates to cheating. The theory of reciprocal altruism describes the importance and effectiveness of “cheater detectors” for the social interaction of humans. The poles can be labeled: Cheater < > Plays fair.

- **Factor 6: Attractiveness**, relates directly to sex and procreation. The poles can be labeled as: Sexy < > Repulsive, ugly, disgusting.
- **Factor 7: Liveliness**, relates to attracting attention, perhaps as a strategy for attracting a mate. The terms seem to describe a real party animal. Possible labels for the poles are: Loud < > Quiet, reserved.
- **Factor 8: Disorientation**, relates to competence and reliability. Poles can be labeled: Incompetent < > Competent.

An empirical research on teacher effectiveness conducted by Nava (1986) as cited in Caigoy (2007) identified personal characteristics and behavioral indicators of effective teachers. From interviews of 1,200 respondents representing a cross section of elementary and high school students, college undergraduates in teacher education institutions, teachers and administrators from public and private schools in two city schools of the National Capital Region, the researcher elicited over 30 characteristics and over 300 behavioral indicators of effective teachers. From the list, she evolved twenty (24) main characteristics, which were rated by a panel of seven experts in a five-point scale. The resulting 20 characteristics were: good natured, teaches well, understanding, helpful, disciplines well, industrious, lively, well-groomed/orderly, loving, thoughtful, patient, resourceful, encouraging, just/fair, sensitive, responsive, friendly/approachable, appreciative, nationalistic, and critical

minded, perceptive/responsive, creative/innovative, broad-minded/open-minded, and flexible/adaptable.

Based on the frequency of citations in the interviews, being *good natured* ranked the highest in the responses of both the elementary and the high school students. For college students, the top ranking quality that an effective teacher must possess was the ability to *teach well*. This was ranked second by the elementary and high school students, and fourth by the teachers and administrators.

Based on the mean ranks from the four groups of respondents, the top three characteristics identified were *teaches well, understanding, and disciplines well*.

Based on the mean ratings of the traits by the seven judges, however, the five traits considered most important for teachers' effectiveness were *just/fair, resourceful, understanding, loving, and helpful*.

According to Sevilla (1992), a teacher is ready to laugh with the students once in a while so that they will not get nervous when they make mistakes. Her role is that of an actress ready to laugh, cry, or show whatever emotion is needed for the right time and place. Being a teacher, it is understood that she is always neatly dressed so that students will follow her example. Old she may be at her physical age, but she tries to be young at heart, and though not really pretty, she tries to be such that students enjoy looking at her all the time. She may not be a paragon of virtues, but a person worth emulating.

Ortigas (2000) as cited in Caigoy (2007) also cited some characteristics of teachers associated with successful teaching: responsible, systematic, stimulating, imaginative, warm, understanding, friendly, enthusiastic, have good judgment, and have high capacity to relate to others.

These findings are somewhat related with that of Hurtzman (1978) as cited in Pociano (2007) who pointed out in his studies of teacher's classroom personalities, "teacher's warmth" as a characteristic of the successful teacher. He found out that teacher's warmth which includes kindness, helpfulness, and behavior that tend to produce relaxation and to decrease interpersonal tension, was significantly correlated with utilization of students' intrinsic motivation.

Essentially, a successful teacher has achieved a balance of interpersonal and technical competence. Interpersonal or personal characteristics that make one an effective teacher include the following: a) genuineness; b) concreteness; c) self-disclosure; d) immediacy; e) congruency; f) spontaneity; and g) non-judgmental. Furthermore, the effectiveness of teachers in the classroom is gauged not only by the amount of knowledge they possess, but also how they translate such knowledge into behavior and attitudes that influence students to perform well in class (Caigoy, 2007).

On Information Technology

This twenty-first century, technology aided instruction is viewed as necessary to be globally competitive. The main thrust in education is on the use of modern

facilities and equipment, which are applications of technology, most common of which is information technology or the use of computers. The world is moving fast to a highly scientific and technological atmosphere that teachers and students should be aware of the importance of having knowledge on these fields (Garcia, 1991).

Schools need to ensure that students acquire the skills and knowledge they will need to function effectively in the modern workplace. Survey studies have documented the importance of professor's knowledge of information and communication technologies (ICT) for their use in instruction. The greater the knowledge, the more willing is the instructor to use technology (Todd, 1993 and Inoue, 1998). However, knowledge is only one factor among a number that are significant for influencing whether and how ICTs are used by professors in teaching.

The other factors include course content, instructional objectives, student knowledge and expectations, access to ICTs for students, technical support, and colleagues' knowledge of ICTs and their accessibility for the professor (Gandell, 2000).

Resta and Burson (1997) said that as the twenty-first century advances, the literate citizen's need to use computer technology to access and manage information continues to increase. Today's student must develop computer skills and proficiency in using a variety of technology tools. The development of these skills, as in other basic areas of knowledge, is the responsibility of the schools and teachers.

They added that schools should ensure that teachers are prepared for this technology challenge and that they should develop a set of competency standards for current and future teachers. These standards identify the skills teacher's need in order to incorporate the use of technology into their curricula and to effectively teach technology skills to students.

Why use information technology? The CTI is challenging all academic staff to rethink their approach to teaching and learning. The past five years have seen dramatic changes in UK higher education: increased student numbers and class sizes; reductions in unit costs; students arriving at university with more diverse academic backgrounds; and Teaching Quality Audit (TQA).

Information technology has a role to play in addressing many of the issues raised by these changes. Our view is that computers should empower good teachers, not de-skill. Computers offer the opportunity to depart from the traditional constraints of the curriculum, allowing teachers and learners to schedule the place, time and pace of learning. Their capabilities in many universities facilitate experiences that would be too expensive, dangerous or time-consuming to generate in conventional terms. Visualization techniques will enable teachers to illustrate their teaching in more dynamic fashion than the current norm.

Education through computer technology is growing rapidly. McLaughlin (1997) noted that the increased focus on information literacy has brought with it a new and major focus on critical evaluation of information including the use of systems thinking to explore the interconnectedness of different fields of knowledge

in a context dependent manner. Moreover, technological literacy, analytical skills; and general principles of lifelong learning are now adapted by many universities abroad and written into undergraduate curricula (Nunn, et al., 1995 and Bullen, et al., 1992).

Rafael (2003) researched on web-based instruction towards developing higher order thinking skills of BS Chemistry students in Biochemistry. The students claimed that they were more motivated to learn Biochemistry using web-based instruction. After the study, they learned to use the internet and perceived that it gives more information in a shorter time and helped them learn. It was concluded that web-based instruction can develop the higher order thinking skills of students, but they need to be taught how they can maximize the use of their learning skills. They need to be encouraged to talk about the information they have learned from the web to develop not only their written skills but also more on their speaking skills.

New generations of authoring tools will broaden the base of courseware authorship and students themselves will increasingly act as authors in their coursework. IT will support important teaching strategies such as collaborative learning as well as assessment.

Promoting the effective and appropriate use of learning technologies will meet the needs of the future and enable change in higher education. The use of Information Technology can enhance teaching quality. With higher education institutions finding it ever harder to sustain conventional approaches to teaching and

learning the CTI is demonstrating the growing viability of technology-based alternatives.

. According to Ponciano (2007), the integration of information technology in teaching is a central matter in ensuring quality in the educational system. There are two equally-important reasons for integrating information technology in teaching: a) Students must be familiar with the use of information technology, since all jobs in the society of the future will be dependent on it; and b) Information technology must be used in teaching to improve the quality of teaching and make it more effective.

Moreover, Ponciano (2007) avers that multimedia, the internet, and video conference systems are useful tools in gaining knowledge and their use will

eventually be regarded as being just as much a basic skill as are reading, writing, and arithmetic. Learners must thus be qualified IT users and this involves taking greater independent responsibility for their own learning process. Therefore, the effort to give all people – young and adults alike, the necessary basic IT skills must be strengthened.

Another technology involves using a video disc linked to a computer. This allows access to scenes and segments useful to topic being studied. The video disc produces full-color pictures and a sound track. Text, graphics, photos, slides, and films can also be combined in a single medium (Madeja, 2002).

On Faculty Development Program

One function of the college/university Human Resource Department is career and personnel development. Its general policy is that, it shall develop a career and personnel development program for faculty members which shall include provisions on training, including foreign and local scholarships and training grants, job rotation, counseling, mentoring, and other HRD interventions (RSC Merit System, 2007).

To achieve the main objective of the personnel development program in bringing about highly educated and professional faculty members, the following policies are promulgated:

- The college/university shall develop and implement a continuing program of training and development for its faculty members.
- It shall encourage its faculty members to pursue relevant local and foreign-assisted training/scholarship grants, attend seminars, conferences, workshops, or other related human resource development courses.
- Selection of participants to training programs shall be based on actual needs for specialization and enhancement of competence, taking into consideration organizational priorities.
- Preference shall be given to candidates with permanent appointment.
- The college/university may adopt other human resource development interventions such as counseling, mentoring, and job rotation.

The procedures are as follows:

1. The college/university shall create a “Faculty Training and Development Committee (FTDC” to be composed of the Vice President for Academic Affairs as Chair; Vice President for Administration and Business Affairs as Vice Chair; president of CSC-accredited Faculty Association, or if there is no accredited faculty association/union, representative chosen through general election, as Member; Department or Unit Heads where the field of grant /scholarship/training occurs, as Member; and the HRMO as Secretary. The term of its members shall be two (2) years. This Committee shall formulate its own rules for approval by the President subject to established CHED, CSC, and SUC’s policies. Its main function shall be that of selecting and recommending those who should attend specific training programs conducted by the SUC or by government agencies or duly accredited non-government organizations, local or foreign.
2. Each department/unit head shall determine the training needs of his/her faculty members through training needs analysis in accordance with organization priorities. He/she shall submit annually to the President through the FTDC, his/her plan embodying the kind of training programs and the names of those who shall attend such program.
3. The FTDC, through the HRMO, shall inform all faculty members concerned about the study grants and scheduled seminars or conferences or workshops and invite qualified staff to avail of such program.

4. The participant or recipient of a training grant/scholarship agreement, in accordance with existing rules and regulations shall submit a report on the prescribed form on the training he/she has completed and furnish the HRMO a copy of the training certificate he/she has received and report of activities for entry in his/her personnel files. The trainee shall also be given the opportunity to share with his/her colleagues what he/she has learned.

In her study entitled "School Based Management Development Program for Public Secondary School Administrators in the District of Quezon City," Leva (1995) concluded that the SBMDP of the Department of Education, Culture and Sports (DECS) provides adequate course content although it has yet to come up with a defined philosophy that will set the directions for administrative and supervisory trends in management of an educational institution. Moreover, the school based management development program of the DECS seems to succeed in preparing the present corps of officers-in-charge and teachers-in-charge for public secondary school administration before they are given the plantilla position for principals.

In another study entitled "Levels of Decision Making Among School Managers: Basis for the Development and Try Out of a Training Program," Navarro (2000) proposed a training program on effective decision-making based on the identified weaknesses and needs of school principals. The program was tried out among the secondary school managers and was found effective based on the evaluation conducted.

A similar study was also conducted by Concepcion (2004). In his study entitled “Development of an Intervention Program for Effective Management of Classroom Behavior for Secondary School Teachers of Metro Manila,” he conducted a one-day seminar-workshop to test the effectiveness of the developed intervention program. He found out that the intervention program which he developed is a helpful tool in addressing the discipline problems of the students.

The present study is similar to the above cited studies in the sense that all these studies involve development of a management program, or a training program, or an intervention program. However, the present study differs from their studies because the participants in the program proposed by Leva (1995) and Navarro (2000) were all school managers while that of Concepcion (2004) were the secondary school teachers. The present study shall have the faculty members, specifically college chemistry faculty as participants of the proposed training program, hence, it is also called a faculty development program.

Based on the concepts, theories, and studies reviewed about teaching performance which result to teaching competence, the researcher aimed to determine the predictors of chemistry faculty competence. The five groups of factors that are assumed to influence teacher competence are (1) educational preparation (highest educational attainment and field of specialization); (2) professional experience (number of years teaching chemistry, work eligibility, membership in professional organizations, and number of seminars/workshops attended); (3)

physiological status (health status); (4) psychological status (spirituality, values, and emotional intelligence); and (5) information technology skills.

Teaching competencies were rated along six components namely: (1) communication competence, (2) curriculum expertise, (3) instructional organization and planning, (4) classroom management, (5) assessment of student learning, and (6) laboratory competence. The effects of predictor variables such as chemistry faculty's personal variables: (1) educational preparation, (2) professional experience, (3) physiological status, (4) psychological status, and (5) information technology skills on criterion variables such as (1) communication competence, (2) curriculum expertise, (3) instructional organization and planning, (4) classroom management, (5) assessment of student learning, and (6) laboratory competence were determined.

Chapter III

RESEARCH METHODOLOGY

This chapter discusses the research method, the respondents of the study, the design, the research instruments and techniques used, the validation of the instruments, the data gathering procedure, and the data analysis methods including the methods by which the data are described, displayed, and analyzed.

Research Method

This study used methods and procedures common to quantitative research approaches. An inherent characteristic of quantitative studies is that it includes many cases and many variables, which are measured in a predetermined and specific way (Ponciano, (2007). Data that are collected using quantitative approaches are in numeric form and therefore can be summarized numerically.

The descriptive-normative and correlation methods of research were used in this study (Navarro, 1997). The descriptive-normative method described the level of teaching competencies of the College Chemistry Faculty. On the other hand, correlation method determined if there are significant relationships between each of the following predictor variables and teaching competencies: educational preparation, professional experience, physiological status, psychological status, and information technology skills.

Correlation studies are designed to help researchers determine the extent to which different variables are related to each other in the population of interest. Through these studies, one can ascertain how much variation is caused by one variable in relation with the variation caused by another variable. We use measures of correlation to determine the magnitude and direction of relationship (Sevilla, et al., 1992).

This study was conducted through survey. It is a widely accepted and commonly used technique for collecting data. Questionnaires personally administered to the population under study, eliciting primarily close-ended, highly measurable responses, served as the primary instrument in collecting data.

The questionnaires which were developed determined the relationship between a number of predictor variables and a number of criterion variables.

Participants of the Study

This study involved as participants, the chemistry faculty members, their students, their supervisors, and other science faculty members from the whole Romblon State University. The schools listed in Table 1 are the colleges and campuses comprising the whole Romblon State University system.

Table 1 also reflects the total number of respondents in each college or campus. San Andres Campus has the greatest number of respondents among the different campuses while College of Arts and Sciences has the greatest number of participants among the different colleges in the main campus.

Table 1

Frequency Distribution of the Participants According to
College/Campus Represented

RSU College /Campus Represented	Students	Other Science Faculty	Super- visors	Chemistry Faculty	Total Number of Participants	Percent
San Andres Campus	20	4	1	1	26	8.6
San Agustin Campus	20	2	1	1	24	7.9
Calatrava Campus	20	2	1	1	24	7.9
Santa Maria Campus	20	3	1	1	25	8.3
Santa Fe Campus	15	1	1	1	18	5.9
College of						

Agriculture, Fisheries & Forestry	20	1	1	1	23	7.6
College of Arts & Sciences	20	4	1	1	26	8.6
College of Business & Accountancy	20	1	1	1	23	7.6
College of Education & Graduate Studies	15	3	1	1	20	6.6
College of Engineering & Technology	20	1	1	1	23	7.6
Romblon Campus	20	1	1	1	23	7.6
Cajidiocan Campus	20	2	1	1	24	7.9
San Fernando Campus	20	2	1	1	24	7.9
Total	250	27	13	13	303	100.0

It can be gleaned in Table 1 that Romblon State University is composed of the main campus with five (5) colleges: College of Agriculture, Fisheries and Forestry, College of Arts and Sciences, College of Business and Accountancy, College of Education and Graduate Studies, and College of Engineering and Technology; and of eight (8) external campuses: five (5) external campuses in Tablas Island which include San Andres Campus, San Agustin Campus, Calatrava Campus, Santa Maria Campus and Santa Fe Campus; one (1) campus in Romblon Island, Romblon Campus, and two (2) campuses in Sibuyan Island namely Cajidiocan Campus and San Fernando Campus. All these sum up to a total of thirteen (13) schools in the whole Romblon State University.

This study involved as participants, the college chemistry faculty, their students, their supervisors, and other science faculty from the whole Romblon State University. Table 2 shows the frequency and percentage distribution of the four groups of participants.

Table 2
Frequency and Percentage Distribution of the
Four Groups of Participants

Groups	Number of Participants	Percent
Students	250	82.5
Other Science Faculty	27	8.9
Supervisors	13	4.3
Chemistry Faculty	13	4.3
Total	303	100.0

The first group of participants includes the students in the respective classes of the chemistry faculty participants. For each chemistry faculty, twenty (20) students (preferably 10 males and 10 females) were randomly selected from those that he/she handles. The second group consists of other science faculty members, whether full-time, part-time, or contractual. The third group consists of the deans of the different colleges in the main campus and the campus directors of the different external campuses; they served as the supervisors. The last group of participants is composed of the chemistry faculty members in all the colleges and campuses of the whole Romblon State University, whether full-time, part-time, or contractual.

Except for the chemistry students, complete enumeration was used in obtaining those who belong to the other three (3) groups of participants: chemistry faculty, supervisors and other science faculty. Purposive sampling (preferably 10 males and 10 females) was used in obtaining the student participants who were tasked to evaluate the teaching competencies of their chemistry teacher.

Demographic Profile of the Chemistry Faculty

The demographic profile of the chemistry faculty involved in this study included gender, age, civil status, employment status, academic rank, salary, grade point average in college, skills and hobbies.

Descriptive tools such as frequency and percentage distribution tables were used to summarize the occurrence of a particular respondent's characteristic for a given variable. The demographic profile of the chemistry faculty is shown in Table 3.

Table 3

Demographic Profile of the Chemistry Faculty

A. Gender	Number of Faculty	Percent		E. Employment Status	Number of Faculty	Percent
Male	3	23.1		Part-Time	3	23.1
Female	10	76.9		Full-Time	10	76.9
Total	13	100.0		Total	13	100.0
B. Age	Number of Faculty	Percent		F. Academic Rank	Number of Faculty	Percent
20-29	1	7.7		Instructor	5	38.5
30-39	2	15.4		Asst. Professor	6	46.2
40-49	2	15.4		Asso..Professor	2	15.4
50-59	6	46.2		Total	13	100.0
60 & above	2	15.4		G. Monthly Salary	Number of Faculty	Percent

Total	13	100.0		P10,000 & below	3	23.1
C. Civil Status	Number of Faculty	Percent		P11,000-15,000	1	7.7
Single	3	23.1		P16,000-20,000	4	30.8
Married	9	69.2		P21,000-25,000	3	23.1
Widow	1	7.7		P26,000 & above	2	15.4
Total	13	100.0		Total	13	100.0
D. GPA in College	Number of Faculty	Percent		H. Skills & Hobbies	Number of Faculty	Percent
2.50-2.01	3	23.1		1	3	23.1
2.00-1.51	9	69.2		2	9	69.2
1.50-1.01	1	7.7		3	1	7.7
Total	13	100.0		Total	13	100.0

Table 3A depicts the number and percent chemistry faculty's profile by gender. The data show that ten (10) out of thirteen (13) chemistry teachers or 76.9% are female and three (3) teachers or 23.1% are male. It can be seen that the female teachers are greater in number than the male teachers by seven (7) or 53.8%. This conforms to common observations that teaching is a female dominated profession.

Table 3B shows the number and percent chemistry faculty's profile by age. The data show that there are five (5) groups of chemistry faculty according to age: Only one (1) out of thirteen (13) chemistry teachers is 20-29 years old. Two (2) teachers or 15.4% belong to each of the following age groups: 30-39 years old; 40-49 years old; and 60 years old and above. Six (6) teachers or 46.2% are 50-59 years old. From these data it is deduced that majority of the chemistry faculty were 40 years old and above.

Table 3C shows the number and percent chemistry faculty's profile by civil status. The data show that three (3) out of thirteen (13) chemistry teachers or 23.1% are single. Nine (9) teachers or 69.2% are married. Only one (1) teacher or 7.7% is a widow. These data indicate that the chemistry teachers are predominantly married.

Table 3D shows the number and percent chemistry faculty's profile by grade point average in college. The data show that there are three (3) groups of chemistry faculty according to grade point average in college. Three (3) out of thirteen (13) chemistry teachers or 23.1% obtained a grade point average of 2.50 – 2.01. Nine (9) teachers or 69.2% obtained a grade point average of 2.00 – 1.51. Only one (1) teacher or 7.7% obtained a grade point average of 1.50 – 1.01. These data indicate that majority of the chemistry faculty have an above average academic performance in college.

Table 3E shows the number and percent chemistry faculty's profile by employment status. The data show that there are two (2) groups of chemistry faculty according to employment status: part-time faculty and full-time faculty. Three (3) out of thirteen (13) chemistry teachers or 23.1% are part-time faculty and ten (10) teachers or 76.9% are full-time faculty. These data indicate that the chemistry teachers are predominantly full-time teachers.

Table 3F shows the number and percent chemistry faculty's profile by academic rank. The data show that there are three (3) groups of chemistry faculty according to academic rank. Five (5) out of thirteen (13) chemistry teachers or

38.5% are instructors. Six (6) teachers or 46.2% are assistant professors. Two (2) teachers or 15.4% are associate professors. Most of the chemistry faculty holds either the assistant professor or instructor ranks.

Table 3G shows the number and percent chemistry faculty's profile by salary. The data show that there are five (5) groups of chemistry faculty according to salary. Three (3) out of thirteen (13) chemistry teachers or 23.1% receive a monthly salary of P10,000.00 and below; the same number of teachers receive P21,000.00 – P25,000.00 per month. Only one (1) teacher or 7.7% has a monthly salary of P11,000.00 – P15,000.00. Four (4) teachers or 30.8% receive P16,000.00 – P20,000.00 per month. Two (2) teachers or 15.4% receive a monthly salary of P20,000.00 and above.

Table 3H shows the number and percent chemistry faculty's profile according to hobbies and skills. In the questionnaire shown in the Appendix, the skills and hobbies included in this study are: computer skills, dancing, drawing, driving, singing, playing musical instrument, and other skills and hobbies not specified in the questionnaire. The data show that there are three (3) groups of chemistry faculty according to hobbies and skills. Three (3) out of thirteen (13) chemistry teachers or 23.1% have at least one (1) skill and hobby. Nine (9) teachers or 69.2% have two (2) skills and hobbies. . Only one (1) teacher or 7.7% has three (3) skills and hobbies. These data show that the chemistry faculty possess some skills and use their leisure time wisely.

Research Paradigm/Design

The operational paradigm/design of the study shown on the next page follows the Social Systems Model (input-process-output). It is the mental window of the study consisting of a set of concepts and assumptions. Moreover, in assessing or evaluating an educational concern/problem, this model is generally used.

The input box contains reviewed literature on: predictor variables such as educational preparation, professional experience, physiological status, psychological status, and technology skills; and criterion variables, the teaching competencies such as communication competence, curriculum expertise, instructional organization and planning, classroom management, assessment of student learning, and laboratory competence. It also includes the participants of the study: college chemistry faculty, their respective supervisors, college chemistry students, and other science faculty.

The process box includes the different processes conducted during the study: preparing the proposal, validating and administering the instruments, interviewing the participants, collecting the instruments, analyzing the data, documenting, and interpreting the data gathered.

In the output box is a proposed Faculty Development Program which was based on the findings of the study.

Research Instruments

Questionnaires which are designed to obtain information about the teacher respondents' teaching competencies were used in this study. They were developed and adopted based from existing professional literature.

There were two (2) sets of questionnaires: the first set contains the predictor variables and was designed for the chemistry faculty only; while the second set contains the criterion variables and was designed for all groups of respondents

The questionnaire on predictor variables includes the following:

- **Demographic Profile.** This questionnaire has three parts: the first part seeks information regarding the teacher respondents' personal profile, which includes age, gender, civil status, employment status, academic rank, monthly salary, grade point average in college, and skills/hobbies; the second part seeks information about their educational preparation which includes highest educational attainment and field of specialization; the third part is about their professional experience (such as the number of years of teaching chemistry, work eligibility, membership in professional organizations, and number of seminars/workshops attended).
- **Physiological Status.** This questionnaire is about the state of the physical body of the chemistry faculty. This includes indicators about health status; medication and wellness awareness; and personal hygiene.

- **Psychological Status.** This questionnaire is about emotions as factors affecting human motivation and behavior. This includes indicators about spirituality; values (truth and honesty, love and goodness, human relations, sustainable human development, and nationalism and globalism); and emotional intelligence.
- **Information Technology Skills.** This questionnaire establishes baseline data about the skills of the chemistry faculty in using the computer. This includes indicators on basic computer operation skills; word processing skills; and skills in using spreadsheets.

The questionnaire on criterion variables includes the teaching competencies of the chemistry faculty. It includes six (6) subscales namely: communication competence, curriculum expertise, organization and planning, classroom management, assessment of student learning, and laboratory competence. The indicators on teaching competencies were taken from Qualitative Contribution Evaluation (QCE) for Instructors and Assistant Professors of the National Budget

Circular (NBC) 461; Performance Evaluation System (PES) Form 2 for College Faculty; Demonstration Teacher's Rating Form of RSU College of Education and Graduate Studies (CEGS); Guidelines in Rating Teacher Performance in the Department of Education (DepEd); and from reviewed literature on teaching performance and teaching competencies.

In the construction and development of the research instrument, the researcher conducted a documentary review from existing literature. The researcher sought opinions and suggestions from experts for the improvement of the developed instrument.

After complying with all the suggestions of the experts, the final copy of the questionnaire was prepared. The prepared questionnaire was then subjected to the following reliability analyses: 1) Test-Retest to a group of fifteen (15) participants to determine the coefficient of correlation among responses Spearman rho; 2) Split-Halt Test to determine the correlation between forms; and 3) Cronbach's Coefficient Alpha Reliability Test to determine inter-item consistency. The computed Spearman rho (r) = 0.76 means *high relationship*; the correlation between forms (r) = 0.76 means *high correlation*; Cronbach's Coefficient Alpha (α) = 0.86 means *highly reliable*.

Data Gathering Procedure

Once the instruments were validated, the researcher did the following:

1. A request for chemistry faculty members, their respective students, their respective supervisors, and other science faculty was transmitted to the president of the university, deans of the colleges, and campus directors of all participating colleges/campuses regarding the administration of the instruments.

2. Administration of the Instruments. Copies of the questionnaires were accomplished by the student participants during their chemistry period. The researcher told the participants that their contribution to this study is important and that these evaluations are anonymous and confidential and will not be seen by their instructors. This was done so that the participants gave an open and honest response to every item in the questionnaire. Likewise, the chemistry faculty, their supervisors, and other science faculty also accomplished the questionnaires.
3. The data gathered from the participants were checked, classified, and tabulated in the order of the sub-problems.
4. Informal interviews were conducted with some participating teachers and students who were randomly chosen to confirm their answers on the questionnaires, and also verify the findings of this study.

Statistical Treatment of Data

The data gathered from the participants were recorded, classified, and tabulated by the researcher. With the help of the statistician, the data were processed using Statistical Package for Social Sciences (SPSS). The results were then interpreted following the order in which they appear in the statement of the problem.

Descriptive statistics like frequency counts, percentage, weighted mean and rank were used in this study. Frequency counts and percentage were used to

establish the teacher participants' personal profile, educational preparation and professional experience.

Weighted mean was used to determine the trend of ratings on the following predictor variables: physiological status, psychological status, and information technology skills; including the trend in ratings on the criterion variables, the teaching competencies: communication competence, curriculum expertise, organization and planning, classroom management, assessment of student learning, and laboratory competence.

The indicators in every teaching competence where the chemistry faculty obtained the highest mean when evaluated by the four (4) groups of respondents, were considered the strengths of the chemistry faculty. Likewise, those with lowest mean were the weaknesses. The strengths were ranked from highest to lowest with the highest mean being rank 1; while the weaknesses were ranked from lowest to highest with the lowest mean being rank 1.

Inferential statistics like One-Way Analysis of Variance (ANOVA) and Multiple Linear Regression Analysis (MLRA) were also used. One-Way ANOVA was used to determine if there is significant difference in the perceptions of the four (4) groups of respondents (chemistry faculty, students, supervisors, and other science faculty) on the level of teaching competencies (communication competence, curriculum expertise, organization and planning, classroom management, assessment of student learning, and laboratory competence) of the chemistry faculty. The two-tailed hypotheses were tested at 0.05 level of significance.

Multiple Linear Regression Analysis (MLRA) was used to determine which of the following variables: educational preparation (educational attainment and field of specialization); professional experience (number of years of teaching chemistry, work eligibility, membership in professional organizations, and number of seminars/workshops attended); physiological status, psychological status (spirituality, values and emotional intelligence); and information technology skills best predicts the teaching competencies of the chemistry faculty. Obtained p-values were compared to the standard p-value of 0.05.

Preparation of a Proposed Faculty Development Program

To come up with the proposed faculty development program, the researcher conducted quantitative analysis of the responses of the participants on the teaching competencies of the college chemistry faculty. The competencies and their corresponding indicators with lowest mean were considered the weaknesses of the faculty through quality management. These include the following: (1) Directs students to use the electronic sources for additional information (3.97, curriculum expertise); (2a) Instructs students to wear gloves and protective eyeglasses when performing laboratory activities and (2b) Observes proper techniques in determining odors of substances (3.99, laboratory competence); (3) Provides activities for remediation, reinforcement, and enrichment (4.19, instructional organization and planning); (4) Conducts authentic assessment techniques such as performance tests and observation of behavior (4.21, assessment of student learning); (5)

Observes systematic and orderly presentation of ideas in speech and in writing (4.27, communication competence); and (6) Establishes supportive and cooperative classroom atmosphere (4.34, classroom management). These were considered in developing the management enhancement program.

Review of related literature was done to enrich the content of the “proposed faculty development program.” Once the program and was completed, the researcher consulted the two (2) advisers for their comments and suggestions to improve the program. In addition, the researcher sought other suggestions and comments from the former President of Romblon State College, considering her wide experience and expertise in school management and in chemistry teaching.

Scaling Technique

The following 5-point scale with corresponding descriptive interpretation was used in order to arrive at a meaningful interpretation of the assessment results on the variables:

Scale	Verbal Interpretation
4.51 – 5.0	Always (81 – 100% manifested)
3.51 – 4.50	Frequently (61 – 80% manifested)
2.51 – 3.50	Occasionally (41 – 60% manifested)
1.51 – 2.50	Seldom (21 – 40% manifested)
1.0 – 1.50	Never (1 – 20 % manifested)

Total Quality Standard (TQS)

Likewise, the Total Quality Standard (TQS) was utilized. In a scale of five (5), 3.0 is the midpoint. All components/indicators with a mean of 3.0 and above are considered strengths. Meanwhile, those with a mean of below 3.0 are considered weaknesses. However, if the component/indicator has a mean of 4.56 and above, it has attained Total Quality Standard (TQS). It should be emphasized that gaps are apparent if the Total Quality Standard (TQS) is not attained. For strengths, there is a need to enhance further; while for weaknesses, they must be improved so that the desired Total Quality Standard (TQS) could be attained. More importantly, those components/indicators that attained 4.56, there is no need for solutions, but it should be maintained.

The discrepancy between computed mean for each indicator of teaching competencies and the standard, set as 5 was obtained, that is, following the Total Quality Standard (TQS).

Chapter IV**PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA**

This chapter provides for the presentation, analysis and interpretation of the data obtained from the study. The data gathered from the accomplished survey

questionnaire administered to four (4) groups of respondents composed of thirteen (13) chemistry faculty, thirteen (13) supervisors, twenty-seven (27) other science faculty, and two hundred fifty (250) chemistry students are presented in tabular forms.

Included in the tables were analysis and interpretation of the data obtained through the application of appropriate descriptive statistics such as weighted mean, gaps or discrepancies from the standard, and rank. Likewise, results of inferential statistics like One-Way ANOVA on test of significant difference on the perceptions of the four (4) groups of respondents, and results of Multiple Linear Regression Analysis for predicting teaching competence, were presented in tables. Discussions of the results obtained are also given. The data obtained are sequentially arranged according to the order in which they appear in the statement of the problem.

Problem 1. What is the profile of the college chemistry faculty in terms of the following?

1. Educational Attainment and Field of Specialization

Table 4 shows the frequency and percentage distribution of the chemistry faculty according to their educational attainment and field of specialization.

Table 4

Profile of the Chemistry Faculty According to Educational Attainment
And Field of Specialization

Educational Attainment	Number of Faculty	Percent
Bachelor's Degree	2	15.4
Bachelor's Degree with Master's Units	8	61.5
Master's Degree	2	15.4
Master's Degree with Doctorate Units	1	7.7
Total	13	100.0
Field of Specialization	Number of Faculty	Percent
Science	8	61.5
Educational Management	3	23.1
Chemistry	2	15.4
Total	13	100.0

Table 4 shows that eight (8) out of thirteen (13) chemistry teachers or 61.5% are bachelor's degree holders with master's units. Two (2) teachers or 15.4% belong to each of the following groups: bachelor's degree and master's degree holders. Only one (1) teacher is a master's degree holder with doctorate units. These findings could be attributed to the fact that educational attainment plays a crucial role either on their promotion in terms of academic rank or on the improvement of the delivery of instruction to the clientele. Moreover, colleges and universities adhere to the minimum requirement of a master's degree.

Table 4 also shows that out of thirteen (13) chemistry teachers, there are eight (8) teachers or 61.5% who are Science majors. There are three (3) teachers or 23.1% whose field of specialization is Educational Management. There are only two (2) teachers or 15.4% who are Chemistry majors. This result does not conform

with the Commission on Higher Education requirement that only chemistry majors should teach chemistry subjects.

2. Professional Experience

Table 5

Profile of the Chemistry Faculty According to Professional Experience

A. Number of Years Teaching Chemistry	Number of Faculty	Percent		C. Work Eligibility	Number of Faculty	Percent
0 – 5	3	23.1		1 eligibility	4	30.8
6 – 10	1	7.7		2 eligibilities	6	46.2
11 – 15	2	15.4		3 eligibilities	3	23.1
16 – 20	0	0		Total	13	100.0
21 & above	7	53.8		D.Seminars (Past 5 Years)	Number of Faculty	Percent
Total	13	100.0		None	7	53.8
B. Professional Organizations	Number of Faculty	Percent		1 – 5	6	46.2
1 organization	7	53.8		Total	13	100.0
2 organizations	4	30.8		E. Seminars (From Start of Teaching)	Number of Faculty	Percent
3 organizations	1	7.7		None	4	30.8
6 organizations	1	7.7		1 – 5	6	46.2
Total	13	100.0		6 – 10	3	23.1
				Total	13	100.0

Table 5 shows the frequency and percentage distribution of the chemistry faculty according to their professional experience. The professional experience

involved in this study included number of years teaching chemistry, membership in professional organizations, work eligibility, seminars attended for the past five (5) years, and seminars attended since they began teaching.

Table 5A depicts the number and percent chemistry faculty's profile according to number of years teaching chemistry. The data show that there are four (4) groups of chemistry faculty according to this category. Seven (7) out of thirteen (13) chemistry teachers or 53.8% have been teaching chemistry for twenty-one (21) years or more. Three (3) teachers or 23.1% have been teaching for five (5) years or less. Two (2) teachers or 15.4% have 11-15 years teaching experience. Only one (1) teacher 7.7% has 6-10 years teaching experience. No one among them has 16-20 years teaching experience. These data show that majority of the chemistry faculty are experienced teachers.

Table 5B depicts the number and percent chemistry faculty's profile according to membership in professional organizations. These professional organizations include: Public Service for Labor Independent Confederation (PSLINK), Research and Educational Development Training Institute (REDTI), Romblon State University Faculty Association (ROSUFA), Southern Tagalog Association for Vocational Education (STAVE), State Universities and Colleges Teacher Education Association (SUCTEA), Association of Social Science Educators, Researchers, and Trainers (ASSERT), and other relevant professional organizations.

The data in Table 5B show that there are four (4) groups of chemistry faculty according to this category. Seven (7) out of thirteen (13) chemistry teachers or 53.8% are members of only one (1) organization; that is Romblon State University Faculty Association (ROSUFA). Four (4) teachers or 30.8% are members of two (2) organizations; that is, ROSUFA and another organization. Only one (1) teacher or 7.7% is a member of three (3) organizations; that is, ROSUFA and two (2) other organizations. Another one (1) teacher or 7.7% is a member of six (6) organizations; that is, ROSUFA and five (5) other organizations. These professional organizations enhance the professional experience of the chemistry faculty.

Table 5C depicts the number and percent chemistry faculty's profile according to work eligibility. The work eligibilities included in this study are; board examinations and other government examinations like Professional Board Examination for Teachers (PBET) or Licensure Examination for Teachers (LET), Career Service Professional Examination, Career Service Sub-Professional Examination, and other relevant licensure examinations.

The data in Table 5C show that there are three (3) groups of chemistry faculty according to this category. Six (6) out of thirteen (13) chemistry teachers or 46.2% have two (2) eligibilities. Four (4) teachers or 30.8% have only one (1) eligibility. Only three (3) teachers or 23.1% have three (3) eligibilities. These data show that all the chemistry faculty are eligible.

Table 5D depicts the number and percent chemistry faculty's profile according to their attendance in seminars, workshops, or conferences that are

specifically related to chemistry teaching during the past five (5) years. The data show that there are only two (2) groups of chemistry faculty according to this category. Seven (7) out of thirteen (13) chemistry teachers or 53.8% have not attended any seminar, workshop, or conference related to chemistry teaching for the past five (5) years. Six (6) teachers or 46.2% have attended 1 - 5 seminars, workshops, or conferences.

Table 5E depicts the number and percent chemistry faculty's profile according to their attendance in seminars, workshops, or conferences that are specifically related to chemistry teaching since they started teaching. The data show that there are three (3) groups of chemistry faculty according to this category. Six (6) out of thirteen (13) chemistry teachers or 46.2% have attended 1 - 5 seminars, workshops, or conferences. Four (4) teachers or 30.8% have not attended any seminar, workshop, or conference related to chemistry teaching. Three (3) teachers or 23.1% have attended 6 – 10 seminars, workshops, or conferences. Like professional organizations, these in-service trainings enhance the professional experience of the chemistry faculty.

3. Physiological Status

The physiological status of the chemistry faculty refers to the physical health of the teacher. Table 6 shows the profile of the chemistry faculty according to their physiological or health status.

The data in table 6 show that the chemistry teachers are physically healthy; They frequently manifest a healthy lifestyle They are healthy because they always refrain from vices such as cigarette smoking and drinking alcoholic beverages. Besides, they observe cleanliness and neatness at all times. However, they have low tolerance level to dusts, vapors and strong odors. Most of them are female, so it is just proper that they manifest these health indicators.

Table 6

Profile of the Chemistry Faculty According to Physiological Status

Indicators	Weighted Mean	Verbal Interpretation
1. Observes cleanliness and neatness at all times.	4.69	Always Manifested
2. Indulges in regular physical fitness program.	3.62	Frequently Manifested
3. Refrains from vices such as cigarette smoking and drinking alcoholic beverages.	4.77	Always Manifested
4. Can tolerate dusts, vapors, and strong odors.	3.31	Occasionally Manifested
5. Exercises moderation in one's eating habits.	4.00	Frequently Manifested
6. Is always well-dressed with firm built.	4.15	Frequently Manifested
7. Chooses fruits and vegetables over meat served on the table	4.15	Frequently Manifested
Over-all Mean	4.10	Frequently Manifested

4. Psychological Status

The profile for psychological status of the chemistry faculty includes spirituality, values and emotional intelligence.

4a. Spirituality

Spirituality concerns itself with matters of spirit, a concept closely tied to religious belief and faith.

The data in Table 7 shows that the chemistry teachers manifest a high level of spirituality. They manifest faith in God at all times; they always offer prayer to the sick and to those who have problems. Teachers with high spirituality are directed to develop inner relationship with God, allow people to grow in their relationship with the human community, and consider a better future for all humans and the earth (Bauzon, 2000).

Table 7

Profile of the Chemistry Faculty According to Spirituality

Indicators	Weighted Mean	Verbal Interpretation
1. Begins and ends classes with a prayer.	3.62	Frequently Manifested
2. Attends church activities regularly.	4.38	Frequently Manifested
3. Is ready to help those who are in need.	4.38	Frequently Manifested
4. Manifests faith in God at all times.	4.92	Always Manifested
5. Refrains from judging others especially the students.	4.38	Frequently Manifested
6. Shows a positive disposition even in unfavorable situation	4.38	Frequently Manifested
7. Offers prayer to the sick and to those who have problems.	4.62	Always Manifested
Over-all Mean	4.38	Frequently Manifested

4b. Values

The values included in this study are those embarked on the Revised Version of the Values Education Program in 1997: truth and honesty, love and goodness, human relations, sustainable human development, and nationalism and globalism. The following tables show the profile of the chemistry faculty according to these values.

Table 8

Profile of the Chemistry Faculty According to Truth and Honesty

Indicators	Weighted Mean	Verbal Interpretation
1. Sets an example to students with regards to decorum and values.	4.69	Always Manifested
2. Comes to school promptly and regularly.	4.85	Always Manifested
3. Fills up one's daily time record honestly.	4.85	Always Manifested
4. Avoids giving false impression to another person.	4.46	Frequently Manifested
5. Practices social justice.	4.69	Always Manifested
6. Teaches within the bounds of truth and honesty.	4.85	Always Manifested
7. Is strictly honest in his/her public dealings.	4.69	Always Manifested
Over-all Mean	4.73	Always Manifested

Table 8 reveals the profile of the chemistry faculty according to truth and honesty. The data in the table show that the chemistry teachers are truthful and honest. They come to school promptly and regularly; they fill up

their daily time record honestly; and they teach within the bounds of truth and honesty. If truth is a value for the teacher, it commends in him an inner commitment that, in turn, translates itself into his daily speech and action. Truth is good and desirable; it influences attitudes and behavior (UNESCO, 1997).

Table 9

Profile of the Chemistry Faculty According to Love and Goodness

Indicators	Weighted Mean	Verbal Interpretation
1. Assists slow learners beyond the call of duty.	4.23	Frequently Manifested
2. Makes one's self available for consultation and mentoring.	4.46	Frequently Manifested
3. Manifests love, care and concern for all people he works with	4.77	Always Manifested
4. Is open to give advice to anybody who seeks for help.	4.46	Frequently Manifested
5. Is considerate and kind to everyone without prejudice	4.54	Always Manifested
6. Helps those who are in need regardless of family affiliation.	4.54	Always Manifested
7. Controls anger and bad temper.	4.31	Frequently Manifested
Over-all Mean	4.47	Frequently Manifested

Table 9 shows the profile of the chemistry faculty according to love and goodness. The data in the table show that the chemistry teachers manifest a high level of love and goodness. They manifest love, care and concern for all people they work with; they are considerate and kind to everyone without prejudice; and they help those who are in need regardless

of family affiliation. Love and goodness are the core values in the moral dimension. They are the two most important values that teachers should possess. Students learn easily in an atmosphere of love.

Table 10
Profile of the Chemistry Faculty According to Human Relations

Indicators	Weighted Mean	Verbal Interpretation
1. Shows courtesy and respect to superiors and other constituted authorities.	4.69	Always Manifested
2. Treats everybody fairly.	4.62	Always Manifested
3. Develops strategies so that students will appreciate being peaceful and fair	4.69	Always Manifested
4. Treats all students equally regardless of their socio-economic background.	4.85	Always Manifested
5. Reprimands any observed misconduct done by a student against somebody in a peaceful manner.	4.38	Frequently Manifested
6. Can relate well with the members of the academe and administrative community.	4.46	Frequently Manifested
7. Respects the human fundamental freedom.	4.62	Always Manifested
Over-all Mean	4.62	Always Manifested

Table 10 shows the profile of the chemistry faculty according to human relations. The data in the table show that the chemistry teachers manifest good human relations. They treat all students equally regardless of their socio-economic background; they show courtesy and respect to superiors and other constituted authorities; and they develop strategies so that students appreciate being peaceful and fair. If teachers manifest good human

relations, there is peace and justice, the core values in the social dimension (Revised Version of the Values Education Program, 1997).

Table 11 shows the profile of the chemistry faculty according to sustainable human development. Like the other values, the chemistry teachers also manifest a high level of sustainable human development. They live a simple lifestyle; they do their part in protecting and enhancing the quality of the environment; and they are against legal gambling as a means to improve one's economic status. Sustainable human development is the core values in the economic dimension (Revised Version of the Values Education Program, 1997).

Table 11
Profile of the Chemistry Faculty According to
Sustainable Human Development

Indicators	Weighted Mean	Verbal Interpretation
1. Finds joy and contentment in his job.	4.31	Frequently Manifested
2. Lives a simple lifestyle.	4.85	Always Manifested
3. Uses materials and other resources prudently and wisely.	4.38	Frequently Manifested
4. Does his/her part in protecting and enhancing the quality of the environment.	4.69	Always Manifested
5. Practices thrift and economy in spending money.	4.54	Always Manifested
6. Participates in environment protection and conservation activities.	4.54	Always Manifested
7. Is against legal gambling as a means to improve one's economic status.	4.69	Always Manifested
Over-all Mean	4.57	Always Manifested

Table 12 shows the profile of the chemistry faculty according to nationalism and globalism. The data in the table show that the chemistry teachers manifest high level of nationalism and globalism. They patronize local products and talents to help our country progress; and they are in favor of science and technology transfer/exchange. The modern trend in education is to develop globally competitive students. However, we should not forget to be nationalistic. Hence, nationalism and globalism are the core values in the political dimension (Revised Version of the Values Education Program, 1997).

Table 12

Profile of the Chemistry Faculty According to
Nationalism and Globalism

Indicators	Weighted Mean	Verbal Interpretation
1. Ties up lessons with current national situation problems and thrusts.	4.31	Frequently Manifested
2. Participates in the observance of significant national celebrations and events.	4.46	Frequently Manifested
3. Provides situational problems related to national development in his/her teaching.	4.31	Frequently Manifested
4. Is in favor of science and technology transfer/exchange.	4.62	Always Manifested
5. Keeps informed of the global trend especially in technology.	4.31	Frequently Manifested
6. Strives for global competitiveness in terms of instruction, innovation, and application.	4.38	Frequently Manifested
7. Patronizes local products and talents to help our country progress.	4.69	Always Manifested
Over-all Mean	4.44	Frequently Manifested

4c. Emotional Intelligence

Emotional Intelligence (EI) describes the ability, capacity, skill or a self-perceived ability, to identify, assess, and manage the emotions of one's self, of others, and of groups (Bradberry and Greaves (2009). Table 13 reflects the profile of the chemistry faculty according to emotional intelligence.

Table 13
Profile of the Chemistry Faculty According to
Emotional Intelligence

Indicators	Weighted Mean	Verbal Interpretation
1. Shows that he/she is a highly motivated person.	4.54	Always Manifested
2. Deals effectively with people.	4.46	Frequently Manifested
3. Shows a number of good qualities.	4.38	Frequently Manifested
4. Is able to influence the way other people feel.	4.46	Frequently Manifested
5. Finds ways to control his/her emotions when he wants to.	4.46	Frequently Manifested
6. Shows that he/she is pleased with his life.	4.46	Frequently Manifested
7. Describes himself/herself as a good negotiator.	4.31	Frequently Manifested
Over-all Mean	4.44	Frequently Manifested

The data in Table 13 show that the chemistry teachers are emotionally intelligent. It can be gleaned in the table that they are highly motivated people. Emotionally intelligent teachers develop emotionally intelligent students. They create a healthy and more productive classroom

environment. Modern teachers are concerned with the total development of the learners. Gone are the days when the only priority of the teachers is the students' cognitive domain.

5. Information Technology Skills

Information technology skills refer to the skills in using the computer. Table 14 reflects the profile of the chemistry faculty according to information technology skills.

Table 14

Profile of the Chemistry Faculty According to
Information Technology Skills

Indicators	Weighted Mean	Verbal Interpretation
1. Uses related information in the computer.	4.00	Frequently Manifested
2. Presents the lesson by using power point.	2.62	Occasionally Manifested
3. Accesses information on CD-ROM, floppy drive & hard drive	2.77	Occasionally Manifested
4. Creates, edits and prints various types of documents.	3.77	Frequently Manifested
5. Accesses to internet, website and the like.	3.23	Occasionally Manifested
6. Transfers/sends files to fast drives/hard drives.	3.46	Occasionally Manifested
7. Uses spreadsheets in doing calculations	3.00	Occasionally Manifested
Over-all Mean	3.26	Occasionally Manifested

The data in Table 14 show that the chemistry teachers have low level of information technology skills or computer literacy. They use computer in teaching only occasionally. Although they know how to use related information in the computer and can create various types of documents, they are not very competent in other information technology skills. This is especially true among senior chemistry teachers who have negative attitude towards using computer in the classroom. Hence, only few chemistry teachers use power point in presenting the lesson.

Teachers should know that computers could be used in presenting the day's lesson, solving problems, and providing educational games. Therefore, schools should aim for achieving 'computer literacy' and providing experience in operating a unit. In recent years, computer literacy has been included as part of the curriculum of many schools (Salandanan, 2006). Gone are the days when the teachers focus on using the chalkboard alone for instruction.

Problem 2. What is the level of the teaching competencies of college chemistry faculty as perceived by themselves, their students, their supervisors and other science faculty in terms of the following?

1. Communication Competence

Communication competence refers to how the faculty communicates both in oral and written expressions using Standard English. It also refers to clarity of pronunciation and quality of voice during classroom teaching. Table 15 shows the level of communication competencies of the chemistry faculty as perceived by the respondents.

Table 15
Average Weighted Mean on Communication Competencies

Communication Competencies	Students		Other Science Faculty		Supervisors		Chemistry Faculty		Summary			TQS	
Indicators	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	Rank	VI	Inten-t	Gap
1. Speaks in clear, pleasant, and well-modulated voice.	4.45	F	4.52	A	4.38	F	4.46	F	4.46	3	F	5	0.54
2. Observes correct grammar both oral and written.	4.36	F	4.33	F	4.38	F	4.38	F	4.36	6	F	5	0.04
3. Observes systematic and orderly presentation of ideas in speech and in writing.	4.26	F	4.48	F	4.15	F	4.31	F	4.27	7	F	5	0.73
4. Explains clearly the content /details of the lesson.	4.43	F	4.44	F	4.38	F	4.69	A	4.44	4	F	5	0.56
5. Uses illustrations/ examples to help clarify topics	4.45	F	4.52	A	4.62	A	4.69	A	4.48	2	F	5	0.52
6. Clarifies topic when it is not understood.	4.54	A	4.63	A	4.46	F	4.77	A	4.55	1	A	5	0.45
7. Asks questions which develop analytical and critical thinking.	4.42	F	4.42	F	4.38	F	4.62	A	4.43	5	F	5	0.57
Over-all Mean	4.42	F	4.48	F	4.40	F	4.56	A	4.43		F	5	0.57

Legend:

NUMERICAL RANGE
4.51 -- 5.00
3.51 – 4.50
2.51 – 3.50
1.51 – 2.50
1.00 – 1.50

RATING
5
4
3
2
1

VERBAL INTERPRETATION (VI)
Always
Frequently
Occasionally
Seldom
Never

It is interesting to note in Table 15 that the chemistry faculty respondents always clarify topics when they are not understood by the students. This indicator of communication competence got the highest rating for the perceptions of the

chemistry faculty themselves, their students, and other science faculty. The over-all rating obtained by this indicator is always manifested or a mean of 4.55 suggests that the chemistry faculty respondents are accommodating especially when topics are not well understood by their students. Similarly, the supervisors perceived that these chemistry teachers use examples to help clarify topics.

In conjunction with the other indicators, the chemistry teachers reflect a high level of communication competence. The over-all rating is *frequently manifested* or a mean of 4.43 suggests that these teachers have shown their capability to handle learning activities inside the classroom.

On the other hand, the chemistry faculty participants “do not always observe systematic and orderly presentation of ideas both in speech and in writing” according to the chemistry faculty themselves, their students, and their supervisors. The over-all rating obtained by this indicator is *frequently manifested* or the lowest mean of 4.27 suggests that these teachers need to improve their communication competence especially in terms of observing systematic and orderly presentation of ideas both in oral and written communication. Similarly, according to other science faculty, the chemistry teachers “do not always observe correct grammar both in oral and written language.” Hence, the teachers also need to improve their competence along this line.

As reflected in the table, a gap of 0.57 exists between the general mean of 4.43 and a perfect rating of 5 of TQS, hence there’s a need to enhance further this teaching competence.

A teacher's communication skill is a very important aspect of a successful learning experience. The learners behave according to their perception of teacher's verbal and non-verbal communication. It helps if teachers send clear messages and check on the receiver's interpretation (Eliot, 1996).

2. Curriculum Expertise

Curriculum expertise means expertise in the way content is designed and delivered. It also means expertise in the structure, organization, balance, and presentation of the content in the classroom. Table 16 shows the level of curriculum expertise of the chemistry faculty as perceived by the respondents.

It can be gleaned in Table 16 that the chemistry faculty respondents always teach topics which are consistent with the course prescription in the syllabus. This indicator of curriculum expertise got the highest rating for the perceptions of the chemistry faculty themselves, their students, and other science faculty. The over-all rating obtained by this indicator is frequently manifested or a mean of 4.44 suggests that the chemistry faculty respondents really follow what is written in the course syllabus; they do not include topics which not found therein. Similarly, the supervisors perceived that these chemistry teachers demonstrate excellent mastery of the subject matter.

Together with the other indicators, the chemistry teachers reflect a high level of curriculum expertise. The over-all rating is *frequently manifested* or a mean of 4.24 suggests that these teachers have shown their competence to teach the different topics in college chemistry. They are good in terms of structure,

organization, balance, and presentation of the content in the classroom. Like communication competence, they reflect a high level of curriculum expertise.

Table 16
Average Weighted Mean on Curriculum Expertise

Curriculum Expertise	Students		Other Science Faculty		Supervisors		Chemistry Faculty		Summary			TQS	
Indicators	Mean	V I	Mean	V I	Mean	V I	Mean	V I	Mean	R a n k	V I	I n t e n t	Gap
1. Demonstrates excellent mastery of subject matter.	4.37	F	4.33	F	4.54	A	4.46	F	4.38	2	F	5	0.62
2. Teaches topics which are consistent with the course prescription in the syllabus.	4.40	F	4.63	A	4.46	F	4.69	A	4.44	1	F	5	0.56
3. Helps students to relate subject matter concepts to past lessons and their own lives.	4.37	F	4.30	F	4.31	F	4.69	A	4.37	3	F	5	0.63
4. Updates one's self with current technologies in the field of chemistry.	4.14	F	4.11	F	4.08	F	4.23	F	4.14	6	F	5	0.86
5. Cites current and relevant information to enrich information in textbooks/ hand-outs.	4.24	F	4.11	F	4.15	F	4.23	F	4.22	4	F	5	0.78
6. Serves as consultant/expert in the field of chemistry.	4.23	F	3.81	F	3.77	F	3.77	F	4.15	5	F	5	0.85
7. Directs students to use the electronic sources for additional information	3.97	F	3.81	F	3.92	F	4.23	F	3.97	7	F	5	1.03
Over-all Mean	4.25	F	4.16	F	4.18	F	4.33	F	4.24		F	5	0.76

Legend:

NUMERICAL RANGE

4.51 – 5.00
3.51 – 4.50
2.51 – 3.50
1.51 – 2.50
1.00 – 1.50

RATING

5
4
3
2
1

VERBAL INTERPRETATION (VI)

Always
Frequently
Occasionally
Seldom
Never

On the other hand, the chemistry faculty respondents “do not always direct students to use the electronic sources for additional information” according to their students and other science faculty. The over-all rating obtained by this indicator is *frequently manifested* or the lowest mean of 3.97 suggests that these teachers need to improve their computer literacy and be advised to obtain additional information from the internet, not merely depending on textbooks. Similarly, according to the chemistry faculty themselves and their supervisors, the chemistry teachers “do not always serve as consultant in the field of chemistry.” Hence, the teachers also need to improve their competence along these areas.

As reflected in the table above, a gap of 0.76 exists between the general mean of 4.24 and a perfect rating of 5 of TQS, hence there's a need to enhance further this teaching competence.

In implementing the curriculum the teacher considers the difficulty level of each topic in the scope and sequence arrangement of concepts prescribed in the curriculum and accompanying syllabus. As a professional teacher he is the “master” of the subject he is teaching. As such, he is expected to be knowledgeable about his field of specialization; he is updated and skilled in imparting such knowledge to his students (Salandanan, 2007).

3. Instructional Organization and Planning

Instructional organization and planning includes formulation of objectives and organizing learning experiences for all students. Table 17 shows the level of

instructional organization and planning competencies of the chemistry faculty as perceived by the respondents.

Table 17
Average Weighted Mean on “Instructional Organization
and Planning” Competencies

Organization and Planning	Students		Other Science Faculty		Supervisors		Chemistry Faculty		Summary			TQS	
Indicators	Mean	V I	Mean	V I	Mean	V I	Mean	V I	Mean	R a n k	V I	I n t e n t	Gap
1. Organizes subject matter consistent with course syllabi/outline.	4.32	F	4.52	A	4.38	F	4.62	A	4.35	2	F	5	0.65
2. Shows that there is considerable agreement between announced objectives and what is actually taught.	4.25	F	4.22	F	4.54	A	4.38	F	4.27	5	F	5	0.73
3. Presents the lesson in clear, logical, and organized manner	4.23	F	4.41	F	4.38	F	4.54	A	4.43	1	F	5	0.57
4. Sequences instruction to help students see relationships and connections across subject matter areas.	4.32	F	4.19	F	4.23	F	4.38	F	4.31	3	F	5	0.69
5. Assists students in summarizing or emphasizing major points in the lesson.	4.28	F	4.19	F	4.23	F	4.54	A	4.28	4	F	5	0.72
6. Provides activities for remediation, reinforcement, and enrichment.	4.20	F	4.07	F	4.23	F	4.15	F	4.19	7	F	5	0.81
7. Uses a variety of techniques and strategies to make the lesson interesting.	4.20	F	4.19	F	4.15	F	4.38	F	4.20	6	F	5	0.70
Over-all Mean	4.29	F	4.25	F	4.31	F	4.43	F	4.29		F	5	0.71

Legend:

NUMERICAL RANGE

4.51 – 5.00
3.51 – 4.50
2.51 – 3.50
1.51 – 2.50
1.00 – 1.50

RATING

5
4
3
2
1

VERBAL INTERPRETATION (VI)

Always
Frequently
Occasionally
Seldom
Never

It is interesting to note in Table 17 that the chemistry faculty participants always organize subject matter consistent with course syllabi/outline. This indicator of instructional organization and planning got the highest rating for the perceptions of the chemistry faculty themselves, their students, and other science faculty. However, the indicator which serves as the strength of the chemistry faculty in terms of instructional organization and planning is "The teachers present the lesson in clear, logical and organized manner." The over-all rating obtained by this indicator is *frequently manifested* or a mean of 4.43 suggests that the chemistry faculty respondents observe clear, logical and organized manner of presenting the lesson. Similarly, the supervisors perceived that these chemistry teachers show that there is considerable agreement between announced objectives and what is actually taught.

In conjunction with the other indicators, the chemistry teachers reflect a high level of "instructional organization and planning" competencies. The over-all rating is *frequently manifested* or a mean of 4.29 suggests that these teachers have shown their expertise in formulation of objectives and organizing learning experiences for all students. Being curriculum experts, they reflect a high level of "instructional organization and planning" competence.

In contrast, the chemistry faculty participants "do not always provide activities for remediation, reinforcement and enrichment" according to the chemistry faculty themselves, their students and other science faculty. The over-all rating obtained by this indicator is *frequently manifested* or the lowest mean of 4.19 suggests that these teachers need to improve their competence along this line. It is

a “must” for teachers to make sure that majority, if not all of the students learn what has been taught. After all, if there is no learning, there has been no teaching. Similarly, according to their supervisors, the chemistry teachers “do not always use a variety of techniques and strategies to make the lesson interesting.” Hence, the teachers are advised to improve their competence along this line.

A gap of 0.71 exists between the general mean of 4.29 and a perfect rating of 5 of TQS, hence there’s a need to enhance further this teaching competence.

According to Salandanan (2007) teaching is acknowledged as an art. It is mainly a creative expression of one’s intellectual and emotional qualities that are essential in promoting learning. Likewise, teaching is also recognized as a science. It is directed towards the development of an inquiring mind and an analytic mode of accepting the truth in what one thinks and does. As such, instructional planning considers the systematic procedures and strategies similar to the steps followed in a scientific investigation. Teaching is conducted in a carefully sequenced methodology wherein learning activities are planned and organized in a step-by-step manner without much regard for the least signs of difficulties, negative attitudes, and indifference among the students.

4. Classroom Management

Classroom management is used to describe the process of ensuring that classroom lessons run smoothly despite disruptive behavior by students. The term also implies the prevention of disruptive behavior inside the classroom. Table 18

shows the level of classroom management competencies of the chemistry faculty as perceived by the respondents.

Table 18
Average Weighted Mean on Classroom Management Competencies

Classroom Management	Students		Other Science Faculty		Supervisors		Chemistry Faculty		Summary			TQA	
Indicators	Mean	V I	Mean	V I	Mean	V I	Mean	V I	Mean	R a n k	V I	I n t e n t	Gap
1. Starts and ends classes on time.	4.48	F	4.67	A	4.46	F	4.69	A	4.51	2	A	5	0.49
1. Adopts a systematic, peaceful and orderly conduct of classroom routine and other activities.	4.33	F	4.44	F	4.38	F	4.62	A	4.35	6	F	5	0.65
3. States clearly and explicitly classroom rules to prevent disciplinary problems.	4.34	F	4.33	F	4.54	A	4.54	A	4.36	4.5	F	5	0.64
4. Establishes supportive and cooperative classroom atmosphere.	4.31	F	4.48	F	4.38	F	4.62	A	4.34	7	F	5	0.66
5. Enhances students' self-esteem through proper recognition of their performance.	4.34	F	4.44	F	4.38	F	4.46	F	4.36	4.5	F	5	0.64
6. Maintains order and discipline among students	4.44	F	4.48	F	4.38	F	4.54	A	4.45	3	F	5	0.55
7. Maintains professional role while being friendly.	4.53	A	4.48	F	4.46	F	4.69	A	4.53	1	A	5	0.47
Over-all Mean	4.40	F	4.48	F	4.43	F	4.59	A	4.41		F	5	0.59

Legend:

NUMERICAL RANGE

4.51 – 5.00

3.51 – 4.50

2.51 – 3.50

1.51 – 2.50

1.00 – 1.50

RATING

5

4

3

2

1

VERBAL INTERPRETATION (VI)

Always

Frequently

Occasionally

Seldom

Never

It can be gleaned in Table 18 that the chemistry faculty respondents always maintain professional role while being friendly. This indicator of classroom management got the highest rating for the perceptions of the chemistry faculty themselves and their students. The over-all rating obtained by this indicator is *always manifested* or a mean of 4.53 suggests that even if the chemistry teachers are friendly to their students, they are able to maintain that “gap” between teachers and students. While being friendly to their students, they still deserve due respect from their students being their superior. Similarly, other science faculty perceived that the chemistry teachers always start and end their classes on time; the supervisors perceived that these chemistry teachers always state clearly and explicitly classroom rules to prevent disciplinary problems.

Together with the other indicators, the chemistry teachers reflect a high level of classroom management competencies. The over-all rating is *frequently manifested* or a mean of 4.41 suggests that these teachers have shown their expertise in ensuring that classroom lessons run smoothly despite some disruptive behavior by students. Like the other teaching competencies, they also reflect a high level of classroom management competence.

On the other hand, the chemistry faculty respondents “do not always establish a supportive and cooperative classroom atmosphere” according to their students and their supervisors. The over-all rating obtained by this indicator is *frequently manifested* or the lowest mean of 4.34 suggests that these teachers need to improve their classroom management competence in this particular aspect.

Similarly, according to the chemistry faculty themselves, they “do not always enhance students’ self-esteem through proper recognition of their performance;” while the other science faculty said that the chemistry teachers “do not always state clearly and explicitly classroom rules to prevent disciplinary problems.” Hence, the teachers also need to improve their competence along these areas.

As reflected in the table above, a gap of 0.59 exists between the general mean of 4.41 and a perfect rating of 5 of TQS, hence there’s a need to enhance further this teaching competence.

One way of improving this particular competence is to follow what Covaleski and Aileen (2004) suggested as a guidepost for teachers to provide effective learning atmosphere in the classroom: “In any learning venue, always establish a relaxed atmosphere.”

Preventative approaches to classroom management involve creating a positive classroom community with mutual respect between teacher and student. Teachers using the preventative approach offer warmth, acceptance, and support unconditionally - not based on a student’s behavior. Fair rules and consequences are established and students are given frequent and consistent feedback regarding their behavior (Bear, 2008).

5. Assessment of Student Learning

Assessment of student learning means gathering of information about what has been learned by the students. It includes written tests, oral responses,

performance tests, and observations of behavior of students, the results of which are used to diagnose difficulties and improve instruction. Table 19 shows the level of “assessment of student learning” competencies of the chemistry faculty as perceived by the participants.

It is interesting to note in Table 19 that the chemistry faculty participants always give fair grading system to students. This indicator of “assessment of student learning” competencies got the highest rating for the perceptions of the chemistry faculty themselves, their students, and other science faculty. The over-all rating obtained by this indicator is always manifested or a mean of 4.56 suggests that the chemistry teachers are fair and impartial in dealing with their students especially in giving grades. This is a manifestation that the chemistry faculty treats everybody fairly; They treat the students equally regardless of their socio-economic status. Similarly, the supervisors perceived that these chemistry teachers always inform students the basis of evaluation.

In conjunction with the other indicators, the chemistry teachers reflect a high level of “assessment of student learning” competencies. The over-all rating is “*frequently manifested*” or a mean of 4.42 suggests that these teachers have shown their competence in evaluating their students’ achievement and performance. Like the other teaching competencies, they also reflect a high level of ‘assessment of student learning’ competence.

Table 19
Average Weighted Mean on “Assessment of
Student Learning” Competencies

Assessment Competencies	Students		Other Science Faculty		Supervisors		Chemistry Faculty		Summary			TQS	
Indicators	Mean	V I	Mean	V I	Mean	V I	Mean	V I	Mean	R a n k	V I	I n t e n t	Gap
1. Informs students the basis of evaluation.	4.47	F	4.59	A	4.69	A	4.77	A	4.51	2	A	5	0.49
2. Uses varied, valid and reliable assessment strategies in evaluating student performance.	4.30	F	4.48	F	4.23	F	4.77	A	4.33	6	F	5	0.67
3. Gives fair grading system.	4.54	A	4.67	A	4.54	A	4.92	A	4.56	1	A	5	0.44
4. Adheres to academic policies regarding examination schedules and grading system.	4.48	F	4.44	F	4.46	F	4.85	A	4.49	3	F	5	0.51
5. Returns test papers of students within reasonable time.	4.41	F	4.22	F	4.46	F	4.62	A	4.41	5	F	5	0.59
6. Uses test results to improve instruction.	4.44	F	4.41	F	4.46	F	4.69	A	4.45	4	F	5	0.55
7. Conducts authentic assessment techniques such as performance tests and observation of behavior	4.19	F	4.37	F	4.15	F	4.38	F	4.21	7	F	5	0.79
Over-all Mean	4.40	F	4.46	F	4.43	F	4.71	A	4.42		F	5	0.58

Legend:

NUMERICAL RANGE

4.51 – 5.00

3.51 – 4.50

2.51 – 3.50

1.51 – 2.50

1.00 – 1.50

RATING

5

4

3

2

1

VERBAL INTERPRETATION (VI)

Always

Frequently

Occasionally

Seldom

Never

However, the chemistry faculty respondents “do not always conduct authentic assessment techniques such as performance tests and observation of

behavior” according to the chemistry faculty themselves, their students and their supervisors. The over-all rating obtained by this indicator is *frequently manifested* or the lowest mean of 4.21 suggests that these teachers need to improve their competence along this line. They should not limit their assessment methods to written tests; they should also conduct informal observations of their students’ behavior and administer performance tests. Similarly, according to other science faculty, the chemistry teachers “do not always return test papers of students within reasonable time.” Hence, the teachers are advised to improve their competence along this line.

As reflected in the table above, a gap of 0.58 exists between the general mean of 4.42 and a perfect rating of 5 of TQS, hence there’s a need to enhance further this teaching competence.

As teachers, we strive to reduce the chance for misjudgment in evaluating students by carefully designing evaluation procedures (Ornstein, 1992).

6. Laboratory Competence

Laboratory competence implies how the chemistry faculty makes use of the laboratory in teaching. It includes knowledge and application of some skills and techniques in using the laboratory facilities. Laboratory safety is also included in this teaching competence. Table 20 shows the level of laboratory competencies of the chemistry faculty as perceived by the participants.

Together with the other indicators, the chemistry teachers reflect a lower level of “laboratory safety” competence. The over-all rating is *frequently manifested* or a mean of 4.12 suggests that these teachers have a lower competence in this particular aspect of chemistry teaching. Unlike the other teaching competencies, they reflect a lower level of “laboratory safety” competence.

In line with laboratory safety, the indicator which obtained the lowest rating is “Instructs students to wear gloves and protective eyeglasses when performing laboratory activities.” The over-all rating obtained by this indicator is *frequently manifested* or a mean of 3.91 suggests that the chemistry teachers are not fully aware of the value of protecting the hands and the eyes of the students during laboratory work. These teachers must always bear in mind that some laboratory chemicals are corrosive to the skin, hence, gloves are necessary. There are also liquid chemicals that spatter once the reagent bottle is opened, so students should wear laboratory gown or apron.

The data in Table 20 indicate that the chemistry faculty obtained the lowest scores in laboratory competence. In the aspect of laboratory safety, all the four groups of respondents perceived that the chemistry teachers frequently teach students to observe precautionary measures. The over-all rating obtained by this indicator is *frequently manifested* or a mean of 4.29 suggests that the chemistry teachers are fully aware that following precautionary measures in the laboratory is a must for all chemistry teachers and students to prevent any untoward incident that may happen while using the laboratory.

Table 20

Average Weighted Mean on Laboratory Competencies

[illegible]

B. Laboratory Skills/Techniques	Mean	V I	Mean	V I	Mean	V I	Mean	V I	Mean	R a n k			
Indicators													
1. Ensures proper handling of apparatus and supplies.	4.26	F	4.30	F	4.38	F	4.62	A	4.28	2	F	5	0.72
2. Demonstrates skills in measuring volumes of liquid.	4.17	F	4.37	F	4.31	F	4.59	A	4.21	3	F	5	0.79
3. Observes proper techniques in handling substances.	4.12	F	4.30	F	4.15	F	4.62	A	4.16	5	F	5	0.84
4. Demonstrates skills in using weighing scales.	4.11	F	4.44	F	4.23	F	4.54	A	4.17	4	F	5	0.83
5. Observes proper techniques in determining odors of substances.	4.02	F	4.30	F	4.15	F	4.54	A	4.07	7	F	5	0.93
6. Demonstrates knowledge in improvising laboratory apparatus/ equipment.	4.13	F	4.15	F	4.08	F	4.38	F	4.14	6	F	5	0.86
7. Ensures that faucets are closed and lights are turned off before leaving the laboratory.	4.32	F	4.33	F	4.46	F	4.69	A	4.35	1	F	5	0.65
Over-all Mean	4.16	F	4.31	F	4.25	F	4.58	A	4.20		F	5	0.80
Over-all Laboratory Competence	4.14	F	4.21	F	4.19	F	4.36	F	4.16		F	5	0.84

Legend:	NUMERICAL RANGE	RATING	VERBAL INTERPRETATION (VI)
	4.51 – 5.00	5	Always
	3.51 – 4.50	4	Frequently
	2.51 – 3.50	3	Occasionally
	1.51 – 2.50	2	Seldom
	1.00 – 1.50	1	Never

Regarding laboratory skills and techniques, the chemistry teachers frequently ensure that faucets are closed and lights are turned off before leaving the laboratory. This indicator of laboratory competence got the highest rating for the perceptions of the chemistry faculty themselves, their students, and supervisors. The over-all rating obtained by this indicator is *frequently manifested* or a mean of

4.35 suggests that the chemistry teachers observe conservation of energy in using the laboratory. By making sure that faucets are closed and lights are turned off before leaving the laboratory, accidents are prevented; likewise, energy is conserved. The other science faculty perceived that these chemistry teachers demonstrate skill in using weighing scales.

Together with the other indicators, the chemistry teachers reflect a lower level of “laboratory skills and techniques” competence. The over-all rating is *frequently manifested* or a mean of 4.20 suggests that these teachers have a lower competence in this particular aspect of chemistry teaching. Unlike the other teaching competencies, they reflect a lower level of ‘laboratory skills and techniques’ competence.

In line with laboratory skills and techniques, the indicator which obtained the lowest rating is “Observes proper techniques in determining odors of substances.” The over-all rating obtained by this indicator is *frequently manifested* or a mean of 4.07 suggests that the chemistry teachers are not fully aware that some laboratory chemicals are not only corrosive to the skin but also corrosive to the nose. There are chemicals which are harmful when inhaled; hence, it is not always good to smell any laboratory chemical unless the teacher says that it is safe to do so. Therefore, the chemistry teacher should demonstrate to the class the proper technique in determining odors of substances.

The over-all laboratory competence rating is *frequently manifested* or a mean of 4.16 is suggestive of a low laboratory competence. These perceptions show that

the chemistry faculty respondents are not very competent when it comes to using the laboratory in chemistry teaching. Compared to the other teaching competencies, it is in this aspect that the chemistry faculty respondents scored low.

As reflected in the table above, a gap of 0.88 for laboratory safety and 0.80 for laboratory skills and techniques with an over-all gap of 0.84 exists between the general mean of 4.16 and a perfect rating of 5 of TQS, hence there's a need to enhance further this teaching competence.

Since chemistry is an experimental science, much of the chemistry students' time is spent in the laboratory investigating chemical phenomena, verifying chemical principles, testing hypotheses, or simply exploring the environment. The chemistry laboratory is equipped with scientific apparatus and equipment to ensure that all activities in the laboratory run smoothly and safely. The chemistry teacher must be competent in the different procedures and safety precautions in the laboratory (Mendoza and Religioso, 1997).

Summary of the Teaching Competencies

Table 21 shows the summary of the average weighted mean on teaching competencies of the college chemistry faculty. From this table, it can be seen over-all that no area/component of teaching competence attained the Total Quality Standard (TQS). However, it is safe to say that all the areas/components of teaching competence are strengths as reflected by their weighted mean which are all above the midpoint, 3.0 in a scale of 1 – 5. However, since a gap of 0.67 exists

between the general mean of 4.33 and a perfect rating of 5 of TQS, there's a need to enhance further all these area/components of teaching competence to attain the Total Quality Standard.

Table 21

Summary of Average Weighted Mean on Teaching Competencies

Teaching Competencies	Students		Other Science Faculty		Supervisors		Chemistry Faculty		Summary			TQS	
Indicators	Mean	V I	Mean	V I	Mean	V I	Mean	V I	Mean	R a n k	V I	I n t e n t	Gap
1. Communication Competence	4.42	F	4.48	F	4.40	F	4.58	A	4.43	1	F	5	0.57
2. Curriculum Expertise	4.26	F	4.18	F	4.18	F	4.33	F	4.24	5	F	5	0.76
3. Instructional Organization and Planning	4.29	F	4.25	F	4.31	F	4.43	F	4.29	4	F	5	0.71
4. Classroom Management	4.40	F	4.48	F	4.43	F	4.59	A	4.41	3	F	5	0.59
5. Assessment of Student Learning	4.40	F	4.46	F	4.43	F	4.71	A	4.42	2	F	5	0.58
6. Laboratory Competence	4.14	F	4.21	F	4.19	F	4.36	F	4.16	6	F	5	0.84
Over-all Mean	4.32	F	4.34	F	4.27	F	4.50	F	4.33		F	5	0.67

Legend:	NUMERICAL RANGE	RATING	VERBAL INTERPRETATION (VI)
	4.51 – 5.00	5	Always
	3.51 – 4.50	4	Frequently
	2.51 – 3.50	3	Occasionally
	1.51 – 2.50	2	Seldom
	1.00 – 1.50	1	Never

Problem 3. What are the strengths and weaknesses of college chemistry faculty as perceived by themselves, their students, other science faculty, and supervisors in terms of the above competencies?

Strengths and Weaknesses of the Chemistry Faculty

The strengths of the chemistry faculty refer to the teaching competencies where the teachers obtained the highest mean scores when evaluated by the four groups of participants. Table 22 shows these strengths.

The data in Table 22 show the indicator reflecting the strength of the chemistry faculty in each area of teaching competence. In communication competence the 6th indicator, *“clarifies topic when it is not understood”* got the highest mean; in curriculum expertise, it is the 2nd indicator; *“teaches topics which are consistent with the course prescription in the syllabus”* which got the highest mean; in instructional organization and planning, it is the 3rd indicator, *“presents the lesson in clear, logical, and organized manner”* which got the highest mean; in classroom management it is the 7th indicator, *“maintains professional role while being friendly”*; in assessment of student learning, it is the 3rd indicator. The participants affirmed considerably that the chemistry teachers *“give fair grading system”*. Laboratory competence is divided into two (2) areas: laboratory safety and laboratory skills and techniques. For laboratory safety, the 4th indicator, *“teaches students to observe precautionary measures”* is the strength; while for laboratory skills and techniques, the 7th indicator, *“ensures that faucets are closed and lights are turned off before leaving the laboratory”* is the strength. Laboratory competence is the area whose indicators got the lowest mean scores when evaluated by the four groups of participants.

Table 22
Strengths of the College Chemistry Faculty

Teaching Competence	Indicator	Mean	Verbal Interpretation	Rank
1. Communication Competence	6. Clarifies topic when it is not understood.	4.55	Always	2
2. Curriculum Expertise	2. Teaches topics which are consistent with the course prescription in the syllabus	4.44	Frequently	4
3. Instructional Organization and Planning	3. Presents the lesson in clear, logical, and organized manner.	4.43	Frequently	5
4. Classroom Management	7. Maintains professional role while being friendly.	4.53	Always	3
5. Assessment of Student Learning	3. Gives fair grading system.	4.56	Always	1
6. Laboratory Competence	4. Teaches students to observe precautionary measures.	4.29	Frequently	7
a. Laboratory Safety				
b. Laboratory Skills/Techniques	7. Ensures that faucets are closed and lights are turned off before leaving the laboratory.	4.35	Frequently	6

Legend:	NUMERICAL RANGE	RATING	VERBAL INTERPRETATION (VI)
	4.51 – 5.00	5	Always
	3.51 – 4.50	4	Frequently
	2.51 – 3.50	3	Occasionally
	1.51 – 2.50	2	Seldom
	1.00 – 1.50	1	Never

The mean scores obtained for laboratory competence could be justified using the comments of many students from the external campuses while filling up the questionnaires when they said:

“We do not have Chemistry Laboratory in our school. Our teacher simply gets the apparatus in the stockroom and brings them to the classroom when we need them for our laboratory work.”

Although the data in Table 22 reflect the strengths of the chemistry faculty, it is apparent that not all of the components/indicators which are considered strengths attained the Total Quality Standard as indicated by the weighted mean. As reflected

in the table, only the indicator for assessment of student learning, “*gives fair grading system*” (4.56) and the indicator for communication competence, “*clarifies topic when it is not understood*” (4.55) attained the Total Quality Standard. Hence, there is no need for solutions to these components/indicators, but they should be maintained. However, the other components/indicators which are also considered strengths need to be enhanced further to attain Total Quality Standard.

On the other hand, the weaknesses of the chemistry faculty refer to the teaching competencies where the teachers obtained the lowest mean scores when evaluated by the four groups of participants. Table 23 shows these weaknesses.

The data in Table 23 show the indicator reflecting the weakness of the chemistry faculty in each area of teaching competence. In communication competence, the 3rd indicator, “*observes systematic and orderly presentation of ideas in speech and in writing*” got the lowest mean; in curriculum expertise, the 7th indicator, “*directs students to use the electronic sources for additional information*” got the lowest mean; in instructional organization and planning, the 6th indicator, “*provides activities for remediation, reinforcement, and enrichment*” got the lowest mean; in classroom management, it is the 4th indicator, “*establishes supportive and cooperative classroom atmosphere*”; in assessment of student learning, it is the 7th indicator, “*conducts authentic assessment techniques such as performance tests and observation of behavior*”. Laboratory competence is divided into two (2) areas: laboratory safety and laboratory skills and techniques. For laboratory safety, the 7th indicator, “*instructs students to wear gloves and protective eyeglasses when*

performing laboratory activities” is the weakness; while for laboratory skills and techniques, it is the 5th indicator, *“observes proper techniques in determining odors of substances”*.

Table 23
Weaknesses of the College Chemistry Faculty

Teaching Competence	Indicator	Mean	Verbal Interpretation	Rank
1. Communication Competence	3. Observes systematic and orderly presentation of ideas in speech and in writing.	4.27	Frequently	6
2. Curriculum Expertise	7. Directs students to use the electronic sources for additional information.	3.97	Frequently	2
3. Instructional Organization and Planning	6. Provides activities for remediation, reinforcement, and enrichment.	4.19	Frequently	4
4. Classroom Management	4. Establishes supportive and cooperative classroom atmosphere.	4.34	Frequently	7
5. Assessment of Student Learning	7. Conducts authentic assessment techniques such as performance tests and observation of behavior.	4.21	Frequently	5
6. Laboratory Competence	7. Instructs students to wear gloves and protective eyeglasses when performing laboratory activities.	3.91	Frequently	1
a. Laboratory Safety				
b. Laboratory Skills/Techniques	5. Observes proper techniques in determining odors of substances.	4.07	Frequently	3

Legend:	NUMERICAL RANGE	RATING	VERBAL INTERPRETATION (VI)
	4.51 – 5.00	5	Always
	3.51 – 4.50	4	Frequently
	2.51 – 3.50	3	Occasionally
	1.51 – 2.50	2	Seldom
	1.00 – 1.50	1	Never

The mean scores obtained for laboratory competence could be justified by the fact that among the eight (8) external campuses, only three (3) schools have separate room for laboratory work in chemistry classes. Five campuses do not have Chemistry Laboratory.

While answering the questionnaire, some students in an island campus commented:

“We do not have Chemistry Laboratory in our school. We have only few chemistry apparatus which are found in the library. We do not perform laboratory activities in our chemistry class. Our teacher simply conducts lecture during the period.”

Although the data in Table 23 reflect the weaknesses of the chemistry faculty, it is apparent that the components/indicators which are considered weaknesses are not really weaknesses as reflected by their weighted mean which are all above the midpoint, 3.0. According to the Total Quality Standard (TQS), “in a scale of one (1) to five (5), 3.0 is the midpoint. All components /indicators with a mean of 3.0 and above are considered strengths. Meanwhile, those with a mean of below 3.0 are considered weaknesses.” Hence, the above components/indicators can be considered strengths. However, since they did not attain the Total Quality Standard, they should be enhanced further.

Problem 4. Is there a significant difference between and among the perception of the four groups of respondents on the level of teaching competencies of the college chemistry faculty?

Comparison of the Perceptions of the Participants

Table 24 shows the summary of one-way analysis of variance for the comparison of the perceptions of the participants on the level of teaching competences of chemistry faculty.

Table 24

One-Way Analysis of Variance for the Comparison of the Perceptions of the
Participants on the Teaching Competencies of Chemistry Faculty

Factors	Source of Variation	Sum of Squares	df	Mean Squares	F-value	p-value	Interpretation
Communication Competence	Between Groups	0.342	3	0.114	0.467	0.706	Not Significant
	Within Groups	73.072	299	0.244			
	Total	73.415	302				
Curriculum Expertise	Between Groups	0.344	3	0.115	0.402	0.752	Not Significant
	Within Groups	85.227	299	0.285			
	Total	85.571	302				
Organization and Planning	Between Groups	0.290	3	0.09661	0.309	0.819	Not Significant
	Within Groups	93.374	299	0.312			
	Total	93.664	302				
Classroom Management	Between Groups	0.606	3	0.202	0.677	0.567	Not Significant
	Within Groups	89.259	299	0.299			
	Total	89.865	302				
Assessment of Student Learning	Between Groups	1.216	3	0.405	1.495	0.216	Not Significant
	Within Groups	81.082	299	0.271			
	Total	82.298	302				
Laboratory Safety	Between Groups	0.02899	3	0.009664	0.017	0.997	Not Significant
	Within Groups	170.687	299	0.571			
	Total	170.716	302				
Laboratory Skills/Techniques	Between Groups	2.407	3	0.802	1.269	0.285	Not Significant
	Within Groups	189.090	299	0.632			
	Total	191.497	302				
Laboratory Competence	Between Groups	0.709	3	0.236	0.419	0.739	Not Significant
	Within Groups	168.504	299	0.564			
	Total	169.212	302				
Teaching Competencies	Between Groups	0.420	3	0.140	0.604	0.613	Not Significant
	Within Groups	69.278	299	0.232			
	Total	69.698	302				

It is interesting to note in Table 24 that the four (4) groups of participants do not differ significantly in their perceptions on the level of teaching competencies of the college chemistry faculty. Although there are some differences, these differences are not significant. This *not significant* difference is reflected by the p-values which are all greater than 0.05. This means that the four (4) groups of participants have almost the same or similar perceptions on the teaching competencies of the college chemistry faculty.

Problem 5. What are the best predictors of the teaching competencies of college chemistry faculty?

Predictors of Teaching Competencies

Table 25 shows the summary of the multiple linear regression analysis for determining the predictors of teaching competencies of college chemistry faculty.

It is interesting to note in Table 25 that almost all of the predictors included in this study significantly affect the level of teaching competencies of the college chemistry faculty. Except for *values* which do not affect teaching competence, *teaching experience* has no significant effect on teaching competence. Although it may affect teaching competence, its effect is not significant. This *not significant* effect is reflected by the p-value of 0.61 which is greater than 0.05.

The result above agrees with what Bruner (1996) cited that “there is some evidence that experienced teachers are more effective with students, but the benefits of some additional years of experience appear to level off early in a teacher’s career.” However, this result contradicts the findings of the study conducted by Valencia (2003). She concluded that along with educational attainment and in-service trainings, teaching experience affect the instructional performance of teachers. Similarly, Bertos (2000) concluded that teachers’ behavior (such as personality traits, mastery of subject matter, and teaching process skills) and values orientation are significantly related to each other ($r = .95$).

As shown by the data in Table 25, all the other variables significantly affect teaching competence as reflected by the p-values which are all less than 0.05. Hence, the following are predictors of teaching competence: 1) membership in professional organizations, spirituality and emotional intelligence; 2) physiological status and information technology skills; 3) seminars for the past five years; 4) seminars from start of teaching; 5) educational attainment and field of specialization; and 6) work eligibility.

Table 25

Summary of the Multiple Linear Regression Analysis for Determining the Predictors of Teaching Competencies of Chemistry Faculty

Predictors	Unstandardized Beta Coefficients	t-value	p-value	Interpretation	Rank
(Constant)	-26.690	-63.199	0.010		
1.Educational Attainment	-0.703	-45.603	0.014	Significant	8.5
Specialization	-1.174	-46.418	0.014	Significant	8.5
2.Teaching Experience	-0.108	-10.464	0.061	Not Significant	
Work Eligibility	0.420	20.708	0.031	Significant	10
Membership in Organizations	-0.445	-69.255	0.009	Significant	2
Seminars (Past 5 Years)	-3.961	-59.604	0.011	Significant	6
Seminars (From Start of Teaching)	1.429	50.533	0.013	Significant	7
3.Physiological Status	2.963	64.676	0.010	Significant	4.5
4.Spirituality	1.281	69.719	0.009	Significant	2
Emotional Intelligence	3.321	68.883	0.009	Significant	2
5.Information Technology Skills	1.707	63.562	0.010	Significant	4.5

Excluded Variable: Values

Since the above predictors are arranged according to rank, the data in Table 25 suggest that the following are the best predictors for teaching competence: membership in professional organizations, spirituality, emotional intelligence, physiological status and information technology skills. These predictors have lower

p-values of 0.009 – 0.010 compared to the other predictors having p-values of 0.011 – 0.031.

This study found out that membership in professional organizations predicts teaching competence. This result agrees with Salandanan (2005) when she said, “professional growth can be attained by being a member of professional organizations, participating in their important ventures, and at the same time gaining reliable updates during their annual conventions. Reunions of active members foster reciprocal support and assistance for a variety of movements to elevate the profession.”

Another predictor of teaching competence is spirituality. Along this line, Bauzon (2000) mentioned that “spirituality is directed to develop inner relationship with God, allow people to grow in their relationship with the human community, and consider a better future for all humans and the earth. As a way of life, it concerns itself with aligning the human will and mind with that dimension of life and the universe that is harmonious and ordered.” Hence, a teacher’s spirituality predicts his teaching performance.

Regarding emotional intelligence as a predictor of teaching competence, Agapay (2008) mentioned that man’s decision or intention to perform his task is swayed by his emotions. Goleman (1995) and Salovey (1997) added, “emotional intelligence is a learned skill that has practical application in the working world and is a modest predictor of success in most life endeavors. The emotional intelligence of an instructor is as important as that of the learner. When learner and instructor

interact and collaborate in the learning process, a mutually beneficial environment for transformational learning results. Goleman (1995) mentioned that people who possess high emotional intelligence are the people who truly succeed in work as well as play, building flourishing careers and lasting, meaningful relationships.

On physiological or health status, Arcaro (2002) argues that "since health is one of resources of people to do their job regularly, the state of the physical body affects the mind, and the state of mind affects the physical body." In short, the health status of an individual affects his job performance. Applied to teachers, his physical health affects his teaching competence.

Information technology skills also predict teaching performance. Schools need to ensure that students acquire the skills and knowledge they will need to function effectively in the modern workplace. Survey studies have documented the importance of professor's knowledge of information and communication technologies (ICT) for their use in instruction. The greater the knowledge, the more willing is the instructor to use technology (Todd, 1993 and Inoue, 1998).

However, knowledge is only one factor among a number that are significant for influencing whether and how ICTs are used by professors in teaching. Gandell (2000) and Resta and Burson (1997) said that as the twenty-first century advances, the literate citizen's need to use computer technology to access and manage information continues to increase. Today's student must develop computer skills and proficiency in using a variety of technology tools. The development of these skills, as in other basic areas of knowledge, is the responsibility of the schools and

teachers. Hence, there is a need to enhance information technology skills of the teacher.

Gandell (2000) and Resta and Burton (1997) added “schools should ensure that teachers are prepared for this technology challenge and that they should develop a set of competency standards for current and future teachers. These standards identify the skills teacher's need in order to incorporate the use of technology into their curricula and to effectively teach technology skills to students.”

Meeting these standards will guarantee the teachers' ability to cope with the rapid demand for use of technology in the global classrooms. With substantial knowledge, skills, and appropriate attitude in the use of technology, they can apply innovative teaching strategies in the classroom (Bilbao, et al., 2006).

Findings of the study on “web-based instruction towards developing higher order thinking skills of BS Chemistry students in Biochemistry” conducted by Rafael (2003) showed the following results: The students claimed that they were more motivated to learn Biochemistry using web-based instruction. After the study, they learned to use the internet and perceived that it gives more information in a shorter time and helped them learn. It was concluded that web-based instruction can develop the higher order thinking skills of students, but they need to be taught how they can maximize the use of their learning skills. They need to be encouraged to talk about the information they have learned from the web to develop not only their written skills but also more on their speaking skills.

The above table also shows that attendance to seminars, conferences, and trainings; educational attainment and field of specialization; and work eligibility predict teaching competence. This result agrees with the findings of Valencia (2003). She concluded that in-service trainings and educational attainment affect the instructional performance of teachers.

According to Tracy (1992) as cited in Chua (2005), "the more training programs related to teaching are attended by a teacher, the better he becomes over those who have fewer." Professional development is a continuing and deliberate organization-sponsored process aimed at assisting, encouraging, and enabling teachers to keep current, maintain competence in their practice, refresh and update their professional and technical vitality, improve their performance, potential and productivity, develop their knowledge, skills abilities, and values, and stay open to new theories, techniques, and approaches.

Ornstein (1990) avers that without continued updating, one's teaching becomes outdated and dry. To keep abreast with developments in one's discipline, a teacher needs to do three things: 1) read professional books and journals; 2) attend professional conferences, at least once or twice a year; and 3) take advanced courses in conjunction with a university-sponsored program or a school district in-service program.

Educational preparation (educational attainment and field of specialization) is an important factor affecting teacher competencies. Teachers with higher level of education place greater importance to work values. They tend to be more satisfied

with their jobs, usually better paid, have better working conditions, and hold jobs that make fullest use of their abilities (Davies, 1997 as cited in Chua, 2005).

Problem 6. Based on the findings of the study, what faculty development program could be proposed to enhance the teaching competencies of college chemistry faculty?

Proposed Faculty Development Program

The proposed faculty development program is shown in the succeeding pages.

A PROPOSED FACULTY DEVELOPMENT PROGRAM
FOR ROMBLON STATE UNIVERSITY

Prepared by:

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PROPOSED FACULTY DEVELOPMENT PROGRAM

I. Introduction

The responsibility for quality in higher education is not something that resides in special offices or with selected persons. Causing quality requires the energy, commitment, and knowledge of everyone within the organization (Lewis and Smith, 1994).

One level in the initiation of total quality is individual/task management. The focus is on the development of each person within the framework of his/her work or task. Organizations committed to quality through continuous improvement succeed when a work team functions effectively. While the focus is appropriately placed on the team to ensure organizational success, the team is comprised of people. The success of the team is dependent on every person of the team. A college or university is only as good as its people, and total quality is ultimately dependent on people – the faculty, the administration, and the professional, technical, and clerical staff (Lewis and Smith, 1994). It should be noted that majority of these people are the faculty or the teachers.

A critical skill for every teacher is the ability to manage one's teaching to attain high level of teaching performance. To do this, the teacher should be able to do the following: gain a better understanding of one's strengths and weaknesses to improve personal leadership performance; enhance one's capacity to generate strategic alternatives and implement change when necessary; and refine one's

ability to set priorities, delegate tasks, manage time and resources, and help drive class productivity under his/her leadership.

Along this line, Peik (1989) argued that in the teaching profession, there is a need to develop higher level of competence. Teachers must be properly selected: well educated, skilled, competent, responsible, and zealous in the teaching field so they can educate students to their full growth and development as future citizens.

According to Tracy (1992) as cited in Chua (2005), "the more training programs related to teaching are attended by a teacher, the better he/she becomes over those who have fewer." Professional development is a continuing and deliberate organization-sponsored process aimed at assisting, encouraging, and enabling teachers to keep current, maintain competence in their practice, refresh and update their professional and technical vitality, improve their performance, potential and productivity, develop their knowledge, skills abilities, and values, and stay open to new theories, techniques, and approaches.

Ornstein (1992) avers that without continued updating, one's teaching becomes outdated and dry. To keep abreast with developments in one's discipline, a teacher needs to do three things: 1) read professional books and journals; 2) attend professional conferences, at least once or twice a year; and 3) take advanced courses in conjunction with a university-sponsored program or a school district in-service program.

Therefore, it is safe to say that continuing education is a part of the development and enhancement process of a potential teacher who is entrusted major and more sensitive responsibilities in the classroom. As Hunter (1994) argued, “teachers are not born, they are made.”

II. Faculty Development Program

**Community Outreach Center
Romblon State University
Odiongan, Romblon**

A. Title: Seminar-Workshop on Enhancing Teaching Competencies of College Chemistry Faculty

B. Duration: 10 days

C. Expected Number of Participants: 25

D. Rationale

It is safe to say that continuing education is a part of the development and enhancement process of a potential teacher who is entrusted major and more sensitive responsibilities in the classroom.

Professional development is widely accepted as fundamental to the improvement of organizational performance and as a core task of management and leadership. This is also true for school management as evident in the importance attached to teachers’ professional development by many school administrators, supervisors, and the teachers themselves.

The result/finding of the present study tends to point out the need to develop and enhance the teaching competencies of the college chemistry faculty of Romblon State University to enable them to become more effective teachers and attain Total Quality Standard (TQS) in the delivery of instruction.

Findings of this study show the weaknesses of the chemistry faculty of Romblon State University. These weaknesses refer to the teaching competencies where the teachers obtained the lowest mean scores when evaluated by the four groups of participants as shown in Table 26.

The data in Table 26 show the indicator reflecting the weakness of the chemistry faculty in each area of teaching competence. In curriculum expertise, the 7th indicator which states, "Directs the students to use the electronic sources for additional information" got the lowest mean (3.97). Laboratory competence is divided into two (2) areas: laboratory safety and laboratory skills and techniques. For laboratory safety, the 7th indicator is the weakness, "Instructs students to wear gloves and protective eyeglasses when performing laboratory activities" (3.91); while for laboratory skills and techniques, the 5th indicator is the weakness, "Observes proper techniques in determining odors of substances" (4.07). These two (2) indicators of laboratory competence when put together results to an average weighted mean of 3.99.

Table 26
Weaknesses of the College Chemistry Faculty of RSU

Teaching Competence	Indicator	Mean	Verbal Interpretation	Rank
1. Curriculum Expertise	7. Directs students to use the electronic sources for additional information. (4. Updates one's self with current technologies in the field of chemistry.)	3.97	Frequently	1
2. Laboratory Competence a. Laboratory Safety b. Laboratory Skills/Techniques	7. Instructs students to wear gloves and protective eyeglasses when performing laboratory activities (3.91). 5. Observes proper techniques in determining odors of substances (4.07)	3.99	Frequently	2
3. Instructional Organization and Planning	6. Provides activities for remediation, reinforcement, and enrichment. (7. Uses a variety of techniques and strategies to make the lesson interesting.)	4.19	Frequently	3
4. Assessment of Student Learning	7. Conducts authentic assessment techniques such as performance tests and observation of behavior. (2. Uses varied, valid, and reliable assessment strategies in evaluating student performance.)	4.21	Frequently	4
5. Communication Competence	3. Observes systematic and orderly presentation of ideas in speech and in writing. (2. Observes correct grammar, both oral and written.)	4.27	Frequently	5
6. Classroom Management	4. Establishes supportive and cooperative classroom atmosphere. (2. Adopts a systematic, peaceful, and orderly conduct of classroom routine and other activities.)	4.34	Frequently	6

Legend:	NUMERICAL RANGE	RATING	VERBAL INTERPRETATION (VI)
	4.51 – 5.00	5	Always
	3.51 – 4.50	4	Frequently
	2.51 – 3.50	3	Occasionally
	1.51 – 2.50	2	Seldom
	1.00 – 1.50	1	Never

In instructional organization and planning, the 6th indicator which states, “Provides activities for remediation, reinforcement, and enrichment” got the lowest mean (4.19); In assessment of student learning, it is the 7th indicator, “Conducts

authentic assessment techniques such as performance tests and observation of behavior” (4.21); In communication competence, the 3rd indicator which states, “Observes systematic and orderly presentation of ideas in speech and in writing” got the lowest mean (4.27); Finally, in classroom management, the 4th indicator, which states, “Establishes supportive and cooperative classroom atmosphere” is the weakness (4.34).

It can be noted in Table 26 that there are indicators enclosed in parentheses. These are the ones which rank second in terms of weakness. They are also considered in the proposed faculty development program.

Although the data in Table 26 reflect the weaknesses of the chemistry faculty, it is apparent that the components/indicators which are considered weaknesses are not really weaknesses as reflected by their weighted mean which are all above the midpoint, 3.0 in a scale of 1 – 5; hence, they can be considered strengths. However, since these components/indicators did not attain the Total Quality Standard which is 5, they should be enhanced further.

This program helps to meet the needs of potential chemistry teachers by focusing on the enhancement of their teaching competencies particularly in those areas which were assessed to be the weakness of the faculty. This program would enable them to become more effective teachers and attain Total Quality Standard (TQS) in the delivery of instruction.

E. Objectives

This faculty development program aims to enhance the teaching competencies of college chemistry faculty for Romblon State University by helping them change their teaching competencies to a higher level. This program was developed based on the literature reviewed by the researcher and suggestions by the advisers. Since it focuses on Total Quality Management (TQM), the researcher adopted the guide by Salis (1993) with the following characteristics: continuous improvement, *kaizen*, a change of culture, upside-down organization, keeping close to the customer, and the quality of learning.

Specifically, the program aims to provide chemistry teachers with the opportunities and experiences to enhance teaching competencies in terms of the following:

- a. Using Information Technology in Teaching;
- b. Using the Chemistry Laboratory;
- c. Instructional Organization and Planning;
- d. Assessment of Student Learning;
- e. Communication Competence; and
- f. Classroom Management.

The first objective, “to enhance curriculum expertise in terms of using information technology in teaching,” aims to assist each faculty participant acquire information technology skills so that: 1) they could use the electronic sources or the

internet for additional information in their teaching; and 2) they become updated with current technologies in the field of chemistry.

The second objective, “to enhance laboratory competence,” aims to help each faculty participant appreciate the value of the following: 1) observing safety measures in the laboratory at all times; and 2) acquiring knowledge and skills about proper laboratory techniques like transferring solid chemicals, transferring liquid reagents, heating, separating a solid from a liquid, preparing saturated solutions, and determining odors of substances.

The third objective, “to enhance instructional organization and planning competence,” aims to help each faculty participant to be enlightened on the benefits of the following in teaching: 1) providing activities for remediation, reinforcement, and enrichment to learners if test results are discouraging; and 2) using a variety of techniques and strategies, to make the lesson more interesting and more enjoyable.

The fourth objective, “to enhance competence in assessment of student learning,” aims to help each faculty participant to be enlightened on the benefits of the following: 1) conducting authentic assessment techniques like performance tests and observation of behavior; and 2) administering valid, reliable, and usable tests.

The fifth objective, “to enhance communication competence,” aims to help each participant to improve skills both in oral and written English by: 1) observing systematic and orderly presentation of ideas; and 2) observing correct grammar.

The sixth objective, “to enhance classroom management competence,” aims to assist each faculty participant acquire classroom management skills in: 1) establishing a supportive and cooperative classroom atmosphere; and 2) adopting systematic, peaceful, and orderly conduct of classroom routine and other activities.

F. Criteria in Selecting Participants

The following are the criteria to be used in selecting the participants to the 10-day seminar-workshop:

1. Must be a college chemistry faculty of Romblon State University;
2. Must be recommended by the dean or campus director; and
3. Must be of good health.

The first criterion is obvious since this Faculty Development Program is intended for chemistry faculty of Romblon State University, whether employed as part-time instructor, lecturer, or full-time faculty. Priority will be given to full-time faculty members and those with permanent appointment since they will be staying longer in the university after the seminar-workshop. They will teach in the university until they reach their retirement age. However, chemistry faculty from the two private colleges in the province (Tablas College and Errhard Systems Technological Institute) will be invited to attend.

The second criterion which is the recommendation by the dean or campus director is deemed necessary since these chemistry teachers are under the administrative and supervisory responsibility of their respective deans or campus directors.

Good health, which includes physical fitness, is required of the participants since they will be expected to produce outputs which will be done during their off hours at daytime or during the evening. There are also some sessions which demand active participation that could drain the mental and emotional balance of the participants.

G. Course Content

In the light of afore cited objectives, the Proposed Faculty Enhancement Program presents the following six (6) lessons:

- 1. Using Information Technology in Teaching.** This package consists of two (2) parts: a) Accessing to the Internet; and b) Making PowerPoint Presentations. Here, the participants will acquire basic information technology skills or skills in using the computer so that they could use the internet as source of additional information in chemistry teaching. Besides, they will acquire knowledge and skills on how to make PowerPoint presentations which will be applied in classroom teaching.
- 2. Using the Chemistry Laboratory.** In this package, the participants will be refreshed with the Safety Measures in Using the Chemistry Laboratory, including the Do's and Don'ts while inside the laboratory. Common laboratory skills and techniques will be introduced to the participants. To solve the problem of insufficient supply of chemistry

apparatus, or worse, their unavailability, the participants will be taught how to improvise some chemistry laboratory apparatus.

- 3. Teaching Approaches and Strategies.** In this package, the participants will be guided in the selection of appropriate teaching approaches and corresponding strategy for each of the topics listed in the course syllabus. Suggestions for remediation, reinforcement, and enrichment will be given also when needed. They will be trained how to make their lessons more interesting to students.
- 4. Assessment of Student Learning.** In this package, the participants will become familiar with other assessment techniques other than written tests. They will be enlightened on the benefits of using these types of assessment and evaluation. “Evaluating the Test” will be discussed also. Included in this topic are: validity, reliability and usability of tests, and item analysis.
- 5. Communication Arts.** In this package, the participants will be exposed to lessons and exercises in “Paragraph Organization” to help them in presenting ideas systematically and orderly when they go back to classroom teaching. Moreover, lessons in grammar, especially on subject-verb agreement will be presented. They will undergo exercises on “Spoken Drills and Tests in English.”
- 6. Classroom Management.** In this package, the participants will be trained how to make classroom atmosphere more conducive to learning. Moreover, systematic conduct of classroom routine will be presented.

They will be trained also how to prevent disruptive behavior of students and deal with them in the most appropriate manner in case they occur inside the classroom.

H. Implementation Procedure

The implementation of the proposed faculty enhancement program requires a recommendation for participation from the Vice President for Academic Affairs (VPAA) to the University President. As soon as the President has approved the program, a memorandum will be issued to the field for the guidance and information of all concerned. The memorandum will specify the list of participants and other specific items about the faculty development program.

I. Delivery Strategies

The six (6) lessons to be presented during the 10-day seminar-workshop will make use of various strategies like lectures, demonstrations, workshops, group discussions, small group sessions, and other activities that will help the participants gain meaningful experiences through enjoyable learning activities.

The strategies and instructional resources to be used will be properly selected to meet the stated objectives and to expose the participants to educational experiences relevant to their profession.

J. Matrix of the Development Program

The following is the matrix of the seminar-workshop.

Specific Objectives	Content	Methodology	Time Frame	Assessment
1. Enhance curriculum expertise (in terms of using information technology in teaching).	Information Technology Skills in terms of: 1. Accessing to the Internet 2. Making PowerPoint Presentations	1. Lecture-Demonstration by an invited trainer (Dean of the College of Arts and Sciences) 2. Workshop on Making PowerPoint Presentation Dr. Mario A. Fetalver*	2 days	Presentation of outputs: 1. Research Project from the Internet 2. Sample of PowerPoint Presentation
2. Enhance laboratory competence.	Using the Chemistry Laboratory in terms of: 1. Laboratory Safety 2. Laboratory Skills/ Techniques 3. Improvising Laboratory Apparatus	1. Lecture-Demonstration by an invited speaker (Professor from the College of Arts and Sciences handling Chemistry and In-Charge of the Chemistry Laboratory) 2. Workshop on Improvising Laboratory Apparatus Prof. Jelly Fainsan*	2 days	1.Preparation of set-ups by participants 2.Presentation of Workshop Outputs
3. Enhance “instructional organization and planning” competence.	Teaching Approaches and Strategies	Lecture-Discussion by an invited speaker (Professor from the College of Education, and Graduate Studies handling the subject “Teaching Strategies”) Prof. Nene Perla T. Perez*	1 day	Demonstration Teaching by participants (by groups)

4. Enhance “assessment of student learning” competence.	Assessment of Student Learning in terms of: 1. Authentic Assessment 2. Types of Tests 3. Characteristics of a Good Measuring Instrument	1. Lecture-Discussion by an invited speaker (Professor from the College of Education, and Graduate Studies handling the subject “Assessment of Student Learning”) Prof. Nonito Blanca* 2. Demonstration Teaching on “Authentic Assessment” by participants	2 days	Demonstration Teaching by participants (by groups)
5. Enhance communication competence.	Communication Arts in terms of: 1. Paragraph and Essay Writing 2. Collective Nouns and Other Special Subjects 3. Indefinite Pronouns as Subjects	1. Lecture by an invited speaker (English professor) 2. Oral and Written Exercises Dr. Emelyn R. Villanueva*	1 day	Oral and written tests
6. Enhance classroom management competence.	Classroom Management in terms of: Making the Classroom Conducive to Learning	1. Lecture-Discussion by an invited speaker (Professor from the College of Education, and Graduate Studies). Prof. Jonathan Wong* 2. Role Playing by participants	1 day	Role Playing by participants

*Suggested Speaker

K. Program of Activities

Day 1 – Registration, Opening Program

LESSON 1 – USING INFORMATION TECHNOLOGY IN TEACHING

8:00 – 9:00 am: Registration. (Please refer to the Registration Form on page 57)

9:00 – 9:05 am: Energizer (to be led by a representative from RSU San Andres)

9:05 – 9:35 am: Opening Program

Invocation - - - - -	Mrs. Metelyn S. Lazaro RSU Santa Maria
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National Anthem - - - - -	Mrs. Florame F. Famorcan RSU Calatrava
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Welcome Remarks - - - - -	Dr. Jeter S. Sespene University President
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Presentation of Participants- - - - -	Mrs. Corazon M. Minon RSU San Agustin
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Overview of Activities - - - - -	Mrs. Melba M. Madeja RSU San Andres
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EMCEE: Mrs. Ruth V. Fordan
College of Education and Graduate Studies

9:35 – 9:50 am: Snacks (A light snack will be served to the participants)

9:50 – 10:05 am: Short Talk by the First Resource Speaker

The resource speaker will be introduced. He will then welcome the teacher participants to the seminar-workshop. He will give the rationale, general and specific objectives, and lay down expectations to achieve

success. Time schedule will also be announced so that the participants will enjoy promptness and punctuality in attending the sessions.

10:05 – 10:35 am: Pre-Test.

The participants will answer the pre-test. Please refer to *Lesson 1 Pre-Test* on page 60.

Accessing to the Internet

10:35 – 12:00 noon: Session 1

- a. Participants will be given an input on the need for the teachers to be computer literate. They will be guided on how to do the different skills in the pre-test including scoring themselves. The result of the pre-test will serve as a motivation for the teachers' need to be skillful in using information technology as source of additional materials in chemistry teaching. They will be told that a post-test will be given at the end of the activity.
- b. A lecture-demonstration on *Accessing to the Internet* will be given by the resource person. This will serve as the framework for the workshop that will be conducted in the afternoon session.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or socialize among themselves during lunch time. They may share their experiences regarding chemistry teaching in their respective schools

especially on whether they use information technology in chemistry teaching or not.

1:00 – 1:05 pm: Energizer (to be led by representative from RSU San Agustin)

1:05 – 2:00 pm: Session I Continued.

- c. A continuation of the lecture-demonstration will be given by the resource person. This will serve as the framework for the workshop that will follow after the open forum.
- d. An open forum will be given to entertain some questions raised by the teacher participants. Assigned staff will moderate this activity.

2:00 – 3:00 pm: Session 2

A workshop will be conducted by applying the lesson learned in Session 1. The teacher participants will group among themselves by three's: leader, scribe, and member/assistant. The three (3) will work together during the workshop. They will start surfing through the internet and look for any topic in chemistry that they are interested in. They will research on that particular topic and prepare a lesson on that topic to be presented later.

3:00 – 3:15 pm: Snacks (A light snack will be served to the participants)

3:15 – 5:00 pm: Session 2 Continued

The workshop will be continued; the participants continue surfing through the internet, doing this by groups.

Day 2 – Making PowerPoint Presentations

8:00 – 8:05 am: Energizer (to be led by representative from RSU Calatrava)

8:05 – 9:30 am: Session 3

- a. Participants will be given an input on the need for the teachers to use modern technology like computers in presenting the lesson. The findings of the present study will encourage them that present-day teaching is not limited to using chalk and blackboard like in traditional classrooms. The teachers need to be skillful in using information technology in presenting the lesson.
- b. A lecture-demonstration on *Making PowerPoint Presentations* will be given by the resource person. This will serve as the framework for the workshop that will be conducted after the open forum. Hand-outs (#1) will be distributed during the lecture-demonstration to serve as guide for the participants. Please refer to the List of Hand-outs.

9:30 – 9:45 pm: Snacks (A light snack will be served to the participants)

9:45 – 10:30 am: Session 3 Continued

- c. A continuation of the lecture-demonstration will be given by the resource person. This will serve as the framework for the workshop that will follow after the open forum.
- d. An open forum will be given to entertain some questions raised by the teacher participants. Assigned staff will moderate this activity.

10:30 – 12:00 noon: Session 4

A workshop will be conducted by applying the lesson learned in Session 3. The teacher participants will group among themselves by three's: leader, scribe, and member/assistant. The three (3) will work together during

the workshop. They will make PowerPoint presentations for the lesson that they had researched through the internet in session 2.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to continue or finish making their power point presentations after lunch time so as to be ready for the afternoon session. For those who are already through, they may edit their presentations for a more improved output.

1:00 – 1:05 pm: Energizer (to be led by representative from RSU Santa Maria)

1:05 – 3:30 pm session 5

Presentation of Outputs. Each group will present the lesson they have prepared using power point.

3:30 – 3:45 pm: Snacks (A light snack will be served to the participants).

3:45 – 4:45 pm: Session 5 Continued

Critiquing of Outputs. Participants will critique on the presented outputs. They will give comments and suggestions to improve the prepared power point presentations so that these outputs would be much better, if not the best in case they will be used for classroom teaching.

4:45 – 5:00 pm: Post-Test

The participants will answer the post-test. The questions in the post-test are the same questions given during the pre-test. The scores in the pre-test and post-test will be compared. It is hoped that all of them will get higher scores in the post-test.

LESSON 2 – USING THE CHEMISTRY LABORATORY

Day 3 – Safety Measures in the Chemistry Laboratory And Laboratory Skills/Techniques

8:00 – 8:05 am: Energizer (to be led by representative from RSU Santa Fe)

8:05 – 8:35 am: Pre-Test.

The participants will answer the pre-test. Please refer to *Lesson 2 Pre-Test* on page 61.

8:35 – 9:30 am: Session 1

Participants will be given an input on the need for the teachers to be cautious in using the chemistry laboratory. They will be guided on the correct answers in the pre-test.

9:30 – 9:45 am: Snacks (A light snack will be served to the participants)

9:45 – 12:00 noon: Session 1 Continued

A lecture-demonstration on *Laboratory Safety* will be given by the resource person. Hand-outs (#2) will be distributed during the lecture-demonstration to serve as guide for the participants. Please refer to the List of Hand-outs.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or socialize among themselves during lunch time. They may share their experiences in using the chemistry laboratory in their respective schools.

1:00 – 1:05 pm: Energizer (to be led by representative from RSU Romblon)

1:05 – 3:00 pm: Session 2

A lecture-demonstration on *Laboratory Skills/Techniques* will be given by the resource person. The laboratory skills/techniques to be presented include: proper handling of laboratory supplies, apparatus, and equipment, glass tubing manipulations (bending and cutting), and preparing different chemistry laboratory set-ups.

3:00 – 3:15 pm: Snacks (A light snack will be served to the participants)

3:15 – 5:00 pm: Session 2 Continued

A group activity will be conducted by applying the lesson learned in session 2. The teacher participants will group among themselves by three's: leader, scribe, and laboratory assistant. The three (3) will work together during the workshop. They will start preparing the different set-ups which the resource speaker/trainer asked them to prepare, doing these by groups. Once they are through, the group will clap 3x so that the trainer will check if their work is correct.

Day 4 – Improvising Chemistry Laboratory Apparatus

8:00 – 8:05 am: Energizer (to be led by representative from RSU San Fernando)

8:05 – 9:30 am: Session 3

Participants will be given an input on the need for the teachers to be knowledgeable in improvising some chemistry laboratory apparatus. Some common materials that are otherwise thrown away which add to the solid

waste problem can be used as substitute for some chemistry apparatus that are not available in the laboratory.

9:30 – 9:45 am: Snacks (A light snack will be served to the participants).

9:45 – 12:00 noon: Session 3 Continued

A lecture-demonstration on *Improvising Laboratory Apparatus* will be given by the resource person. The purpose is to solve the problem of insufficient supply of chemistry apparatus, or worse, their unavailability.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or socialize among themselves during lunch time. They may share their experiences on what they do in their respective schools if some apparatus or supplies needed in performing laboratory activities in chemistry are not available.

1:00 – 1:05 pm: Energizer ((to be led by representative from RSU Cajidiocan)

1:05 – 3:00 pm: Session 4

A group activity will be conducted by applying the lesson learned in session 3. The teacher participants will group among themselves by three's: leader, scribe, and laboratory assistant. The three (3) will work together during the activity. They will start preparing the different improvised laboratory apparatus which the resource speaker/trainer asked them to prepare, doing these by groups. They will be advised that their outputs will be presented later.

3:00 – 3:15 pm: Snacks (A light snack will be served to the participants).

3:15 – 4:45 pm: Session 4 Continued

Presentation and Critiquing of Outputs. Each group will present the improvised apparatus they have prepared earlier. The other participants will critique on the presented outputs. They will give comments and suggestions to improve the prepared improvised apparatus so that these outputs would be much better, if not the best in case they will be used in doing chemistry laboratory activities when they go back to their respective schools.

4:45 – 5:00 pm: Post-Test

The participants will answer the post-test. The questions in the post-test are the same questions given during the pre-test. The scores in the pre-test and post-test will be compared. It is hoped that all of them will get higher scores in the post-test.

LESSON 3 – INSTRUCTIONAL ORGANIZATION AND PLANNING

Day 5 – Remediation, Reinforcement, and Enrichment; Teaching Approaches, Strategies, and Techniques

8:00 – 8:05 am: Energizer (to be led by representative from the College of
Agriculture, Fisheries and Forestry)

8:05 – 8:35 am: Pre-Test

The participants will answer the pre-test. Please refer to *Lesson 3 Pre-Test* on page 62.

8:35 – 9:30 am: Session 1

Participants will be given an input on the need for the teachers to use the appropriate method/strategy in their teaching to improve instructional effectiveness. They will be guided on the correct answers in the pre-test.

9:30 – 9:45 am: Snacks (A light snack will be served to the participants).

9:45 – 12:00 noon: Session 1 Continued

- a. A lecture-demonstration on *Teaching Approaches and Strategies* will be given by the resource person. Hand-outs (#3) will be distributed during the lecture-demonstration to serve as guide for the participants. Please refer to the List of Hand-outs.
- b. Before the end of the session, the class will be divided into two (2) groups by counting off from the first participant to the last. The participants will group according to their number, whether odd or even.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or socialize among themselves during lunch time. They may share their experiences on what teaching strategies they use in their respective schools in teaching the different chemistry topics.

1:00 – 1:05 pm: Energizer (to be led by representative from the College of Arts and Sciences)

1:05 – 3:00 pm: Session 2

a. A group activity will be conducted by applying the lesson learned in Session 1. The two (2) groups will prepare for a demonstration teaching in a particular chemistry topic.

3:00 – 3:15 pm: Snacks (A light snack will be served to the participants)

3:15 – 4:30 pm: Session 2 Continued

b. Demonstration Teaching by Groups. While one group is doing the demonstration teaching, the other group will act as panel.

c. Post-Demo Discussion. This includes observations and comments on the demonstration teaching. Suggestions are also given to improve the

4:30 – 5:00 pm: Post-Test

The participants will answer the post-test. The questions in the post-test are the same questions given during the pre-test. The scores in the pre-test and post-test will be compared. It is hoped that all of them will get higher scores in the post-test.

LESSON 4 – ASSESSMENT OF STUDENT LEARNING

Day 6 - Authentic Assessment Techniques

8:00 – 8:05 am: Energizer (to be led by representative from the College of Business and Accountancy)

8:05 – 8:35 am: Pre-Test.

The participants will answer the pre-test. Please refer to *Lesson 4 Pre-Test* on page 63.

8:35 – 9:30 am: Session 1

- a. Participants will be given an input on the need for the teachers to conduct authentic assessment techniques. It is not enough that teachers always use the common paper-and-pencil test. In a lecture-discussion, he/she will present authentic assessment techniques of evaluating student learning.
- b. Before the end of the session, the class will be divided into two (2) groups by counting off from the first participant to the last. The participants will group according to their number, whether odd or even.
- c. A group activity will be conducted by applying the lesson learned in session 1. The two (2) groups will prepare for a demonstration teaching in a particular chemistry topic. They will make use of authentic evaluation in assessing student learning.

9:30 – 9:45 am: Snacks (A light snack will be served to the participants).

9:45 – 12:00 noon: Session 2

- a. Demonstration Teaching by Groups. While one group is doing the demonstration teaching, the other group will act as panel.
- b. Post-Demo Discussion. This includes observations and comments on the demonstration teaching. Suggestions are also given to improve the demonstration teaching.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or socialize among themselves during lunch time. They may share their

experiences on what authentic assessment techniques they use in their respective schools in assessing student learning in the different chemistry topics.

Types of Tests

1:00 – 1:05 pm: Energizer (to be led by representative from the College of Education and Graduate Studies)

1:05 – 3:00 pm: Session 3

Lecture – discussion on *Types of Tests* will be given by the resource person. Hand-outs (#4) will be distributed during the lecture-discussion to serve as guide for the participants. Please refer to the List of Hand-outs.

3:00 – 3:15 pm: Snacks (A light snack will be served to the participants).

Characteristics of a Good Measuring Instrument

3:15 – 5:00 pm: Session 3 Continued

Lecture – discussion on *Validity, Reliability, and Usability of Tests* including the *types of validity* and the *factors that determine usability*. Please refer to hand-outs (#4).

Day 7 – Types of Tests

8:00 – 8:05 am: Energizer (to be led by representative from the College of Engineering and Technology)

8:05 – 9:30 am: Session 3

Participants will be given an input on the need for the teachers to follow the guidelines in constructing the test that they give to their students.

Aside from preparing valid, reliable, and usable test, the test must be carefully prepared by following the guidelines.

9:30 – 9:45 am: Snacks (A light snack will be served to the participants).

9:45 – 12:00 noon: Session 3 Continued

Lecture – discussion on *Types of Tests* is given by the resource speaker. It includes the different types of both essay and objective tests and how to construct each type of test. Please refer to hand-outs (#4).

They will be guided on the correct answers in the pre-assessment.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or socialize among themselves during lunch time. They may share their experiences on the kind of test they give in their respective schools and whether they do item analysis or not.

1:00 – 1:05 pm: Energizer (to be led by anyone from the group)

1:05 – 3:00 pm: Session 3 Continued

Exercises on *Test Construction*. Please refer to the hand-outs (#4).

3:00 – 3:15 pm: Snacks (A light snack will be served to the participants).

3:15 – 4:30 pm: Session 3 Continued

Continuation of exercises on *Test Construction*. Please refer to the hand-outs (#4).

4:30 – 5:00 pm: Post-Test

The participants will answer the post-test. The questions in the post-test are the same questions given during the pre-test. The scores in the pre-test and post-test will be compared. It is hoped that all of them will get higher scores in the post-test.

LESSON 5 – COMMUNICATION COMPETENCE

Day 8 – Paragraph and Essay Writing, Collective Nouns and Other Special Subjects, and Indefinite Pronouns as Subjects

8:00 – 8:05 am: Energizer (to be led by anyone from the group)

8:05 – 8:35 am: Pre-Test.

The participants will answer the pre-test. Please refer to *Lesson 5 Pre-Test* on page 64.

8:35 – 9:30 am: Session 1

Participants will be given an input on the need for the teachers to observe systematic organization of ideas both in oral and written English. They will be guided on the correct answers in the pre-test.

9:30 – 9:45 am: Snacks (A light snack will be served to the participants).

9:45 – 12:00 noon: Session 1 Continued

A lecture-discussion on *Paragraph and Essay Writing* will be given by the resource person, after which the participants will be answering exercises related to the discussion.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or

socialize among themselves during lunch time. They may share their experiences in their respective schools regarding “miscommunication” between teacher and students.

1:00 – 1:05 pm: Energizer (to be led by anyone from the group)

1:05 – 3:00 pm: Session 2

Participants will be given an input on the need for the teachers to observe correct grammar both in oral and written English. A lecture-discussion on *Collective Nouns and Other Special Subjects* will be given by the resource person. Hand-outs (#5) will be distributed together with some exercises for the participants to answer. Please refer to the List of Hand-outs.

3:00 – 3:15 pm: Snacks (A light snack will be served to the participants).

3:15 – 4:30 pm: Session 2 Continued

After the discussion on *Collective Nouns and Other Special Subjects*, the lesson on *Indefinite Pronouns as Subjects* will be taken up, after which the participants will be answering exercises related to the discussion.

4:30 – 5:00pm: Post-Test

The participants will answer the post-test. The questions in the post-test are the same questions given during the pre-test. The scores in the pre-test and post-test will be compared. It is hoped that all of them will get higher scores in the post-test.

LESSON 6 – CLASSROOM MANAGEMENT

Day 9 –Approaches to Classroom Management; Classroom Routine

8:00 – 8:05 am: Energizer (to be led by anyone from the group)

8:05 – 8:30 am: Pre-Test

The participants will answer the pre-test. Please refer to *Lesson 6 Pre-Test* on page 65.

8:30 – 9:30 am: Session 1

Participants will be given an input on the need for the teachers to make their classrooms conducive to learning and on the need to observe systematic conduct of classroom routine. They will be guided on the correct answers in the pre-test.

9:30 – 9:45 am: Snacks (A light snack will be served to the participants).

9:45 – 12:00 noon: Session 1 Continued

- a. A lecture-discussion on *Making the Classroom Conducive to Learning* will be given by the resource person. Hand-outs (#6) will be distributed during the lecture-discussion to serve as guide for the participants. Please refer to the List of Hand-outs.
- b. Participants will be given an input on the need for the teachers to observe systematic conduct of classroom routine and practice classroom discipline while conducting their classes.
- c. Before the end of the session, the class will be divided into two (2) groups by counting off from the first participant to the last. The participants will group according to their number, whether odd or even.

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or socialize among themselves during lunch time. They may share their experiences on what they do in their respective schools to make their classrooms conducive to learning.

1:00 – 1:05 pm: Energizer (to be led by anyone from the group)

1:05 – 3:00 pm: Session 2

The two (2) groups will prepare/practice for a demonstration teaching in a particular chemistry topic, by applying the lesson learned in session 1, that is, observing correct classroom management practices: making the classroom conducive to learning and systematic conduct of classroom routine.

3:00 – 3:15 pm: Snacks (A light snack will be served to the participants).

3:15 – 5:00 pm: Session 2 Continued

- a. Demonstration Teaching by Groups. While one group is doing the demonstration teaching, the other group will act as panel.
- b. Post-Demo Discussion. This includes observations and comments on the demonstration teaching. Suggestions are also given to improve the demonstration teaching.

Day 10 – Post-Test and Closing Program

8:00 – 8:05 am: Energizer (to be led by anyone from the group)

8:05– 9:35 am: Post-Test

The participants will answer the post-test. The questions in the post-test are the same questions given during the pre-test. The scores in the pre-test and post-test will be compared. It is hoped that all of them will get higher scores in the post-test.

9:35– 9:50 am: Snacks (A light snack will be served to the participants).

9:50 – 12:00 noon: Assessment and Closing Program

a. After snacks have been served, assessment forms will be passed. The participants will evaluate the seminar-workshop using the assessment form prepared for the purpose. The result of assessment will determine the effectiveness and efficiency of the management of the seminar-workshop. Please see the format of the assessment form on page

b. Closing Program

Invocation - - - - - Mrs. Aliena G. Condes
RSU Santa Fe

National Anthem - - - - - Mrs. Josefa S. Tan
College of Engineering & Technology

Reflection and Assessment- - - - - Selected Participants:
 1. College of Agriculture, Fisheries & Forestry
 2. College of Arts & Sciences
 3. College of Business & Accountancy
 4. Cajidiocan Campus
 5. San Fernando Campus

Awarding of Certificate of Recognition &
Certificate of Participation- - - - -Guest

Closing Remarks - - - - - Dr. Alice F. Foja
VPAA

EMCEE: Mrs. Jilly Fainsan
College of Arts and Sciences

12:00 – 1:00 pm: Lunch

The members of the committee assisted by student volunteers will distribute packed lunch. The participants are encouraged to interact or socialize among themselves during lunch time. They may share their experiences on what they do in their respective schools for students to observe classroom discipline while having classes.

1:00 – 3:00 pm Homeward Bound

X. Monitoring

The Assessment Review Scheme will be used for this purpose. It is a formal meeting held every end of every quarter to find out the effectiveness of the skills learned by the participants. Specifically, it provides an opportunity to find out what has been learned to check that objectives were met and that they were appropriate in doing their work.

Registration Form

Pre-tests

and

Assessment Form

REGISTRATION FORM

**10-Day Seminar-Workshop on Enhancing Teaching Competencies
of College Chemistry Faculty**

Community Outreach Center
Romblon State University
Odiongan, Romblon

Date _____

Name	Position/ Academic Rank	College/Campus	Signature
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

Lesson 1 Pre-Test

USING INFORMATION TECHNOLOGY IN TEACHING

Name_____ Date_____ Score_____

Directions:

Please assess your capability regarding the given information technology skills by using the following as your guide. Write the number that corresponds to your answer on the space before each item.

- 5 – Very Much Capable
- 4 – Much Capable
- 3 – Satisfactorily Capable
- 2 – Fairly Capable
- 1 – Not Capable

- _____ 1. Opening and shutting down the computer.
- _____ 2. Assessing information on the internet.
- _____ 3. Creating, editing and printing various types of documents.
- _____ 4. Transferring/sending files to fast/hard drives.
- _____ 5. Making PowerPoint presentation by starting with a *Blank Presentation*.
- _____ 6. Changing font size and type.
- _____ 7. Cutting, copying and pasting in and between documents.
- _____ 8. Inserting files, graphics and tables in a document.
- _____ 9. Deleting old slides and add new slides.
- _____ 10. Adding animations to the PowerPoint presentation.

Lesson 2 Pre-Test

USING THE CHEMISTRY LABORATORY

Name_____ Date_____ Score_____

Directions:

TRUE or FALSE. On the space before each item, write "T" if the statement is true; write "F" if it is false. Do not guess, right minus wrong.

- _____ 1. Even very minor accidents should be reported to the teacher.
- _____ 2. Dark-colored bottles prevent contents from bright light.
- _____ 3. Students may do shortcuts in performing laboratory activities.
- _____ 4. Both teacher and students may eat or drink in the laboratory.
- _____ 5. It is not safe to play with chemicals even with water.
- _____ 6. Students should take off their shoes/sandals when entering the

laboratory.
- _____ 7. Waste liquid chemicals should be thrown into the sink.
- _____ 8. A piece of paper may be used to transfer solid chemicals to a test tube.
- _____ 9. Glass wares like beakers and flasks should not be heated directly.
- _____ 10. Solid chemicals should be thrown in the trash cans.

Lesson 3 Pre-Test

INSTRUCTIONAL ORGANIZATION AND PLANNING

Name _____ Date _____ Score _____

Directions: MATCHING TYPE. Match the lessons/activities listed in column A with the appropriate teaching strategy/approach in column B. On the space provided before each item, write the letter of the correct answer.

Column A	Column B
___ 1.. Determine the solubility of sodium chloride in water at three different temperatures.	a. demonstration
___ 2. Perform laboratory techniques and procedures.	b. experimenting
___ 3. Teacher uses self-learning printed materials in teaching "Chemical Language"	c. field trip
___ 4. Origin of Organic Chemistry.	d. film showing
___ 5. Observe how water is purified in a commercial establishment.	e. hand-outs
	f. modular
	g. project method

Column A	Column B
___ 1. Uses teach-re-teach strategy.	a. discovery
___ 2. Issues and problems are identified and fused in the lessons.	b. inquiry
___ 3. Students are stimulated to ask questions.	c. integrative
___ 4. Students are equipped with processes needed to solve problems.	d. mastery learning
___ 5. Students look for answers to problems under the guidance of the teacher.	e. process
	f. value clarification
	g. value-oriented

Lesson 4 Pre-Test

ASSESSMENT OF STUDENT LEARNING

Name_____ Date_____ Score_____

Directions:

TRUE or FALSE. On the space before each item, write "T" if the statement is true; write "F" if it is false. Do not guess, right minus wrong

- _____ 1. Unwarranted clues to the desired response to the desired response be provided in completion test.
- _____ 2. Statement form is preferable in direct question in simple recall test.
- _____ 3. Four or more options must be provided in multiple choice test to minimize guessing.
- _____ 4. In analogy test, the relationship of the first pair of words must be similar to the relationship of the second.
- _____ 5. The maximum number of items in matching test is 15.
- _____ 6. A balanced matching type is preferable.
- _____ 7. Objective test has low reliability.
- _____ 8. Essay examination develops good study habits.
- _____ 9. Objective test encourages cheating and guessing.
- _____ 10. The options and distractors must be plausible with each other in constructing multiple choice test.

Lesson 5 Pre-Test

COMMUNICATION COMPETENCE

Name _____ Date _____ Score _____

Directions:

In each of the following sentences, underline whichever word in parentheses is correct.

1. All of his patience (is, are) gone.
2. The Manila Times (include, includes) literary articles.
3. Mario, as well as his friends, (agree, agrees) with you.
4. Civics (was, were) an interesting subject for many of us.
5. Most of the vegetables (is, are) grown locally.
6. None of the job openings (has, have) been filled yet.
7. Some of the butter (taste, tastes) sour.
8. Few (like, likes) the proposal.
9. Jenny, together with her sisters, (was, were) planning to go to Baguio.
10. Trouts (swim, swims) upstream to spawn.

Lesson 6 Pre-Test

CLASSROOM MANAGEMENT

Name_____ Date_____ Score_____

Directions:

The following items are preceded by approaches to classroom management marked a to f. On the space provided before each item, write the letter of the classroom management approach which corresponds to your answer.

- | | |
|-------------------------------------|------------------------------|
| a. acceptable approach | d. group guidance approach |
| b. assertive approach | e. group managerial approach |
| c. behavioral modification approach | f. success approach |
| d. business academic approach | |

The teacher:

- ___ 1. Place demands and sets limits on students and enforce them.
- ___ 2. Makes clear communication of assignments and work requirement.
- ___ 3. Reinforces appropriate behavior and corrects inappropriate behavior.
- ___ 4. Keeps the students focused on the group activity or task.
- ___ 5. Understands the group, its needs and interests, and manipulates the surface behavior of the group.
- ___ 6. Provides leadership but allows students to participate indecision and to make choices.
- ___ 7. Needs to change existing negative classroom behavior and improve conditions to lead to students' success.
- ___ 8. Enhances discipline and classroom control through group atmosphere and group rapport.
- ___ 9. Strengthens student behavior by systematic reinforcement.
- ___ 10. Persists, enforces minimum rules, and does not give up.

Assessment Form

Dear Participants,

Your feedback is important to the success of our future development programs. Please take the time to complete this assessment. Your identity will be anonymous and your honesty appreciated.

Thank you very much and more power!

The Organizers

Activity _____

Date _____ Venue _____

Directions:

Kindly give your honest evaluation about this seminar-workshop. Refer to the following as your guide:

4 - Strongly Agree

3 - Agree

2 - Undecided

1 – Disagree

Indicators	4	3	2	1
1. The activity objectives were related to my educational concerns.				
2. The activity objectives were related to practical educational application in my specific teaching setting.				
3. The activity has some outstanding components which were unique or innovative.				
4. Presentations were well organized.				
5. The strategies utilized, including instructional resources, were appropriate for meeting the stated objectives.				
6. Over-all, personnel conducting the activity exhibited the qualities essential to the success of the seminar-workshop.				
7. Overall, the activity was a successful training experience for me.				
8. Adequate provisions were made for me to provide feedback to the personnel conducting the workshop.				
9. As a result of this activity, I have been exposed to educational experiences that are relevant to my teaching.				
10. I had 10 days of collegial interaction that has been beneficial and fun.				

Comments/Suggestions:

Hand-outs

Hand-Outs #1

USING INFORMATION TECHNOLOGY IN TEACHING

***Making PowerPoint Presentations**

I. Starting Presentations

Starting From Scratch

“*Starting from scratch*” means starting out with a blank presentation. Then you can design your own background choices. Simply follow these steps:

1. Open up PowerPoint. Click on the radio button that says *Blank Presentation*. Click *OK*.
2. Choose your slide lay-out and click *OK*.
3. You can now start working on your presentation or start designing the background that you would like to use for the show.

Open Existing Presentations

To open up a previous presentation or an existing file, follow these steps:

1. Open up PowerPoint. A PowerPoint dialogue box will open.
2. Click on the radio button that says *Existing Presentation*.
3. If your presentation is listed in the box, just double click on it. If they don't show up in the box, just leave more files selected and click on *OK*.
4. The *Open* dialogue box would then open. Choose your file and click on *Open* and then continue working on your file.

Using a Template

There are many built-in templates that PowerPoint provides. These include your background as well as font styles, colors and sizes for your placeholders, as well as selected bullets that match the template. You can choose the one that best suits your needs. Follow these steps:

1. Open up PowerPoint. Click on the radio button that says *Design Template*. Click *OK*.
2. You can click on the different file names for the template designs. You will see a preview window that displays what the template looks like. You can look under the *Presentation* tab, *Presentation Designs* tab, and *Design Templates* tab.
3. Double click on the design that you like and your presentation will open with that template choice.

II. Common Features

Adding New Slides

To add a new slide to your presentation, follow these steps:

1. While in *slide view* or *normal view*, click on the *New Slide* icon from the standard tool bar; or go to *Insert* on the menu bar and choose *New Slide*.
2. You can also click on the drop down from the common tasks menu bar found on the formatting tool bar and choose *New Slide*.

3. Choose the slide lay-out that best fits the slide you are adding. Click *OK*.

Your new slide will be added.

PowerPoint Views

There are six (6) different views found in PowerPoint. The default is the normal view.

Normal View	Tri Pane View. You can view notes, outline, and your slide all at once
Slide View	Best used when working on your slides individually. The majority of the screen space is for your slide for easier viewing.
Slide Sorter View	Allows you to view all of your slides at once. Great for moving slides around and deleting or just looking at the flow of your show.
Outline View	Best for working on adding your text for the show. Work in an outline format.
Notes Page View	View a small image of the slide along with space to write your speaker notes.
Slide Show View	This is for previewing and actually running the show. The slides will be full screen.

To change your views, follow these steps:

1. Click on the *View* button on the bottom left hand side of the PowerPoint screen.
2. Go to *View* on the menu bar and choose the best view to suit your needs.

Deleting Slides

- If you want to delete one slide and you are in *normal* or *slide view*: With the slide open, go to *Edit* on the menu bar and choose *Delete Slide*.
- If you have a few slides to delete, you may delete them in *slide sorter view*. Click on the slide you want to delete and hold the shift key down while you click on the other slides you want to delete. Click on the *Delete* or *Backspace* key and the slides will be deleted.

Moving Slides

As you are working on your presentation, you may move the slide order around. While in the *slide sorter view*, follow these steps:

1. Click on the slide that you want to move and hold the mouse button down while you move the slide to the desired location. You will see a vertical bar as you move the slides.
2. When the bar is in front of the slide where you want to position your slide, release the mouse button and the slide will be moved to the new position.

Applying Design Templates

To apply a design template, or change the one you are currently using, follow these steps:

1. Right click on the slide you are working on in either the *slide view* or *normal view*.

2. Click on *Apply Design Template*. (You may also click on the down arrow for common tasks and choose *Apply Design Template*).
3. Click on the design you like to use and click on the *Apply* button. Your new design will be applied.

Adding Backgrounds

If you start a new presentation by using blank, you can build and design your background instead of using design templates. You can add a solid color, gradient, texture, pattern, or picture for your background. Follow these steps:

1. Open up PowerPoint and choose *Blank Presentation*.
2. Right click on the slide and choose *Background* or go to *Format* on the menu bar and choose *Background*.
3. Follow set of directions that pertain to the type of background you want to add: color, gradient, texture, pattern, or picture.

- **Color**

1. Click on the down arrow and choose one of the colors shown or click on *Move Colors* and pick the color you like for your background. Click *OK*.
2. Click on *Apply* to apply to the current slide you are on, or *Apply to All* to apply to all of your slides.

- **Gradient**

1. Make sure you are on the *Gradient* tab. Click on the down arrow and choose *Fill Effects*.
2. You can choose *One Color*, *Two Color*, or *Present*.
3. Click on the radio button next to *Shading Styles*.
4. Under *Variants*, click on the design that you like for your gradient. Click *OK*.
5. Click on *Apply* to apply to the current slide you are on, or *Apply to All* to apply to all of your slides.

- **Texture**

1. Click on the down arrow and choose *Fill Effects*.
2. Click on the *Texture* tab.
3. Click on one of the texture designs that are listed there. If you want to bring in your own texture from a file that you have saved, you can click on *Other Texture* and go out and find the file that you want to use. Click *OK*.
4. Click on *Apply* to apply to the current slide you are on, or *Apply to All* to apply to all of your slides.

- **Picture**

1. Click on the down arrow and choose *Fill Effects*.
2. Click on the *Picture* tab.
3. Click on *Select Picture* and find the graphic file that you want to use. Click *OK*.

4. Click on *Apply* to apply to the current slide you are on, or *Apply to All* to apply to all of your slides.

III. Working with Text

Adding Textboxes

To add text to your slide, add a textbox. Follow these steps:

1. Click on the text box icon found on the drawing tool bar.
2. Click and drag the box in the desired location. Type your text.
3. Click outside of the box and the lines will disappear.
4. To edit the text, click inside the box and make your corrections just as you would with a word processor.

Adding Placeholders

A quick way to add your text and have it automatically formatted is to add a placeholder. This works great for your titles and subtitles. This way, each slide will have a consistency in formatting. Follow these steps:

1. Click on the down arrow for *Common Tasks* and choose *Slide Layout*. You can also right click on your slide and choose *Slide Layout*.
2. Click on *Apply* or *Reapply*. The placeholder will appear.

3. Click inside and start typing. The placeholder's formatting is present if you are using a design template.

Formatting text

To format your text like font, color, style, size, etc. follow these steps:

1. Select your text by either highlighting it, or click on the diagonal lines that surround the text so that they turn to little dots. When you do this, any formatting you add will affect everything in the box.
2. Using the formatting toolbar, choose the formatting that you want to add from the standard toolbar. There are buttons and drop downs for font, size, style, and alignment.
3. You can also go to *Format* on the menu bar and choose *Font*.
4. Make your changes within the dialogue box. Click *OK* and your changes will appear.

IV. Working with Graphics

Adding Images from Clipart

You may add images to your page. You can bring images that you have saved, or you can use *Microsoft's Clip Gallery* which has thousands of images, photos, and animations. You may also search to find the type of image you want to use. Follow these steps:

1. Go to *Insert* in the menu bar and choose *Picture* and then *Clip Art* or you can click on the *Clip Gallery* icon from the drawing toolbar.
2. Either click on the category you want to look through, or type in a keyword for what you are looking for and hit *Enter*.
3. When you find the one you like, click on it and click on the *Insert* icon.
4. You can have additional images, or if you are done close the *Clip Gallery* window and your image will be placed on your slide.

Adding Images from File

You can add your own images that you have saved or have access to. Follow these steps:

1. In *slide view*, go to *Insert* on the menu bar and then *Picture* and click on from file.
2. Choose the picture that you have saved. Click *Insert*.
3. You can then resize your image if you need to and move it to the appropriate location.

Adding Animated Gifs

Adding this type of file is like adding an image. You will not see the animation while in the *Normal view*. You have to be in the *Slide show* to see them. Follow these steps:

1. In *Slide view*, go to *Insert* on the menu bar and choose *Clip Art* if you want to find animated gifs that are in the *Clip Gallery*. They are listed under the *Motion* tab. You can also choose from file and find your own animated gif.
2. Get into *slide show view* and you can see what the animation will look like.

Adding Transitions

It is a nice effect to add transitions to your show. It is easiest if you add your transitions while in the slide sorter view. You can add the same transition to each slide, or you can pick different transitions. Follow these steps:

1. Get into the *slide sorter view*. Click on the *Slide Transition* button from the *slide sorter* toolbar.
2. Click on the down arrow and choose the type of transition you want to use. You will see a little preview in the effect window.
3. Choose if you want the transition *slow*, *medium*, or *fast*.
4. If you want a sound attributed to the transition, then click on the down arrow next to *Sound* and choose the sound you want to use.
5. If you want your transition to run when you click the mouse, then put a check in *On Mouse Click*. If you want the animation to occur automatically, put a check in that box and put a number for the amount of seconds you want to wait until the transition occurs.
6. Click on *Apply to All* if you want that same transition to occur after each slide, or *Apply* if you just want to add it to the current slide.

Adding Animations

Adding animation brings your presentation to life. You can take any of the images in your presentation and animate them. There are many different types of animations to choose from. Follow these steps:

1. Right click on your image and choose *Custom Animation*, or click on your image and go to *Slide Show* from the menu bar and choose *Custom Animation*.
2. Click on the down arrow next to *Entry Animation* and *Sound*. Choose one of the animation types. Another drop down may become active where you can further define the action the image will take.
3. Click on the *Order* and *Timing* tab.
4. Leave on mouse click if you want to click to have your animation occur, or click on the *Radio* button for automatically and put in the number of seconds you want to wait before the action occurs. Click on *OK*.
5. Get into the *Slide Show* mode and check out your animation.

Adding Sounds

There are many ways to add sound to your PowerPoint presentation. You can add sound effects to images, add sound icons you can click on, or even just have your music play throughout the whole show. Your sound clips should be in either the way or mid format. There are a few other less common file types you can

use. You can also use a CD and play that while you are giving your presentation.

Follow these steps:

1. Go to *Insert* in the menu bar and choose *Movies and Sounds* and then *Sound* from gallery if you want to pick a sound file from *Microsoft Gallery*, or choose from file if you have a saved sound file you want to use.
2. Find the sound file that you have access to and double click on it. A dialogue box will open and ask if you want your sound to play through the whole show.
3. Click *Yes* if you want it to play automatically and *No* if you do not. An icon will be inserted into your presentation.
4. Get into *Slide Show* mode and your sound should automatically start if you choose that, or click if you did not, and your sound should play.

V. Finishing Up

Running the Show

To run your show, check it out, or when it is for the real presentation, follow these steps:

1. If you want to start at the beginning of your presentation, then go to *Slide Show* from the menu bar and choose *View Show*.
2. If you want to begin looking at your show starting at the slide you currently have opened in normal or slide view, then click on the *Slide Show* icon from the *Views* icon.

Saving

You should periodically save your show as you are working. Start out by saving the show and often hitting the “Save” icon every 5 or 10 minutes as you work. Follow these steps:

1. If it is the first time you are saving your show, go to *File* on the menu bar and choose *Save As*.
2. Choose the location for saving your file and give your file a name.
3. Click on *Save*.

Hand-Outs #2

USING THE CHEMISTRY LABORATORY

*** Safety Measures in the Laboratory**

*** Common Laboratory Operations/Techniques**

*** Improvising Laboratory Apparatus**

I. Safety Measures in the Laboratory

1. Familiarize yourself with the laboratory. Find the gas and water outlets, locate the fire exit, first-aid kit, and safety shower.
2. Never work in messy surroundings. Exactness, neatness, and cleanliness are essential to good work and accurate results.
3. Gowns are required in the laboratory. Put on your laboratory gown before starting an experiment. Use protective glasses or goggles when needed.
4. Wearing open sandals or walking barefoot is not allowed in the laboratory. Wear proper shoes to protect your feet from broken glass and corrosive liquid spills on the floor.
5. Always keep a neat appearance. Ladies should tie their hair to prevent hazards.
6. Follow directions carefully. Make sure you are using the correct chemicals in the right quantities.
7. Eating, drinking, and smoking are strictly prohibited in the laboratory.

8. Solid and liquid chemical wastes should never be thrown into the sink to prevent the plumbing from clogging and corroding. Instead, they should be disposed of in proper waste receptacles, one for solid wastes and another for liquid wastes.
9. Before you begin your experiment, be sure that your working area is clear. Use a rubber mat to protect the laboratory table.
10. After the experiment, return all the equipment used. Put the iron stand and gas burner in their respective places. Return the reagents to the stockroom. Never return excess chemicals to their containers.
11. Before leaving the laboratory, clean and wipe dry your table, arrange the stocks properly, and check the gas and water outlets.
12. Fire is a special hazard in the laboratory because of the many flammable materials present. Learn how to use the fire extinguisher, fire blanket, and safety shower.
13. Smother small fires, such as in a beaker or a flask, with a wet towel. If this fails, use the fire extinguisher. Sand may also be used to smother a fire.
14. If your clothes catch fire, do not run. Cover yourself with a wet blanket or roll on the floor or use the shower.
15. If the building is on fire, keep calm. Do not panic. Go to the nearest fire exit.
16. If you happen to cut yourself, wash the cut with water and apply pressure to the wound. Apply a mild solution of antiseptic. If no sterile gauze is available, medicated Band-Aid can be used to cover the wound.

17. If some acid solution gets into your eyes, do not rub them. Wash away the acid with a lot of tap water, dry with sterile gauze or cotton, and put several drops of olive oil.
18. If any alkali solution gets into your eyes, do not rub them. Wash thoroughly with water and bathe with a saturated solution of boric acid. Dry with sterile gauze or cotton, and put several drops of olive oil.
19. In case of minor burns, wash the burnt area with cold water and apply boric ointment or sterile petroleum jelly.
20. For alkali burns, wash the affected area immediately with large quantities of water, then with 5% solution of acetic acid. Dress with boric ointment or petroleum jelly. For acid burns, wash first with running water, then with a saturated solution of sodium bicarbonate. Cover the burnt area with sodium bicarbonate for about 20 minutes, wash off, then dry with sterile gauze.
21. In case of heat burns, wash with water, then apply Vaseline or any burn ointment.
22. For chemical splashes, wash thoroughly with water. Notify your teacher for further action or treatment.
23. In case of fainting, keep the victim lying down in a comfortable position where the head is level with the body. Loosen any tight clothing. Administer aromatic spirit of ammonia.
24. If medical attention is needed, a doctor or an ambulance must be summoned at once.

25. Proper care must be observed when handling dangerous chemicals like strong acids and bases.

26. Consider the safety and welfare of others as well as yourself. Operations that produce undesirable fumes must be carried out under the fume hood.

If these safety measures are carefully followed, the chemistry laboratory becomes a safe and pleasant place to be in.

Safety Signs in the Laboratory

Figure 1 (on the next page) shows some safety signs in the laboratory.

Chemistry Laboratory Manual
Mendoza, Estrella E. and Teresita F. Religioso

: Excerpts by Melba F. Mallorca-Madeja

II. Common Laboratory Operations and Techniques

Scientific inquiry involves working in the laboratory to investigate, test, verify, and demonstrate scientific principles. These activities require the proper handling of apparatus and the performance of appropriate laboratory techniques to achieve efficiency, safety, and conclusive results.

A. Transferring Solid Chemicals

1. Solid chemicals are generally kept in reagent bottles. Stoppers of reagent bottles should be laid with the flat side on the table to prevent contamination, as shown in figure 2. If the stopper has a winged-top, it is held between the fingers and never laid on the table.

Dark-colored reagent bottles are used to protect some chemicals from bright light.

Figure 2. Handling a reagent bottle

2. Solid chemicals are spooned out from the reagent bottle using a clean and dry spatula. A dirty spatula will not only contaminate the portion taken but also that which is left in the bottle.

3. Use a piece of paper to transfer solids to a small-mouthed container like a test tube. The technique of transferring solids to a test tube is as follows:

Get a piece of clean paper. Fold it lengthwise. Cut it such that it is about 2 cm longer than the test tube and slightly wider than its diameter. Place the solid near the edge of the paper. Hold the test tube in a horizontal position. Then slide the paper into the test tube until it touches the bottom. Incline the test tube and tap the paper gently. In this way, the solid is deposited at the bottom of the test tube and not along the sides. Practice the technique of transferring solids to a test tube using common table salt.

Figure 3. Transferring solids to a test tube

B. Transferring Liquid Reagents

To transfer a liquid reagent to another container, you may do the following techniques:

1. When pouring a liquid into a wide-mouthed container, have a neck of the reagent bottle touch the rim of the receiving vessel as shown in figure 4.

Figure 4. Pouring a liquid into a beaker

2. Use a glass rod or a funnel when transferring liquid into a narrow-mouthed container. The glass rod or funnel directs the flow of the liquid and prevents it from spilling down the sides of the container.

Figure 5. Transferring a liquid using a glass rod

Figure 6. Transferring a liquid using a funnel

3. If only small amounts of liquid reagent are needed, a pipette or a medicine dropper may be used. A pipette is a glass tube calibrated to deliver specific volumes of liquids.

Practice the technique of transferring a liquid from a reagent bottle to a beaker, a graduated cylinder, and a test tube. Use water as the liquid.

C. Heating Liquids

1. When heating a small amount of liquid in a test tube, use a test tube holder. Hold the test tube at an angle of 45 and heat its content by passing it back and forth over the flame. Never look directly into the test tube that is being heated. Never point it toward anyone. Do not cover the test tube with a rubber or cork stopper while heating. The test tube might break due to buildup of pressure. Practice heating water in a test tube.

Figure 7. Heating a liquid in a test tube

2. Use a beaker or a flask when heating a large amount of liquid. Refer to figure 8 and figure 9.

Figure 8. Heating a liquid in a beaker

Figure 9. Heating a liquid in a flask

A wire gauze is placed over an iron ring to prevent direct heating. Glassware like beakers, flasks, and the evaporating dish should not be heated directly. Practice heating water in a beaker and in a flask.

If an iron clamp is used to hold a container, it should not be fastened too tightly to prevent breakage. Glass expands when heated.

3. To heat a test tube that is mounted on an iron stand, hold the burner and pass the flame underneath. The test tube is always clamped at the upper portion. Refer to figure 10.

Figure 10. Heating a test tube mounted on an iron stand

D. Separating a Solid from a Liquid

In the laboratory, it is sometimes necessary to separate a solid from a liquid.

The commonly used separation methods are the following:

1. **Filtration.** *Filtration* is the process of separating solid particles from a liquid by pouring the mixture through filter paper.

The first step in filtration is the preparation of the filter paper. Get a piece of filter paper and fold it into halves. Then fold this into quarters. Cut as shown in figure 10 to form a circle. Open the filter paper such that you have one fold on one side and three folds on the other side. Moisten the paper so that it fits snugly into the funnel. The rim of the filter paper should be lower than the rim of the funnel. Then prepare the setup as shown in figure 12.

The liquid that passes through the filter paper is called the *filtrate*.

Figure 11. Preparation of the filter paper

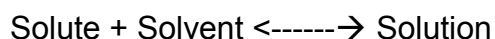
Figure 12. Filtration setup

- 2. Decantation.** When a solid is heavy and has a tendency to settle, the separation is accomplished by *decantation*. This is the process of allowing the solid particles to settle, then carefully pouring off the liquid, referred to as the *supernatant liquid*.

Practice filtration and decantation using 25 ml mixture of charcoal and water. Compare the extent of separation of the solid and the liquid in the two processes.

E. Preparing Saturated Solutions

In some experiments, you will be required to prepare saturated solutions. A saturated solution is an example of a dynamic equilibrium where the rate of dissolution is equal to the rate of crystallization.



You can prepare a saturated solution by continually adding the solute to a given quantity of solvent until no more of the solid dissolves, even after constant stirring. Prepare a saturated solution of common table salt in 30 ml of water.

F. Determining Odor

Determining odor involves some danger since many substances are poisonous. To do this, open the reagent bottle and hold it about 13 cm from your

face. Fan very gently the air above the bottle toward you and inhale the air. Do not breathe in heavily, just sniff.

Chemistry Laboratory Manual
Magno, Marcelita C., et al.

Chemistry Laboratory Manual
Mendoza, Estrella E. and Teresita F. Religioso

: Excerpts by Melba F. Mallorca-Madeja

III. Improvising Laboratory Apparatus

Sometimes there are apparatus that are needed but they are not available in the laboratory. To solve the problem of insufficient supply of chemistry apparatus, or worse, their unavailability, chemistry teachers and students may improvise some laboratory apparatus.

Examples:

1. *Ball pen case* can substitute for glass tubing in set-ups.
2. *Bamboo stick* (soaked in water overnight) may be used as stirrer.
3. *Feeding bottles* (used) can substitute for graduated cylinder to measure the volume of liquid.
4. *Folded paper* can substitute for test tube holder. It can also be used as spatula.
5. *Medicine dropper* may substitute for a pipette to measure small volumes of liquid.
6. *Milk cans* are made into tripods for heating purposes.
7. *Ordinary glass* can substitute for beaker if no heating is required.

8. *Penicillin vials* are used as substitute for test tubes for chemical reactions which do not require heating.
9. *Syringe* may substitute for a pipette to measure small volumes of liquid.
10. *Tying wire* can be made into a test tube holder (used while heating), test tube stand (to hold test tubes when not in use), or funnel support (during filtration).
11. *Wooden stand* may replace the iron stand if they are not available.

Hand-Outs #3

INSTRUCTIONAL ORGANIZATION AND PLANNING

* Remediation, Reinforcement and Enrichment

*Approaches, Strategies, and Techniques of Teaching

I. Remediation, Reinforcement and Enrichment

Remediation. This is also called remedial teaching. An ability to test students, to diagnose their difficulties, and then to give remedial help is what all teachers of slow learners should have. Once a difficulty is diagnosed and detected, remedial measures should be undertaken to correct errors and remove difficulties.

Remedial teaching is generally conducted after a check-up quiz or test to improve and strengthen the learning ability of the slow learners in areas where they are weak or on items needing further improvement.

Reinforcement and Enrichment. These refer to lessons or activities given by the teacher to the students to supplement or add to their knowledge about the subject matter being taken up in class.

While the slow learners need remediation, the fast learners need reinforcement and enrichment.

Using the mastery learning approach, the students ought to gain satisfactory understanding or at least mastery about the subject matter taught by the teacher. In this connection, the teacher sets a performance level of success (PLS) to be attained by the students after he/she has taught a concept.

After the concept has been taught, the teacher gives a formative test, may be 10, 15, or more items as desired. The answers are given and the students, after exchanging their papers in a systematic manner, check their answer and then the teacher asks if they attained the PLS set by the teacher. If half of the students did not get the PLS, the teacher should **re-teach** the lesson. Those who got the desired PLS should be given **enrichment** activity; those who did not will be re-taught. On the other hand, if only few learners did not get the desired PLS, **tutorial** activity should be done. Re-teaching and tutorial activity are examples of remediation or remedial teaching.

II. Approaches, Strategies, and Techniques of Teaching

Approach. This concept refers to the philosophical framework of any subject or course which provides the “*why*”, the “*what*”, and the “*how*” of teaching a particular

subject. It gives the basic teaching materials to be used in the subject including the evaluative tools that are necessary to appraise student learning. Under an approach are different expository and enabling strategies or methods that a teacher selects to use in teaching a concept.

1. **Discovery Approach.** In this approach, students state the problems and then work for their answers under the guidance of the teacher who acts as the facilitator of learning. The teacher generally does not tell the objectives of the lesson or the concept to be learned by the students. It is up for them to discover what the lesson is all about.
2. **Process Approach.** The purpose of this approach is to equip the students with simple and processes which they will need in solving their present and future problems. A process is either simple (like identifying, classifying, naming, listing, observing, etc.) or complex (like summarizing, analyzing, reporting, surveying, experimenting, evaluating, etc.). The process refers to the different skills or behaviors which should be manifested by the students after the concept has been taught.

In science subjects, the basic investigative processes include the following (arranged from the lowest level): observing, comparing, classifying, measuring, inferring, predicting, and controlling variables.

3. **Inquiry Approach.** This approach requires the teacher to stimulate the students to ask questions after the materials are presented to them. During class

discussion, the students are also free to ask salient questions related to the topic being discussed. Teachers should not be afraid to allow students to ask questions because this will develop their questioning ability.

4. **Integrative Approach.** This approach stresses the identification of issues or problems and then to have them fused in the various lessons to be taken up. In this way, the students will have a clear or comprehensive understanding of such issues. The schools are integral parts of the society and therefore must help the government in making the citizens knowledgeable about such issues so that they can actively interact and offer solutions or remedies.

5. **Mastery Learning Approach.** This approach uses the teach-reteach strategy. The purpose is for the students to gain satisfactory undertaking or at least mastery about the subject matter taught by the teacher. Here, the teacher sets a performance level of success (PLS)/criterion level of success (CLS) to be attained by the students after he/she has taught a concept. Such level of success depends on the general average mental ability of the members of the class (50% for slow learners up to 90% for fast learners).

6. **Value-Oriented Approach.** This is the approach being given emphasis in all levels at present. It is said that *a complete person is one who is not only knowledgeable about facts, but also one who manifests a fine character and is beyond reproach.* Teachers should integrate in all subjects the values that may be deemed inherent in any lesson such as:

- a. values in relation to self: cleanliness, integrity, punctuality, etc.
- b. values in relation to others: trustfulness, faithfulness, respect, etc
- c. values in relation to the community: “bayanihan”, cooperation, sharing, etc.
- d. values in relation to the country: nationalism, patronizing Philippine-made products, obedience to law, etc.
- e. values in relation to God: spirituality, religiousness, faith, etc.

7. Value Clarification Approach. This approach involves integrating values in the different lessons. It consists of three (3) major steps: a) Choosing from among alternatives, after making a careful selection; b) Prizing, meaning the learner likes his/her choice and is happy about it; and c) Acting, that is he/she manifests what was chosen in private and public life.

Strategy. This concept is equated with “method” because method is defined as “*a planned way of doing something which consists of specific steps to follow to attain the objective.*” Approach is prescriptive, strategy or method is “*procedural*” because it consists of specific sequential steps to follow. A method or strategy that a teacher uses is categorized as either expository or enabling.

1. Expository Strategy. This is also called “*information giving strategy*” because the teacher is the main source of information. Examples are: dictation, lecture, hand-out method, demonstration, lecture-demonstration, and film showing. Using this strategy is advantageous because much information is taken up by the students. This strategy is used if the materials to be used by the dangerous

or delicate, when the subject matter is very difficult, and when the students are pressed for time. However, its disadvantage is that the creativity of the students is not developed.

- a. **Dictation.** This is simply “*talking or telling*”. Defined as stating an understanding without justification, is the quickest way to present an idea, the most commonly used method of beginning teachers, and probably the least effective way to understanding.
- b. **Lecture.** This method is similar to “*telling*”, but it involves more than just telling. It is a teaching method of clarifying or explaining a major idea cast in the form of question or problem.
- c. **Hand-out Method.** Also called “*reading method*”, it requires students to gather facts and information or solve problems by reading printed materials or hand-outs. The teacher prepares beforehand the rich sources of information needed for a particular topic. Discussions are easier and more interesting after everyone has read the hand-outs.
- d. **Demonstration.** This method is also referred to as a “*showing how*” in an organized way, for as implied, it focuses on the process of doing *something* (method demonstration) or the procedure in *producing something* (product demonstration). The class simply observes during the demonstration.
- e. **Lecture-Demonstration.** As the name implies, it is a lecture accompanied by a demonstration, or it is a demonstration or “*showing how*” accompanied by explanation or lecture.
- f. **Film Showing.** Here, the students simply watch a movie or film which is related to their present lesson.

2. **Enabling Strategy.** This is also called “*heuristic strategy*”. The students are the ones who look for the answers to the questions they themselves have formulated. The teacher acts as a facilitator of learning. Examples are: inductive, deductive, case study, project method, experimenting, field trip, question and answer, role playing, debate, game, modular method, etc. Its advantages are:

students’ creativity is developed; it is a dynamic type of learning activity; and the students are active participants in the teaching-learning process. Its only disadvantage is that it takes a long time for the students to finish a unit of study because of the various processes to be undertaken by them.

- a. **Inductive.** Inductive means “*from specific to general*”. It is the opposite of deductive method.
- b. **Deductive.** Deductive means “*from general to specific*”. It is the opposite of inductive method.
- c. **Case Study.** A case study is defined in the dictionary as “*a brief description of a specific situation*”. When used as a teaching method, varied aspects/constituents of a situation are presented for analysis to bring out the problem. Hence, this method is related to problem-solving.
- d. **Project.** A project is a significant, practical unit of activity of a problematic nature, planned and carried out to completion by the student in a natural manner and involving the use of physical materials to complete the unit of experience. As an activity, this method is geared towards an attainable goal

which is hoped to be carried out through purposeful activities that are cooperatively planned and executed by the teacher and the students.

- e. **Experimenting.** This method of teaching actively involves every student in the class in manipulating materials and simple equipment to find answers to questions or solve problems. The students are given the chance to experience what scientists went through in their eager search for information.
- f. **Field Trip.** A field trip is an out-of-the classroom activity whereby students study things in their natural setting. Students gain first-hand experience about the topic being studied as contrasted to learning from the book.
- g. **Question and Answer.** Here, the teacher asks questions, the students answer. The students may also ask questions for the teacher to answer.
- h. **Role Playing.** Like the case study method, role playing focuses on a situation for group discussion. It involves the spontaneous acting out of a situation by two or more members of a group. Ideally, the situation should be a common observation or experience of the group and therefore discussion would be easy for them to carry out.
- i. **Debate.** Debate is used As a discussion method when there are two sides of an issue – the *pro* (in favor) and the *con* (against). Two groups consisting of 3-5 students represent each side of the issue. Each member presents his/her points to support or defend the issue of the group. There is also a moderator who is neutral or does not side with any group
- j. **Game.** Game is also used as a teaching method whenever appropriate or relevant to the topic being discussed or taken up.

k. Modular Method. This method involves the use of modules. Modules are self-learning printed materials, prepared by the teacher or by experts.

Other examples of enabling strategy are: survey, participatory method, simulation, dramatization, analysis, oral history method, supervised-study, and textbook method.

Technique. As a general rule, technique refers to the actual act (including all the manipulations) of instruction including the use of devices and the principles in teaching to effect proper learning. Simply stated, it refers to the way by which the teacher performs every step of the lesson.

Supervision as Management and Development in Philippine Setting
Sanchez, Jose Rizal G.

Teaching Strategies III: The Teaching of Science and Health, Mathematics, and
Home Economics and Practical Arts
Salandanan, Gloria G., et al.

: Excerpts by: Melba F. Mallorca-Madeja

Hand-Outs #4

ASSESSMENT OF STUDENT LEARNING

- * Authentic Assessment**
- * Types of Test**
- * Qualities of a Good Measuring Instrument**

I. Authentic Assessment

Authentic assessment is an umbrella concept that refers to the measurement of "intellectual accomplishments that are worthwhile, significant, and meaningful." It aims to evaluate students' abilities in 'real-world' contexts. In other words, students learn how to apply their skills to authentic tasks and projects. It focuses on students' analytical skills; ability to integrate what they learn; creativity; ability to work collaboratively; and written and oral expression skills. It values the learning process as much as the finished product.

Authentic assessment utilizes performance samples – learning activities that encourage students to use higher-order thinking skills. There are five major types of performance samples:

1. **Performance Assessment.** It test students' ability to use skills in a variety of authentic contexts. They frequently require students to work collaboratively and to apply skills and concepts to solve complex problems. Short- and long-term tasks include such activities as: writing, revising, and presenting a report to the class; conducting a week-long science experiment and analyzing the results; working with a team to prepare a position in a classroom debate; and short investigations.
2. **Short Investigations.** Many teachers use short investigations to assess how well students have mastered basic concepts and skills. Most short investigations begin with a stimulus, like a math problem, political cartoon, map, or excerpt from a primary source. The teacher may ask students to interpret, describe, calculate, explain, or predict. These investigations may use enhanced multiple-choice questions. Or they may use concept mapping, a technique that assesses how well students understand relationships among concepts.
3. **Open-Response Questions.** Open-response questions, like short investigations, present students with a stimulus and ask them to respond. Responses include: (a) brief written or oral answer; (b) a mathematical solution; (c) a drawing; and (d) a diagram, chart, or graph.

4. **Portfolios.** A portfolio documents learning over time. This long-term perspective accounts for student improvement and teaches students the value of self-assessment, editing, and revision. A student portfolio can include: (a) journal entries and reflective writing; (b) peer reviews; (c) artwork, diagrams, charts, and graphs; (d) group reports; (e) student notes and outlines rough drafts; and (f) polished writing.

5. **Self-Assessment.** This requires students to evaluate their own participation, process, and products. Evaluative questions are the basic tools of self-assessment. Students give written or oral responses to questions like:

- What was the most difficult part of this project for you?
- What do you think you should do next?
- If you could do this task again, what would you do differently?
- What did you learn from this project?

Because authentic assessment emphasizes process and performance, it encourages students to practice critical-thinking skills and to get excited about the things they are learning.

Authentic assessment tends to focus on complex tasks, enabling students to demonstrate their competency in a more 'authentic' setting. Examples of authentic assessments include:

1. **Assessing completed work/products.** A student's performance can be measured through the usual task undertaken in connection with simple

investigations or laboratory experiments. Evidences of learning can be inferred from the following:

- a. *Recorded data and generalizations* arrived at after performing an activity. These may appear in the skills book provided accompanying a text, and answer sheet prepared for a particular experiment, or data entered in a data notebook.
- b. *Apparatus set-up* as required for a particular experiment.
- c. *Assignment notebooks* which require data gathered from the home and community.
- d. *Clippings prepared* chemistry/science news, pictures and magazine articles on current studies and discoveries.
- e. *Collections prepared* in connection with a unit being studied such as collection of shells, insects, seeds, rocks,
- f. *Projects* constructed to illustrate a science/chemistry principle.
- g. *Written special reports and records of interviews* conducted outside the school.
- h. *An invention* interned in a school competition.
- i. *A simple research* completed by advanced students.

In assessing work samples, emphasis must be on the products and on the learning conditions under which they are completed rather than on student's behavior. Since such work samples are prepared over a longer period of time and allow freedom of expression, they can be used in

evaluating higher levels of learning. Such work samples are indications of a student's creativity, originality, and resourcefulness. From them the teacher can readily judge whether there is an improvement in attitude.

2. **Measurement of oral responses.** This includes an assessment of the nature and degree of the student's participation in daily recitations, panel discussions, specially assigned reports, and debates on current controversial issues. Active participation in daily discussions show whether the students' are duly aroused and sustained.
3. **Observation of behavior, both formally and informally.** This technique results in qualitative evaluation. Formal observation is undertaken with the help of a predetermined questionnaire. The student is provided with specific learning situations and the responses elicited are recorded. Structured observation facilitates the recording of remarkable reactions of a number of students at a time. This technique insures objectivity and accuracy of the recorded response.

Informal observations may be undertaken outside of formal and planned class activities. Relevant remarks, prolonged attention, or high-level curiosity about things in the environment can be recorded and later analyzed.

For observed behavior to be used as indicators of an expected change, the particular reaction or manner of doing things should be exhibited

consistently. The teachers must be warned against the tendency to be subjective in recording and interpreting students' behavior.

4. **Conducting interviews and small group conferences.** A student who has been lagging behind in science needs specially attention. The teacher may interview the student to solicit significant information regarding the situation. Likewise, a student who shows extraordinary interest and talent in a subject may be interviewed to assess typical reactions of students belonging to that level. This technique provides a guide for the appropriate placement of both the underachievers and overachievers.

A conference conducted with a small group of the same ability will enable the teacher to assess the group's achievement accurately.

5. **Undertaking case studies.** This technique involves an in-depth study of the student's background together with the circumstances contributory to the unique behavior. It includes information about his/her socio-economic background, childhood experiences, and other academic records which may be placed together to evaluate academic failure or success.

Other examples of authentic assessments are: performance of the skills, or demonstrating use of a particular knowledge; simulations and role plays; studio portfolios, strategically selecting items; and exhibits and displays.

II. Types of Tests

A. Essay Examination. It consists of questions to which the students respond in one or more sentences to specific question or problem. It tests student's ability to express his/her ideas accurately and to think critically within a certain period of time.

Suggestions in Constructing an Essay Examination

1. It must be planned and constructed carefully in advance.
2. It must show major aspects of the lesson.
3. Precautions on the causes of unreliability should be taken.
4. The questions should be phrased vividly so that its scope should be clear to the students.
5. Time limit on the coverage of each question should be reckoned so that students have adequate time to answer.

Types of Constructing an Essay Examination

1. Selective Recall. The basis is given. Example: Name the elements which are considered coinage metals.
2. Evaluating Recall. The basis is also given. Example: Name the noble gases which were found to form compounds.

3. Comparison of two things (specific). There is only single designated basis. Example: Compare decantation and filtration as a means of separating components of a mixture.

4. Comparison of two things (general). This is comparing two things in general. Example: Compare organic chemistry and inorganic chemistry.

5. Decision (for or against). Example: In your opinion, which is better, an essay test or an objective test?

6. Cause or effects. Example: Why are science subjects given longer time allotment than other subjects?

7. Explanation of the use of exact meaning of some phrases or statements in a passage. Example: What does this passage mean, "Chemistry is a servant science."

8. Summary of some unit of the text of some articles read. Example: Summarize in a paragraph or two the advantages and disadvantages of using computers in teaching chemistry.

9. Analysis. The word *analysis* is seldom involved in the question. Example: What are the characteristics of gold which make it suitable for use in making jewelry?

10. Statement of relationships. Example: Why is general chemistry a prerequisite of other chemistry subjects?

11. Illustrations and examples of principles in science, mathematics, language, etc. Example: From your own experience, give five examples of the use of chemistry in your daily life.

12. Classification. Example: To what class of metals do the following elements belong: Be, Mg, Ca, Sr, Ba, and Ra?

13. Application of rules and principles in new situations. Example: Why does water easily boil at the top of the mountain than at the lowlands?

14. Discussion. Example: Discuss briefly the four groups of hydrocarbons.

15. Statement of aim. Example: State the rule in determining the parent compound in alkane hydrocarbons.

16. Criticism. This is criticizing as to adequateness, correctness, or relevance of a pointed statement or student's answer to a question on the lesson. Example: What is wrong with the statement, "All compounds containing the element carbon are organic compounds?"

17. Outline. Example: Outline the classification of mixtures.

18. Reorganization of facts. This is a good type of review question to give training in organization. Example: Discuss how vulcanized rubber was discovered by Charles Goodyear.

19. Formulation of new questions and problems. Example: After knowing the name of the parent compound and the names of the attached groups in alkanes, what else must be known to give the complete name of an alkane hydrocarbon?

20. New method or procedure. Example: Suggest a procedure for separating pure water and salt from seawater.

Advantages of an Essay Examination

1. Easy to construct

2. Economical
3. Trains the core of organizing, expressing, and reasoning power
4. Minimizes guessing
5. Develops critical thinking
6. Minimizes cheating and memorizing
7. Develops good study habits.

Disadvantages of an Essay Examination

1. Low validity
2. Low reliability
3. Low usability
4. Encourages bluffing
5. Difficult to correct or score
6. Disadvantageous for students with poor penmanship

B. Objective Examination

1. Recall Type

a. **Simple recall.** This is one of the easiest to construct among the objective types where the item appears as a direct question, a stimulus word or phrase, or a specific direction. The response requires the student to recall previously learned material and the answers are usually short consisting of either a word or a phrase. Example: How many grams are there in one kilogram?

Rules and Suggestions in Constructing Simple Recall Type

1. The item should be so worded that the response is as brief as possible preferably a single word, number, symbol, or a very brief phrase.
2. The direct-question form is usually preferable to the statement form.
3. The blanks for the responses should be in a column preferably at the right column of the items.
4. The question should be so worded that there is only one correct response.
5. Make a minimum use of a textbook language in wording the questions.

b. **Completion test.** This test consists of a series of items which requires the subject to fill a word or phrase on the blanks. An item may contain one or more blanks. Example: Elements like He, Ne, Ar, Kr, Xe, and Rn are called _____.

Rules and Suggestions in Constructing Completion Test

1. Give the student a reasonable basis for the responses desired. Avoid indefinite statements and over-mutilated statements.
2. Avoid giving the student unwarranted clues to the desired response.
 - a. Avoid lifting statements directly from the book.
 - b. Omit only key words or phrases rather than trivial details.
 - c. Avoid “a” or “an” immediately before a blank.
 - d. Do not indicate the expected answer by varying the length of blanks or by using a dot for each letter in the correct word.

- e. Guard against the possibility that one item or part of the test may suggest the correct response to another item.
 - f. Avoid giving grammatical clues to the answer expected.
3. Arrange the test so as to facilitate scoring.
- a. Allow one point for each blank correctly filled.
 - b. Select items to which only one correct response is possible.
 - c. Sentences containing a single blank are easier to score if the blank is at the end.
 - d. Scoring is more rapid if the blanks are numbered and the student is directed to write his/her response in the appropriate numbered blanks.
 - e. Prepare a key for scoring by writing on a copy of the test all acceptable answers.

2. Recognition Type

a. Alternative response. This test consists of a series of items where it admits only one correct response in each item from the two constant options to be chosen. Forms of this type are: true-false, right-wrong, plus-minus, yes-no, correct-incorrect, same-different, etc.

Suggestions in Constructing True-False Test

1. The test items must be arranged in groups of five to facilitate scoring. The groups may be separated by two single spaces and the items within a group by a single space.

2. In indicating response, it must be as simple as possible where a single letter is enough to facilitate scoring. It would be better if responses are placed in one column at the right margin.
3. The use of similar statements from the book must be avoided to minimize rote memory in studying.
4. The items are carefully constructed so that the language is within the level of the students, hence, flowery statements are avoided.
5. Specific determiners like *“all”, “always”, “none”, “never”, “not”, “nothing”,* and *“no”,* are more likely to be false and should be avoided. Moreover, determiners such as *“may”, “some”, “seldom”, “sometimes”, “usually”,* and *“often”,* are more likely to be true, hence, the foregoing determiners must be avoided because they give indirect suggestion to probable answers.
6. Qualitative terms like *“few”, “many”, “great”, “frequent”,* and *“large”,* are vague and indefinite and they must be avoided.
7. Statements which are partly right and partly wrong must be avoided.
8. Statements must be strongly considered that they represent either true or false.
9. Ambiguous and double negative statements must be avoided.

b. Multiple choice. This test is made up of items with four or more plausible options in each item. The choice is multiple because the students must choose only one correct/best option from the rest. It is regarded as one of the best test forms and is most valuable and widely used in standardized test due to its flexibility and

objectivity in scoring. In teacher-made tests, it is applicable for testing vocabulary, reading comprehension, relationship, interpretation of graphs, formulas and tables, and drawing of inferences from a set of data.

Suggestions in Constructing Multiple-Choice Test

1. Statements borrowed from textbooks/reference materials must be avoided. Use familiar phrasing to test the comprehension of students.
2. All options must be plausible with each other with each other to attract the students to choose distractors or incorrect responses where only those with high intellectual levels can get the best option.
3. All options must be grammatically consistent.
4. Articles “a” and “an” are avoided as last word in an incomplete sentence.
5. Four or more options must be provided in each item to minimize guessing.
6. The correct answers in all items are randomly arranged rather than following a regular pattern.
7. A uniform number of options in each item must be used.
8. The best option has consistent length with distractors.
9. Homogeneity of the options must be increased in order to choose the best option by a researcher of a logical elimination.
10. The simplest method of indicating a response must be used to facilitate scoring.

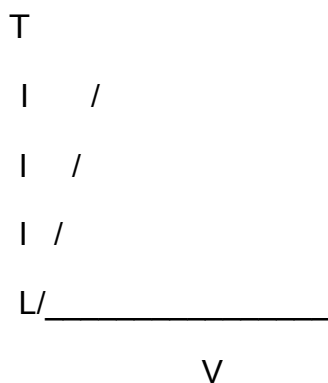
b.1. **Stem-and-Options variety.** The stem serves as the problem and is followed by four or more options from which the students select the correct answer or best option.

Example: The most ductile metal is:

- a. aluminum b. copper c. gold d. silver

b.2. **Setting-and-Options variety.** The optional responses to this type of test are dependent upon a setting or foundation of some sort. The setting can consist of a graph, sentence, paragraph, picture, equation, or some forms of representation.

Example: The graph below shows how gas volume varies with temperature. What can you conclude about gas volume?



- a. It increases as temperature increases.
- b. It decreases as temperature increases.
- c. it is not affected by temperature.

d. It remains the same whatever the temperature is.

b.3. **Group-Term variety**. This type consists of a group of words or terms in which one does not belong to the group.

Example: Which of the following does not belong to the group?

a. alcohol b. brine c. lime d. table salt e. water

b.4. **Structured-Response variety**. This type makes use of structured response which are commonly used in classroom testing for natural science subjects.

Example: a. acid b. base

Write: a – if the term is connected with a only

b – if the term is connected with b only

c – if the term is connected with both a and b

d – if the term is connected with neither a nor b

___ 1. hydroxide ions

___ 2. hydrogen ions

___ 3. element

___ 4. compound

___ 5. pure water

b.5. **Contained-Option variety**. This type is designed to identify errors in a word, phrase, sentence, or paragraph.

Example: Rice and fish are staple food for Filipinos. No error

1 2 3 4 5

c. Matching type. This type consists of two columns in which proper pairing relationship of two things is strictly observed. Unbalanced matching type is preferable.

Suggestions in Constructing Matching Type

1. Using heterogeneous material must be avoided.
2. More options from which selections are made, must be included than statements to minimize guessing.
3. Each category must be grammatically consistent.
4. All options, including distractors must be plausible with each other.
5. The item column must be placed at the left and the option column at the right.
6. Option column must be arranged in alphabetical order and dates in chronological order to facilitate the selection of the correct answer. Each option is assigned a code number or letter.
7. There should be only one correct response in each item.
8. Be sure each item has a pair in the option column.
9. The ideal number of items is 5 to 10 and a maximum of 15.

10. All items must appear on one page to avoid waste of time and energy in turning the pages.

d. Rearrangement. This type consists of a multiple-option where it requires a chronological, logical, rank, etc. order.

Example: Read the sentences below and arrange the best order to have a complete and well organized paragraph. Choose from the options the best order.

1. Miss Montilla, their instructor, gave them an excellent grade.
2. The study was on the determination of protein content of dried sole fish and anchovy.
3. One day, the students in Chemistry class conducted an experiment.
4. All of them were happy.
5. They were all successful in their analysis.

*1. 32514 2. 31425 3. 35241 4. 23514 5. 25143

e. Analogy. This type is made up of items consisting of a pair of words which are related to each other. It is designed to measure the ability of students to observe the pair relationship of the first group to the second group.

Example: element: calcium; compound: _____.

- a. alcohol b. brine c. syrup d. wine

Suggestions in Constructing Analogy Type

1. The relationship of the first pair of words must be equal to the relationship of the second.
 2. Distractors must be plausible with the correct option to attract the students and the process of obtaining the correct answer is by logical elimination.
 3. All options must be constructed in parallel language.
 4. All items must be grammatically consistent.
 5. Four or more options must be included in each item to minimize the chances of guessing.
 6. Only homogeneous relationship must be included in each item. If *purpose relationship* is used in the first pair, the second pair is also *purpose relationship*.
- a. **Identification.** This type consists of presenting a brief description and the student has to identify what it is.

Advantages of Objective Test

1. Easy to correct or score.
2. Eliminates subjectivity.
3. Adequate sampling.
4. Objectivity in scoring.
5. Eliminates bluffing.

6. Norms can be established.
7. Saves time and energy in answering questions.

Disadvantages of Objective Test

1. Difficult to construct.
2. Encourages cheating and guessing.
3. Expensive.
4. Encourages rote memorization.
5. Time consuming in preparing the test.

III. Qualities of a Good Measuring Instrument

1. **Validity.** It refers to the degree to which a test measures what it intends to measure. It concerns *what* the test measures and how well it does so.

a. Content validity – the extent to which the content of the test is truly a representative of the content of the course.

b. Concurrent validity – the degree to which the test agrees with or correlates with a criterion which is set up as an acceptable measure.

c. Predictive validity – evaluated by relating the test to some actual achievements of the student to which the test is supposed to predict his success.

d. Construct validity – the extent to which the test measures a theoretical trait.

2. **Reliability.** It means the extent to which a test is dependable, self-consistent, and stable. It is concerned with the consistency of responses from moment to moment even if the person takes the same test twice, the test yields the same test result.

3. **Usability.** It means the degree to which the test can be satisfactorily used by teachers, supervisors, and school administrators without undue expenditure of time, money, and effort. It means practicability. There are five (5) factors that determine usability: (a) ease of administration; (b) ease of scoring; (c) ease of interpretation and application; (d) economy; and (e) proper mechanical make-up.

Educational Research, Measurement and Evaluation
Calmorin, Laurentina P.

Measurement and Evaluation
Calderon, Jose F. and Expectacion C. Gonzales

Educational Measurement and Evaluation
Garcia, Carlito D.

: Excerpts by Melba F. Mallorca-Madeja

Hand-Outs #5

COMMUNICATION COMPETENCE

- * Paragraph and Essay Writing**
- * Collective Nouns and Other Special Subjects**
- * Indefinite Pronouns**

I. Paragraph and Essay Writing

A. Reading and Writing to Explain Each Step or Stage: Process Analysis

When people and things interact, they produce results. This interaction is called a process. Explanation of a natural, mechanical, or historical process is common. In describing a process, a writer presents a series of connected steps or stages. Analyzing a process would mean answering some of these questions:

How does it happen?

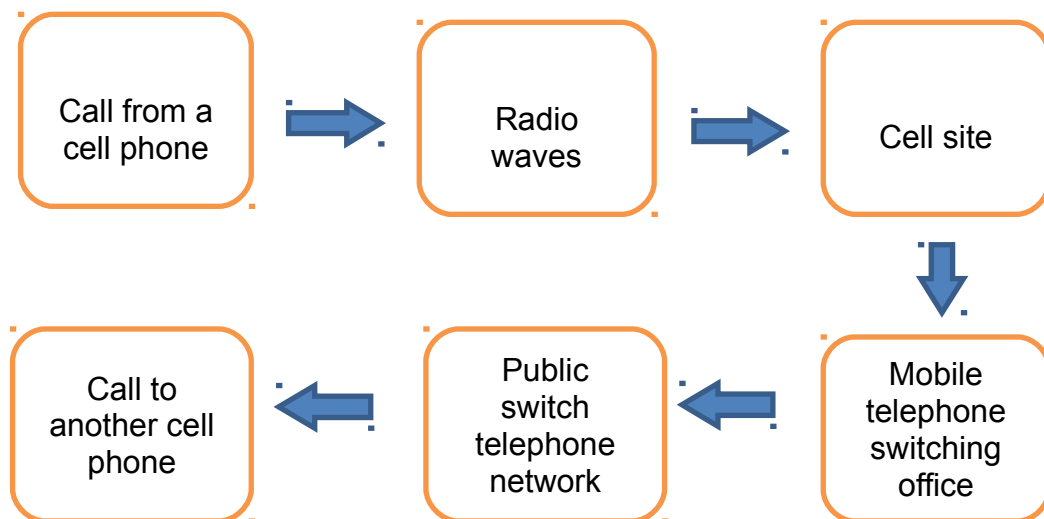
When and where does it happen?

What happens first, next, and so on?

What is the result?

1. Understanding a Process Paragraph

Example: When a call is placed from a cellular phone, it is received by the nearest cell site via microwave and then relayed (linked) to the mobile telephone switch. The switch enables the cellular company to control the cell sites and the cellular calls from site to site. By fiber optic, the switch then transmits the call to the public switch telephones network (PSTN), which in turn connects the call to the location of the party being called.



2. Describing a Process Using a Flowchart

Show your understanding of the process described in the following paragraph by making a flowchart.

Digestion begins as soon as food is chewed. The food then passes to the gullet to the stomach, where it is churned into a mixture known as “chyme.” Smallest amount of chyme is passed regularly from the stomach to the small intestine. Once in the intestine, the food is bombarded with enzymes, each of which triggers a particular breakdown reaction. Eventually, all the carbohydrates that can be digested are broken down into simple sugars. Fats are broken down into fatty acids and glycerol, proteins into amino acids.

Key Points

A process paragraph can be aided by visuals, like flowchart, pictures, diagrams, and outlines. Visual aids can help you write a description of process.

You can also understand a process paragraph when you will watch out for common signals used to describe a process. Some of them are:

First, second, third...	Finally
Next	Now
To start with, to begin with	When
Then	Before
Immediately	Immediately after

3. Guided Sentence Writing: Writing about General Processes

State the process illustrated in the diagram below in one sentence. Study the example given.

Water Mix Lemon juice and sugar Lemonade

Sentence: Water is mixed with lemon juice and sugar to produce lemonade.

1. Salt Dissolve Water Brine

Sentence: _____

2. Food Change Digestion Simplest form

Sentence: _____

3. Sugar Add to Water Syrup

Sentence: _____

Key Points

When describing a process, the process is given more importance, so it made to occupy subject position. When the process is written, the present passive form of the verb is used and no agent is mentioned because the focus is on “what happens” and not on who or what makes it happen.

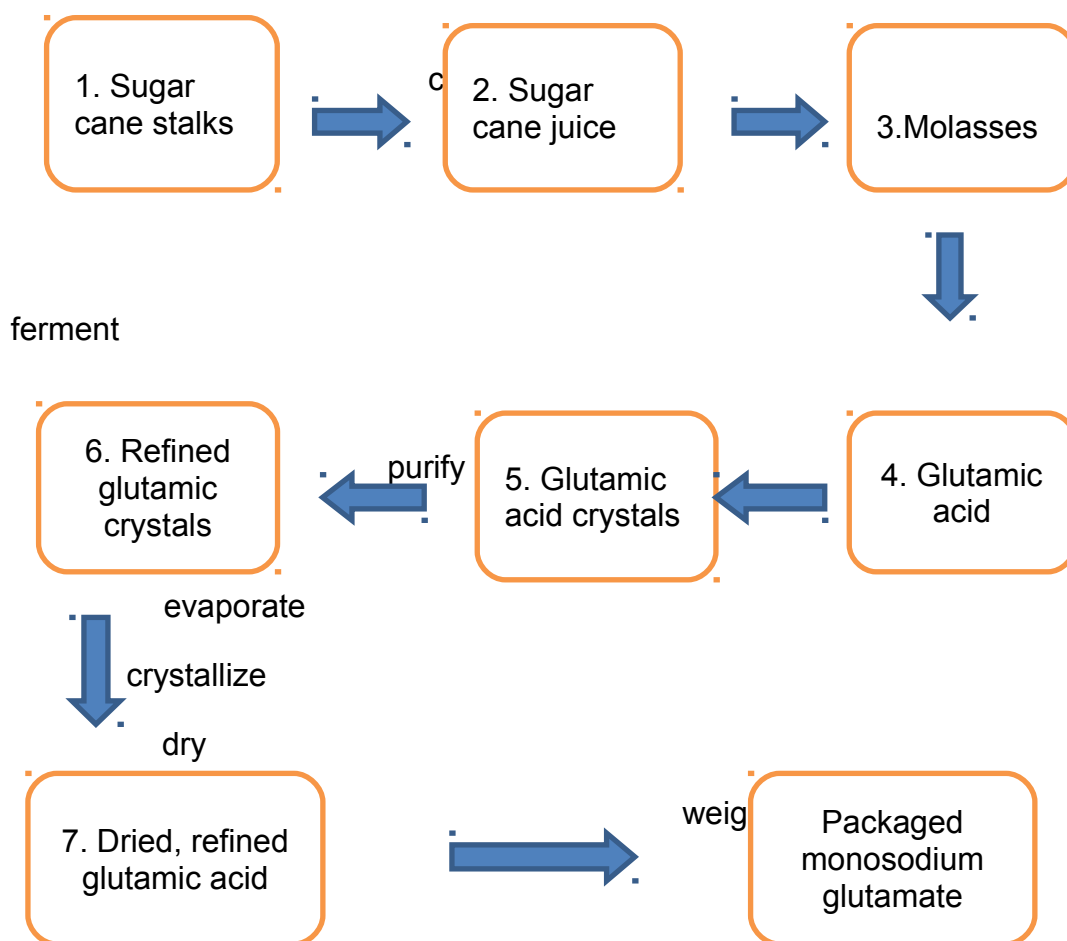
Examples:

1. It is changed to gas form in the atmosphere.
2. Water is formed when hydrogen combines with oxygen.

3. Food is put in glass jars. The jars and their contents are heated to a temperature which is maintained to ensure that all bacteria are killed.

4. Guided Paragraph Writing

Study the flow chart which shows how monosodium glutamate (vetsin) is produced. Use signal words and the passive verbs in writing a paragraph describing the process of producing monosodium glutamate.



Paragraph: _____

B. Reading and Writing Texts Explaining Parts and Categories: Classification and Division

1. Reading Classification and Division Paragraph

Carbohydrates

Carbohydrates are the body's main source of energy. Many different foods include this nutrient. These foods can be classified into groups according to the amount of carbohydrates they contain.

Most grain products contain a high amount of carbohydrates, over 20 %. Rice, for instance, is composed of 81% carbohydrates. Both bread and doughnuts contain 50%.

Fruits generally have a moderate amount of carbohydrates. Apples, for instance, are made up of 13% carbohydrates, and grapes contain 9%. Vegetables are also in the moderate group. Carrots, for example, are composed of 10% carbohydrates, and onions contain 9%.

There are two categories of food with a low amount of carbohydrates: shellfish and dairy products. Lobster and crab are examples from the shellfish group, Lobster has only 0.5% carbohydrates, and crab has 1%. Milk, a member of the dairy products group, contains 4.5% carbohydrates. Butter, another dairy product, has only 0.8%. In summary, carbohydrates can be obtained from foods such as grain products, fruits, vegetables, shellfish, and dairy products. It is easy, therefore, to include sources of this essential nutrient in our diet.

Key Points: When you classify, you tell your reader what you are going to classify and how you will divide the subject. You can mention one or more of the following: number of groups, name of groups, and principle of division.

To express a statement to classify idea, you can use this pattern:

Item + can be/may be + categorized/grouped + into + basis for classification

Classification of ideas can be made clearer with the aid of a tree or schematic diagram, an outline, or a classification chart.

Read again the text on *Carbohydrates* and relate it to the diagram and illustration which follow. Notice how the concept can be organized by means of a chart or an outline.

1) Chart

Carbohydrates

High Amount of carbohydrates (Over 20%)			Moderate Amount of carbohydrates (8.20%)			Low Amount of carbohydrates (under 8%)				
Grain Products			Fruits		Vegetables		Shellfish		Dairy	
Rice	Bread	Doughnuts	Apple	Grapes	Carrots	Onions	Lobster	Crab	Milk	Butter
81%	50%	50%	13.5%	9%	10%	9%	0.5%	1%	4.5%	0.8%

2) Outline: Amount of Carbohydrates in Foods

I. High amount of carbohydrates (over 80%)

A. Grain Products

1. Rice – 81%
2. Bread – 50%
3. Doughnut – 50%

II. Moderate Amount of Carbohydrates (8-20%)

A. Fruits

1. Apple – 13.5%
2. Grapes – 9%

B. Vegetables

1. Carrots – 10%
2. Onions – 9%

III. Low amount of carbohydrates (8% and below)

A. Shellfish

1. Lobster – 1%
2. Crab – 0.5%

B. Dairy Products

1. Milk – 4.5%
2. Butter – 0.8%

Key Points: In classification, the class to which the members belong as well as the bases on which the members are grouped together and the members themselves are mentioned.

Some signal words for classification are the following:

1. The word and which is often used with letters and numerals.
2. Verbs such as classified, divided, is composed of, consists of, etc;
3. Nouns which are often used with numbers and/or quantity words.

Example: There are two types ...

There are several classes...

4. There is/there are... e.g. There are two different types of people.

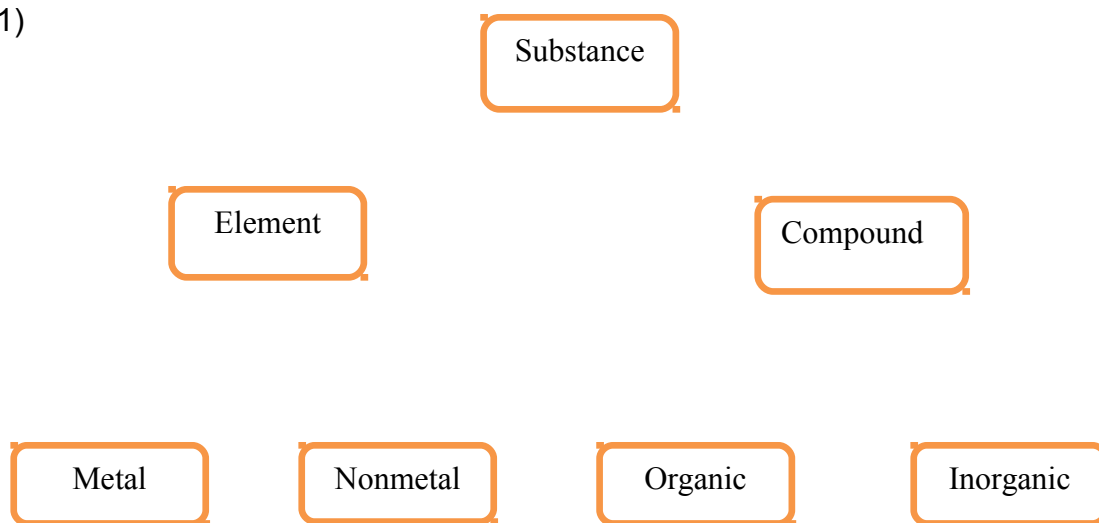
5. Adjectives (e.g. first, second, another) and conjunctive adverbs (e.g. finally, then, in addition).

6. Implied parallel structures of kinds, types, classes, categories.

2. Guided Writing: Writing Classification Paragraph

Using classification chart and the outline below, write one paragraph on the particular concept. Your first sentence must follow the introductory sentence or classification you learned earlier.

1)



Paragraph: _____

2) Mixtures

I. Homogeneous – with only one phase

A. Solution

1. clean air
2. salt and water
3. jewelry

II. Heterogeneous – with more than one phase

A. Colloid

1. gelatin
2. ice cream
3. condensed milk

B. Suspension

1. fruit salad
2. juice with ice cubes
3. vinegar with hot pepper

Paragraph: _____

II. Collective Nouns and Other Special Subjects

It is difficult to tell whether certain special subjects are singular or plural. Collective nouns follow some special subject – verb agreement rules.

- A collective noun that is singular in form requires a singular verb if the person or things named by the noun are acting or being considered as a single unit. Examples: group, team, committee, class, family, audience, jury, crew, etc.

The *group* has submitted its write-up.

The *class* consists of twelve men and eighteen women.

- When the person or things named by a collective noun that is singular in form are acting or being considered as individuals rather than a single unit, use a plural verb.

The *group* have been arguing among themselves.

The *class* are wearing their new uniforms.

- *A Number* and *The Number* as Subjects

When preceded by *the*, the subject *number* requires a *singular verb*, but when preceded by *a*, the subject *number* requires a *plural verb*.

The number of students exceeds the required enrolment.
A number of students were caught cheating.

- *Quantities, Amounts, and Measurements* as Subjects

A subject that expresses a quantity, an amount, or a measurement – whether expressed in figures or words – is *singular* and requires a *singular verb*.

Thirty minutes is long enough for us to wait for the teacher.
 I think that *11 feet and 3 inches* is the correct width of this room.

However, when the subject refers to the separate parts of the amount, weight, or measurement, the *subject is plural* and requires a *plural verb*.

1. *Three days* have passed since our last experiment.
2. *Ten liters of hydrochloric acid* were bought at P145.00 each.

When a fraction is the subject, use a *singular verb* if the prepositional phrase following the fraction contains a *singular noun*, but use a *plural verb* if the verb phrase contains a *plural noun*.

Only *two-thirds* of the room *was painted*.
 A *fourth* of the reagents *were contaminated* during the experiment.
One-third of the containers *have* dents in them.
 Part of the laboratory manual *remains* to be read.

Subjects Followed by *As Well As* and Similar Expressions

As well as, *in addition to*, *including*, *together with*, *accompanied by*, or similar expressions following a subject has no bearing on whether the subject is singular or plural. The verb must agree with the subject itself.

1. The original *copy*, as well as the photocopies, *requires* your signature.
2. The group *secretaries*, in addition to the group leaders, *plan* to attend the meeting.

Nouns Plural in Form but Singular in Meaning

A noun subject that is plural in form but singular in meaning requires a singular verb. A few nouns of this type have the appearance of plural: *news*, *electronics*, *civics*, *politics*, *mathematics*, *physics*, *athletics*, *gymnastics*, *dramatics*, *aerobics*, *acoustics*, *measles*, *mumps*, *statistics*, *economics*, *genetics*, etc.

- **Nouns That Are Always Plural**

The *news* usually *includes* coverage in sports and the weather.

Grand Rapids *is* her hometown.

Better Homes and Gardens *carries* many interesting and helpful articles.

A noun subject that is always plural requires a plural verb. Some of these nouns are: *pliers*, *scissors*, *shears*, *tweezers*, *trousers*, *pants*, *slacks*, *jeans*, *shorts*, *clothes*, *glasses*, *goggles*, *thanks*, *proceeds*, *riches*, *wages*, *winnings*, *remains*, *ashes*, *goods*, *refreshments*, *headquarters*, etc.

1. Protective *goggles* are worn during laboratory work.
2. *Ashes* remain in the crucible when the sample is placed in the furnace.

III. Indefinite Pronouns as Subjects

An indefinite pronoun is a pronoun that does not refer to a specific person, place, or thing.

- Some indefinite pronouns are singular. Others are plural. When they are used as subjects, the verb must agree in number with these indefinite pronouns. Study the indefinite pronouns in the chart below.

Indefinite Pronouns

Singular				Plural
another	either	nobody	something	both
each	neither	no one	anybody	few
much	everybody	nothing	anyone	many
one	everyone	somebody	anything	others
	everything	someone		

- Some indefinite pronouns may be singular or plural depending on the phrase that follows. They include: *all*, *any*, *most*, *none*, and *some*. Notice how indefinite pronouns are used below:

Everyone admires the new Chemistry teacher.

Many of the laboratory glass wares are Pyrex.

Most of the beauty is in front of the room.

- Often a prepositional phrase follows an indefinite pronoun that can be either singular or plural. To determine whether the pronoun is singular, look at the object of the preposition.

For example, in the third sentence above, *most refers to the beauty*. Because *beauty is singular*, *most* is singular. In the fourth sentence, *most refers to the classrooms*. Because *classrooms is plural*, *most* is plural.

Exercises: Identifying the correct verb forms

Directions: In each of the following sentences, underline whichever word in parentheses is correct.

1. None of the job openings (has, have) been filled yet.
2. Some of the butter (taste, tastes) sour.
3. Few (like, likes) the proposal.
4. Jenny, together with her sisters, (was, were) planning to go to Baguio)
5. Trouts (swim, swims) upstream to spawn.
6. All of his patience (is, are) gone.
7. The Manila Times (include, includes) literary articles.
8. Mario, as well as his friends, (agree, agrees) with you.
9. Civics (was, were) an interesting subject for many of us.

10. Most of the vegetables (is, are) grown locally.

Basic Communication and Thinking Skills
Atienza, Leticia P.

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Bascara, Linda R., et al.

Functional Text in English: Focusing on Study and Thinking Skills and Effective
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Pablo, Eracem A.

: Excerpts by Melba F. Mallorca-Madeja

Hand-Outs #6

CLASSROOM MANAGEMENT

Classroom Management and Discipline

In order to teach, one must be able to manage the students. No matter how much potential one has as a teacher, if one is unable to control the students in a classroom, little learning will take place.

The approaches advocate having clear and well-communicated rules; the firmer approaches expect the teacher to assert more power and authority with the students.

I. Approaches to Classroom Management

A. Assertive Approach

The teacher takes charge of the classroom, sets the ground rules, and interacts with students in a calm and yet forceful way. The teacher combines clear expectations, active response to misbehavior, and consistent follow-through with warmth and support for all students. This technique assumes that firm classroom management liberates the students because it allows them to develop their traits, skills, and abilities and provides them with psychological security in the classroom, and an effective learning environment.

Suggestions for teachers applying assertive discipline:

1. Clearly identify expectations.
2. Take positions. Say, "I like that" or "I don't like that."
3. Use a firm tone of voice.
4. Use eye contact, gestures, and touch to supplement verbal messages.
5. Say "no" without guilt feelings.
6. Give and receive compliments genuinely.
7. Place demands on students and enforce them.
8. Set limits on students and enforce them.
9. Indicate consequences of behavior and why specific action is necessary.
10. Be calm and consistent, avoid emotions or threats.
11. Follow through regularly.
12. Persist, enforce minimum rules, do not give up.

13. Establish positive expectations for student behavior, eliminate negative expectations about the students.
14. Gain confidence and skills in working with chronic behavior problems in the classroom.

B. Business Academic Approach

This approach emphasizes the organization and management of the students as they engage in academic work. Task orientation that focuses on the business-like and orderly accomplishment of academic work leads to a clear set of procedures for the students and the teacher to follow.

Three (3) major categories include:

1. Clear communication of assignment and work requirement.
2. Monitoring student work helps the teacher to detect the students who are having deficiency and to encourage the students to keep working.
3. Feedback to student is important to enhance academic monitoring and managerial procedure.

This approach involves a high degree of “time on task” and ‘academic engaged time’ for students. The idea is that when the students are working on their tasks, there is little opportunity for discipline problems to arise. The teacher organizes the students’ work, keeps them on tasks, monitors their work, gives them feedback, and holds them accountable by providing rewards and penalties.

C. Behavioral Modification Approach

This approach involves varied techniques and methods, ranging from simple rewards to elaborate reinforcement training. Behaviorists assume that behavior is shaped by environment and pay little attention to causes of the problems. The basic principles of this approach are:

- Behavior is shaped by its consequences, not by the causes of problems in the history of the individual or by group conditions.
- Behavior is strengthened by immediate reinforcers. Positive reinforcers are praise or rewards. Negative reinforcers take away or stop something that the student does not like.
- Behavior is strengthened by systematic reinforcement (positive and negative). Behavior is weakened if not allowed by reinforcement.
- Students respond better to positive reinforcers than they do to punishment (aversive stimuli). Punishment can be used sparingly to reduce inappropriate behavior.
- When a student is not rewarded for appropriate or adaptive behavior, it may become increasingly dominant and will be utilized to obtain reinforcement.
- Constant reinforcement of a behavior every time it occurs produces the best results.
- Once the behavior has been learned, it is best maintained through intermittent reinforcement (the reinforcement of a behavior only occasionally).

- Intermittent reinforcement schedules include: (a) variable ratio; supplying reinforcement at unpredictable intervals; (b) fixed ratio, supplying reinforcement after a preselected number of responses; and (c) fixed interval.
- There are several types of reinforcers each of which may be positive or aversive.
- Rules are established and enforced.

Models are effective in modifying behavior to the degree that they capture attention, and are imitated. Effective models may be parents, relatives, teachers, and other adults. Building good discipline includes the following:

1. *Demonstration expected behavior* – Explaining to the students what they see and hear.
2. *Attention* – The degree of attention correlates with the characteristics of the student.
3. *Practice* – The students are given opportunity to practice the appropriate behavior.
4. *Corrective feedback* – Appropriate behavior is reinforced; inappropriate behavior is suppressed and corrected.
5. *Application* – The students are able to apply their learning in classroom activities (role-playing, modelling activities) and other real-life situations.

D. Group Managerial Approach

This approach emphasizes the importance of responding immediately to group of student behavior that are inappropriate or undesirable to prevent problems rather than dealing with them when they emerge. The major categories of student behavior are “*work involvement*” and “*deviancy*.” The major categories of teacher behavior are “*desist management techniques*,” “*movement management*,” and “*group focus*.”

Work Involvement – The amount of time the students spend while engaged in assigned academic work. It closely resembles what other research call “time on task” or “academic engage time.”

Deviancy ranges from no misbehavior to serious misbehavior. No misbehavior means the student is not purposefully but nevertheless upsetting another student or teacher or is slightly off task. Serious misbehavior is aggressive or harmful behavior that interferes with others or violates the school or social code.

Desist Management Techniques are the teacher’s actions taken to stop misbehavior. There are two abilities: (1) “With-it-ness” is the ability to react on target, (react to the proper student). It involves communicating to students that one knows what is happening. (2) “Overlapping” refers to the teacher’s ability to handle more than one matter at a time. He or she can attend to more than one student at the same time, for example, as student who is reciting and another student who is interrupting with a question or comment.

Movement Management is the organization of behavior in transition from task to task within and between lessons. Movement may be characterized as smooth or jerky. *Smoothness* is an even and calm flow of activities. *Jerkiness* is the disorderly flow of activities. Movement management also involves momentum that is keeping activities at an appropriate pace.

Group Focus is keeping the students focused on the group activity or task. It can be achieved by alerting. Alerting activities include creating suspense, presenting new material, choosing reciters randomly, and selecting reciters. Using accountability can also help achieve the group focus.

E. Group Guidance Approach

This approach is based on manipulating or changing the surface behavior of the student on the group basis. Discipline and classroom control are produced through the group atmosphere and enhanced through group rapport. There are three causes of disciplinary problems:

1. *Individual case history* – The problem is related to the psychological disturbances of the child. Disruptive behavior in class is part of the child's larger emotional problem. The surface problems are repetitive.

2. *Group condition* – The problem reflects unfavorable conditions in the group. It is easier to resolve than a problem produced by case history.
3. *Mixture of the individual and group causes* – The problem centers around an individual, but triggered by something in the group. A remedy must consider both elements.

To maintain good discipline, the teacher must understand the group, its needs and interests, and be able to manipulate the surface behavior of the group.

Group elements to be considered include the following: (1) Dissatisfaction with classroom; (2) Poor interpersonal relations; (3) Disturbances in group climate; (4) Poor group organizations; and (5) Sudden changes and group emotions.

Boredom is one of the major causes of disciplinary problems, and it leads to withdrawal, frustration, and irritability, or aggressive rejection of the entire group on the part of the students.

One of the most difficult managerial tasks for the teacher is dealing with a hostile or aggressive group. Such a classroom group subtly and overtly defies the teacher and disrupts instructional activities. Among the symptoms that reveal this condition are: (1) Continual talking, lack of attention when instructional tasks are presented; (2) Constant disruption that interferes with teaching; (3) Overall non-conformity to classroom rules or school practices; (4) Overt challenges and refusal to obey; and (5) Group solidarity in resisting the teacher's effort

The problem can be traced to the student's attitude toward authority and has a little to do with the teacher. Here, the teacher must be able to change the student's feelings of hostility to trust and confidence.

F. Acceptance Approach

This approach is rooted in humanistic psychology and maintains that every person has a prime need for acceptance. The acceptance approach is based on the democratic model of teaching in which a teacher provides leadership by establishing rules and consequences, but at the same time allows students to participate in decision and to make choices.

People try all kinds of behavior to get status and recognition. If they are not successful in receiving recognition through socially acceptable methods, then they will turn to mistaken goals that result in antisocial behavior. There are four mistaken goals. (1) attention getting; (2) power seeking; (3) revenge seeking; and (4) withdrawal

Summary:

1. If the students stop the behavior and then repeat it, their goal is getting attention.
2. If the students refuse to stop or increase misbehavior, their goal is power seeking.
3. If the students become hostile or violent, their goal is getting revenge.

4. If the students refuse to cooperate or participate, their goal is withdrawal.

After the teachers identify the mistaken goals, they need to confront the students with an explanation of what they are doing.

G. Success Approach

Like the acceptance approach, this approach is rooted in humanistic psychology and the democratic model of teaching. However, it deals with general psychology and social conditions. William Glasser calls this reality therapy. He insists that although teachers do not excuse bad behavior on the part of the students, they need to change whatever negative classroom behavior exists and improve conditions so they lead to the student success.

Behavior is a matter of choice. Good behavior results from good choice, bad behavior results from bad choice. A teacher's job is to help the students make good choices. Students make choices according to whether they see the result of those choices as desirable. If bad behavior gets them what they want, they will make bad choices. The road to positive self worth and success begins on a good relationship with people who care. For some students, school may be the only place where they meet people who genuinely care for them.

Suggestions for teachers:

- *Stress students' responsibility for their own behavior continually* – Since good behavior comes from good choices, their responsibility for their choices and behavior must be explored and clarified on a regular basis.

- *Established rules* – Rules are essential, but they should be established and agreed upon early in the term by the teacher and student. It should facilitate group achievement and group morale. It can be evaluated and changed, but as long as they are retained, they must be enforced.
- *Accept no excuses* – The teacher should not accept excuses for inappropriate behavior as long as the student is able to distinguish between right from wrong.
- *Utilize value judgments* – When the students exhibit inappropriate behavior, the teacher should call on them to make value judgment about their behavior.
- *Suggest suitable alternatives* – The students should make the choice, one reinforcing their responsibility.
- *Enforce reasonable consequences* - The consequence of the behavior should not be erratic, emotional, sarcastic, or physically punishing.
- *Be persistent* – The teacher must always help the students make choices and have them make value judgments about bad choices.
- *Continually review* – Topics and issues relevant to these procedures should be discussed and developed during a classroom meeting separate from academic activities.

Teachers must be supportive and meet with the students involved in making rules, making commitment to the rules, and enforcing them. School must be a friendly, warm place, especially for students who have previously experienced failure in school. Student misbehavior is often intertwined with academic problems.

To correct an academic problem, the student, teacher, and school must make a specific commitment to overcome the problem. Solutions to the problem of discipline and achievement are related and based primarily on making students feel that someone listens to them, thinks about them, and feels they are important.

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II. Classroom Routine

Classroom management is a means of establishing a routine that enables effective learning to move smoothly and prevent unnecessary discipline problems by students. Routine is a regular procedure or a normal practice that is to be followed. It is a schedule of activities that is mostly time-paced and is attuned to the lesson objectives. Following routine efficiently contributes to a good classroom management. Hence, classroom procedures should be systematic and orderly.

The advantages of sticking to a routine are as follows:

1. It helps in accomplishing everything that is planned.
2. It serves as a guide in controlling behavior.
3. The students feel secure since they know every step in the procedure.
4. It builds a teacher's confidence in following a well-planned procedure.
5. It prevents classroom disruptions.

In line with classroom routine/procedure, the following guideposts for teachers are suggested:

1. Structure the discussion by posing a specific question, by presenting a provocative mime, or by asking students to choose topics or subtopics.
2. Consider asking all students to spend three to five minutes or so, individually writing out their initial reactions to the topic before the being to share ideas.
3. Make use of advance organizer to introduce what is expected to be learned for the particular period.
4. Observe appropriate time scheduling for various activities.

Good time management is the key to a smooth flow of planned activities. Proper timing could sustain motivation and interest, resulting in students' active involvement in all class undertakings. The following are some reminders for effective use of time as follows:

1. Schedule all activities with corresponding time allotment way ahead of time. Early precautions could avoid haste and confusion.
2. Provide enough time for everything you expect to happen. Economy in time planning is learned from experience.
3. Avoid rushing since you know you have carefully allotted required time for every activity. Quality may suffer.
4. Be flexible with time assignments. If students are observed to be very interested and eager to continue working, allow a little more time for them to complete and achieve the objectives with satisfaction.
5. Set the example by showing that you are time conscious. They will develop the same precision regarding time utilization.

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Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions drawn, and recommendations advanced by the researcher based on the findings of the study.

Summary

This study assessed the teaching competencies of college chemistry faculty in Romblon State University. The best predictors of the teaching competencies of college chemistry faculty were also determined. Finally, based on the result of the study, a faculty development program was proposed to enhance the teaching competencies of college chemistry faculty. It was conducted during the school year 2010-2011 at Romblon State University and involved a total of three hundred three (303) participants.

Data needed in this study were gathered mainly through questionnaires which were developed and adopted based from existing professional literature on teaching competencies. The indicators were rated on a 5-point Likert scale where 1 means *never manifested* through 5 which means *always manifested*. Likewise, the

Total Quality Standard (TQS) was utilized. The data gathered were processed using Statistical Package for Social Sciences (SPSS). Both descriptive statistics (mean, percentage and rank) and inferential statistics (One-Way ANOVA and Multiple Linear Regression Analysis) were used to analyze and interpret the data. The two-tailed hypotheses were tested at 0.05 level of significance.

Findings of the Study

- The educational preparation of the chemistry faculty are as follows: eight (8) teachers or 61.5% are bachelor's degree holders with master's units and they are Science majors. However, only two (2) teachers or 15.4% are Chemistry majors.
- As to their professional experience, seven (7) teachers or 53.8% have been teaching chemistry for twenty-one (21) years or more; six (6) teachers or 46.2% have two (2) eligibilities; seven (7) teachers or 53.8% are members of only one (1) organization; that is Romblon State University Faculty Association (ROSUFA); seven (7) teachers or 53.8% also have not attended any seminar, workshop or conference related to chemistry teaching for the past five (5) years; and six (6) teachers or 46.2% have attended 1 - 5 seminars, workshops or conferences since they started teaching.
- As to their physiological status, they *frequently manifest* healthy lifestyle; As to their psychological status, they *frequently manifest* spirituality; They

always manifest good values; They *frequently manifest* emotional intelligence; and They *occasionally manifest* information technology skills.

- Based on the mean perceptions of the four (4) groups of participants, the various indicators for each group of teaching competencies: communication competence, curriculum expertise, instructional organization and planning, classroom management, assessment of student learning and laboratory competence were *frequently manifested* with communication competence having the highest mean scores and laboratory competence the lowest.
- The strengths of the college chemistry faculty include assessment of student learning, "*gives fair grading system*" (4.56); and communication competence, "*clarifies topic when it is not understood*" (4.55). These two components/indicators attained the Total Quality Standard (TQS).
- There is *no significant difference* between and among the perceptions of the four (4) groups of participants on the level of teaching competencies of the chemistry faculty as reflected by the p-values which are all greater than 0.05.
- Except for values and teaching experience, all of the predictors included in this study significantly affect the level of teaching competencies of the chemistry faculty.

- Findings obtained from the study served as basis for a Proposed Faculty Development Program designed to enhance the teaching competencies of college chemistry faculty.

Conclusions

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

- Majority of the chemistry faculty are bachelor's degree holders with master's units and are Science majors; they have been teaching chemistry for twenty-one (21) years or more; they are members of only one (1) organization; that is Romblon State University Faculty Association (ROSUFA); and they have not attended any seminar, workshop or conference related to chemistry teaching for the past five (5) years.
- The chemistry faculty *frequently manifest* healthy lifestyle; they *frequently manifest* spirituality; they *always manifest* good values; they *frequently manifest* emotional intelligence, and they *occasionally manifest* information technology skills.
- The various indicators for each group of teaching competencies: communication competence, curriculum expertise, instructional organization and planning, classroom management, assessment of student learning and laboratory competence are *frequently manifested* by the chemistry faculty.

- The strengths of the college chemistry faculty include assessment of student learning, *“gives fair grading system”* and communication competence, *“clarifies topic when it is not understood”*.
- There is no significant difference between and among the perceptions of the four (4) groups of participants on the level of teaching competencies of the chemistry faculty. Hence, the null hypothesis is accepted.
- The best predictors of teaching competencies include membership in professional organizations, spirituality, emotional intelligence, psychological status, and information technology skills.

Recommendations

In the light of the findings of the study, the following are recommended:

- The chemistry faculty should exert greater efforts on the enhancement of their identified weaknesses on the teaching competencies such as: directing students to use the electronic sources for additional information (curriculum expertise); developing higher levels of laboratory competence; providing activities for remediation, reinforcement, and enrichment of the lessons (instructional organization and planning); conducting authentic assessment techniques such as performance tests and observation of behavior (assessment of student learning); observing systematic and orderly presentation of ideas in speech and in writing (communication competence);

and establishing supportive and cooperative classroom atmosphere (classroom management).

- The college deans/campus directors should see to it that their respective colleges/campuses have a well equipped chemistry laboratory.
- Advise the chemistry faculty to continue upgrading themselves through continuous education, joining professional organizations, and attending seminars, conferences and trainings relevant to chemistry teaching.
- The chemistry faculty should do their best to become computer literate and use information technology in chemistry teaching.
- The University should adopt the proposed faculty development program to have highly competent chemistry faculty.
- Besides education, experience, training, and eligibility, the Faculty Selection Board of the University should consider the following in recruiting and appointing its teachers to have highly competent faculty members: physical health, membership in professional organizations, information technology skills, spirituality, and emotional intelligence.
- Implement CHED policy in recruiting faculty who are majors in the field they are teaching.

- A similar study should be conducted and in so doing, the following may be observed:
 - Conduct a study in other subject areas and use the result as basis for enhancing the teaching competencies of the faculty;
 - Use other variables such as field of specialization in baccalaureate degree, personality traits, and self-efficacy;
 - Conduct in other divisions /schools /colleges /universities by validating further the instruments used in this study.

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Tadeo, Roderick A. "Human Relations Practices and Leadership Behavior of Secondary School Heads, Basis for a Management Enhancement Program." Diss. Philippine Normal U, 2009.

Taylan, Venus P. "Self-Concept and Teaching Competencies of Secondary PEHM Teachers." Diss. Mariano Marcos State U, 1998.

Valencia, Luzviminda. "Work Values of Filipino Teachers in Three Levels of Formal Educational System in Metro Manila: An Analysis." Diss. University of the Philippines, 1999.

Vercruz, Rosita E. "An Analysis and Identification of the Science Process Skills in Printed Chemistry Resource Materials Using IICPS." Master's Thesis. Philippine Normal U, 2004.

Vongyuttakrai, P. "Professionalism and Faculty Members of a State University: Its Determinants and Relationship to Faculty Performance." Diss. UP, 1999

D. ELECTRONIC SOURCES/WEBSITES

On Classroom Management:

http://en.wikipedia.org/wiki/Classroom_management

http://www.answers.com/topic/classroom_management

<http://www.intime.uni.edu/model/teacher/teach3summary.htm>

<http://www.4faculty.org/includes/108r2.jsp>

On Curriculum Expertise:

http://www.wested.org/tal/five_film_categories/CURRICULUM/curriculum-implementation.html

<http://www.abiva.com.ph/emags/powerful-tools-and-bright-ideas.html>

<http://www.ericdigests.org/pre921htm>

On Emotional Intelligence:

http://en.wikipedia.org/wiki/Emotional_intelligence

<http://www.businessballs.com/eq.htm>

<http://www.amazon.com/Emotional-Intelligence-MatterMoreThan/dp/0553375067>

On Personality Traits:

http://en.wikipedia.org/wiki/Trait_theory

<http://www.sciencedaily.com/releases/2008/03/080304103308.htm>

<http://www.sciencedaily.com/releases/2007/11/071129145852.htm>

<http://www.emotionalcompetency.com/personality%20traits.htm>

On Teaching Competencies:

<http://ozpk.tripod.com/0000CTC>

<http://ozpk.tripod.com/0000CTC>

On Teacher's Technology Competencies:

<http://www.ariadne.ac.uk/issue5/cti>

On Teaching in Higher Education Competency Portfolio:

<http://www.cfkeep.org/html/snapshot.php?id=59355386>

On Management Development Program:

http://www.managementhelp.org/mng_thry/mng_thry.htm

http://managementhelp.org/mgmt_dev/mgmt_dev.htm#anchor1578094

http://www.managementhelp.org/trng_dev/trng_pln.htm

On Chemistry Faculty Recruitment Program:

<http://beckman.stanford.edu/programs/faculty.html>

<http://chemistryjobs.acs.org/jobs/3764441/organic-chemistry-faculty-position>

<http://www.cm.utexas.edu/giving>

<http://www.nature.com/naturejobs/science/jobs/167397-Faculty-Recruitment-Program>

APPENDICES

Appendix A

Letter to Validators

PHILIPPINE NORMAL UNIVERSITY
Taft Avenue, Manila

February 19, 2010

SIR/MADAM:

Greetings!

I am **Melba M. Madeja**, an Assistant Professor of RSU-San Andres Campus and a student taking up Doctor of Philosophy major in Educational Management at Philippine Normal University under RSU-PNU Consortium Program. I am currently on the preliminary stage of conducting my dissertation entitled “**Assessment of Teaching Competencies of College Chemistry Faculty: Input to Management Development and Recruitment Program.**”

In this regard, may I request for your kind assistance and support in validating the attached instrument. Considering your wide experience and expertise in the field of education, I firmly believe that your positive response in giving your honest evaluation of the questionnaire will help the researcher come up with a much better and improved research instrument.

Attached herewith is the **statement of the problem** for your ready reference..

Thank you very much and more power!

Very truly yours,

MELBA M. MADEJA
Researcher

Statement of the Problem

The main purpose of the study is to assess the factors and predictors of the teaching competencies of college chemistry faculty in Romblon State University.

Specifically, the study sought to answer the following questions:

1. What is the profile of the college chemistry faculty in terms of the following?

1.1 Educational Preparation:

- 1.1.1 Highest Educational Attainment
- 1.1.2 Field of Specialization

1.2. Professional Experience:

- 1.2.1 Years of Teaching Experience
- 1.2.2 Work Eligibility
- 1.2.3 Membership in Professional Organization

- 1.2.4 Number of Seminars Attended
 - 1.2.4.1 For the Past Five (5) Years
 - 1.2.4.2 From Start of Teaching Up to the Present

1.3 Physiological/Health Status

- 1.4 Psychological Status
 - 1.4.1 Spirituality
 - 1.4.2 Values
 - 1.4.3 Emotional Intelligence

1.5 Information Technology Skills

2. What is the level of the teaching competencies of college chemistry faculty as perceived by themselves, their students, their supervisors and other science faculty in terms of the following?

- 2.1 Communication Competence
- 2.2 Curriculum Expertise
- 2.3 Instructional Organization and Planning
- 2.4 Classroom Management
- 2.5 Assessment of Student Learning
- 2.6 Laboratory Competence
 - 2.6.1 Laboratory Safety
 - 2.6.2 Laboratory Skills/Techniques

3. What are the strengths and weaknesses of college chemistry faculty as perceived by themselves, their students, other science faculty, and supervisors in terms of the above competencies?

4. Is there a significant difference between and among the perception of the four groups of participants on the level of teaching competencies of the college chemistry faculty?

5. What are the best predictors of the teaching competencies of college chemistry faculty?

6. Based on the findings of the study, what management development and recruitment programs could be proposed to enhance the teaching competencies of college chemistry faculty?

Appendix B

Summarized Comments/Suggestions of Experts on the Instrument

INDICATORS	Very Appli cable	Appli cable	Needs Revis ion	Comments/Suggestions
PART I – DEMOGRAPHIC PROFILE				
PART II – PREDICTOR VARIABLES				
A. EDUCATIONAL PREPARATION				Add: “Others, please specify” in Degree Earned
B. PROFESSIONAL EXPERIENCE				
C. PHYSIOLOGICAL STATUS				Deal on professional appearance

1.Observes cleanliness and neatness at all times. 2.Indulges in regular physical fitness program. 3.Refrains from such vices as cigarette smoking and drinking alcoholic beverages. 4.Can tolerate dusts, vapors, and strong odors. 5.Exercises moderation in one's eating habits 6.Is always well-dressed with firm built.	9 7 8 7 6 8	1 3 2 3 3 1	1 1	to show that the faculty is physically fit. The importance of cleanliness and neatness should be shown. Add: Chooses fruits and vegetables over meat served on the table; Prefers outdoor activity during spare time; Reads nutritional information on labels of food products.
D. PSYCHOLOGICAL STATUS				It would be better if observable indicators be included.
D1. Spirituality 1.Begins and ends classes with a prayer. 2.Attends church activities regularly. 3.Is ever ready to help those who are in need. 4.Manifests faith in God at all times. 5.Is not judgmental to others especially to students. 6.Shows a happy disposition even in unfavorable Situation.	7 6 8 7 7 7	2 3 1 2 2 2	1 1 1 1 1 1	Omit: "ever" (#3); Avoid using negative word like "not" (#5); Change: "happy" to "positive" (#6). The external evaluator may not be in good position to tell this (#4). Add: Offers prayer to the sick and to those who have problems.
D2. Values				
D2a. Truth and Honesty 1.Is an example to students with regards to decorum and values. 2.Comes to school promptly and regularly. 3.Fills up one's daily time record honestly. 4.Avoids giving false impression to another person. 5.Practices social justice. 6.Teaches within the bounds of truth/honesty.	6 7 8 7 7 8	4 3 2 3 3 3		It would be better if a real or more specific situation be given. Change: "Is" to "Sets" (#1). Add: Is strictly honest in his/her public dealings.
D2b. Love and Goodness 1.Assists slow learners beyond the call of duty. 2.Makes one's self available for consultation and mentoring. 3.Manifests love, care and concern for all people he/she works with. 4.Is open to give advice to anybody who comes to him/her. 5.Is considerate and kind to everyone without prejudice. 6.Helps those who are in need regardless of family affiliation.	10 9 7 9 8 7	1 3 1 1 1 2	1 1	Use realistic situation. Change: "comes to him/her" to "seeks for help" (#4). Add: Controls anger and bad temper.
D2c. Peace and Justice 1.Shows courtesy and respect to superiors and other constituted authorities 2.Treats everybody fairly. 3.Develops strategies for students to appreciate being peaceful and fair 4.Treats all students equally regardless of their socio-economic background.	8 7 7 8	2 3 3 2		Please relate all indicators to how a chemistry faculty should manifest peace and justice to students and co-workers. Change "so that" to "for" and "will" to "to" (#3).

5.Checks any observed misconduct done by a student against somebody in a peaceful manner	8	2		Change “Checks” to “Reprimands” (#5).
6.Can relate well with the members of the academe and administrative community.	7	3		Add: Respects the human fundamental freedom.
D2d. Sustainable Human Development				
1.Finds joy and contentment in his job.	7	3		Though relevant, these are much more on utilization of resources. Add: Is against legal gambling as a means to improve one’s economic status.
2.Lives a simple lifestyle.	7	3		
3.Uses materials and other resources prudently and wisely.	7	3		
4.Does his/her part in protecting and enhancing the quality of the environment.	7	3		
5.Practices thrift and economy in spending money	7	3		
6.Participates in environment protection and conservation activities	6	4		
D2e. Nationalism and Globalism				
1.Ties up lessons with current national situation problems and thrusts.	9	1		Add: Patronizes local products and talents to help our country progress.
2.Participates in the observance of significant national celebrations and events.	7	3		
3.Provides situational problems related to national development in his/her teaching.	9	1		
4.Favors science and technology transfer/exchange.	9	1		
5.Keeps informed of the global trend especially in technology.	7	3		
6.Strives for global competitiveness in terms of instruction, innovation, and application.	8	2		
D3. Emotional Intelligence (Taken from Petrides and Furnham TEIQue)				
E. TECHNOLOGICAL COMPETENCE				
1.Uses related information in the computer.	8	2		Change: “Technological Competence” to “Information Technology Skills”. Add: Uses spreadsheets in doing calculations.
2.Presents the lesson by using power point.	8	2		
3.Accesses information on CD-ROM, floppy drive, and hard drive.	8	2		
4.Creates, edits, and prints various types of documents.	8	2		
5.Accesses to internet, website and the like.	9	1		
6.Transfers/sends files to fast drives/hard drives.	9	1		
PART III – CRITERION VARIABLES (TEACHING COMPETENCIES)				
A.COMMUNICATION COMPETENCE				
1.Speaks in clear, pleasant, and well-modulated voice.	8	1	1	“Lump” into one related statements. Add: Asks questions which develop analytical and critical thinking.
2.Observes correct grammar both oral and written.	8	1	1	
3.Observes systematic and orderly presentation of ideas in speech and in writing.	8	1	1	
4.Explains clearly the content/details of the lesson.	9		1	
5.Uses examples/illustrations to help clarify topics.	9		1	
6.Clarifies topic when it is not understood.	9		1	
B.CURRICULUM EXPERTISE				
1.Demonstrates excellent mastery of subject matter.	10			Change: “Is updated” to “Updates one’s self” (#4). Relate the technological
2.Teaches topics which are consistent with the course prescription in the syllabus.	10			
3.Helps students to relate subject matter concepts to				

past lessons and their own lives.	10				
4.Is updated with current technologies in the field of chemistry.	9	1			
5.Cites current and relevant information to enrich information in textbooks/hand-outs.	10				
6.Serves as consultant/expert in the field of chemistry.	10				competence to teaching competence. Example: Direct students to use the electronic sources for additional information.
C.ORGANIZATION AND PLANNING					
1.Organizes subject matter in course syllabi/outline form.	8	2			
2.Shows that there is considerable agreement between announced objectives and what is actually taught.	6	4			Change: “in” to “consistent with”; and Delete: “form” (#1).
3.Presents the lesson in clear, logical, and organized manner.	6	4			
4.Sequences instruction to help students see relationships and connections across subject matter areas.	9	1			Add: Uses a variety of techniques and strategies to make the lesson interesting.
5.Assists students in summarizing or emphasizing major points in the lesson.	10				
6.Provides activities for remediation, reinforcement, and enrichment.	8	2			
D.CLASSROOM MANAGEMENT					
1.Starts and ends classes on time.	10				
2.Adopts a system of peaceful and orderly conduct of classroom routine and other activities.	9	1			Change: “system of” to “systematic” (#2).
3.States classroom rules clearly and explicitly to prevent disciplinary problems.	10				
4.Establishes supportive and cooperative classroom atmosphere.	10				Add: Maintains professional role while being friendly.
5.Enhances students’ self-esteem through proper recognition of their performance.	10				
6.Maintains order and discipline among students.	10				
E.ASSESSMENT OF STUDENT LEARNING					
1.Informs students the basis of evaluation.	9	1			Include statements on the use of authentic assessment.
2.Uses valid and reliable techniques and methods in evaluating student achievement.	8	1			
3.Demonstrates fair grading system.	9	1	1		Insert: “varied” between “Uses” and “valid”; Change: “techniques and methods” to “assessment strategies”; Change: “achievement” to “performance” (#2)
4.Adheres to academic policies regarding examination schedules and grading system.	9	1			
5.Returns test papers of students within reasonable time.	10				
6.Uses test results to improve instruction.	10				Change: “Demonstrates” to “Gives” (#3).
F.LABORATORY COMPETENCE					
F1.Laboratory Safety					Change: “Sees to it” to “Ensures” (#1).
1.Sees to it that the laboratory is clean and orderly.	10				Insert: “are allowed to” between “students” and “perform” (#2).
2.Conducts pre-lab discussion before students perform experiments.	8	2			
3.Sees to it that students observe proper disposal of solid and liquid chemicals.	9	1			Change: “Sees to it” to “Ensures”; Insert: “and practice” between “observe” and “proper” (#3).
4.Requires each group to have a sand box ready to smother small fires.	8	1	1		Revise into “Teaches students to

5.Has first aid kit ready in case of accidents. 6.Instructs students to report any accident no matter how minor.	9	1		observe precautionary measures” (#4).
	7	2	1	Change: “Has” to Ensures that”; “ready” to “is always available” (#5). Revise into “Prepares students to proactively respond to accident or any untoward incident” (#6). Add: Instructs students to wear gloves and protective eyeglasses when performing laboratory activities.
F2.Laboratory Skills/Techniques				
1.Ensures proper handling of apparatus and supplies.	9		1	Make a statement on conservation of energy and water in the laboratory.
2.Demonstrates skills in measuring volumes of liquid.	9		1	
3.Observes proper techniques in handling substances.	8	1	1	
4.Demonstrates skills in using weighing scales.	9		1	
5.Observes proper techniques in determining odors of substances.	9		1	
6.Improvises laboratory apparatus/ equipment.	8	1	1	

Appendix C

List of Experts Who Validated the Instrument And Their Profile

			Post-	
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Name	Profession	Institution	Graduate Degree	University Graduated
MARILYN U. BALAGTAS	Head, Elem.Educ. Dept	PNU-Manila	Doctor of Philosophy in Research and Evaluation	University of the Philippines-Diliman
EDEN EVANGELISTA	Head, Biology Dept.	PNU-Manila	Doctor of Philosophy in Science Education	De La Salle University
ALICE F. FOJA	Vice President for Academic Affairs	Romblon State University	Doctor of Philosophy in Extension Development.	University of the Philippines-Los Banos
IDELLA G. FORMILLEZA	Former College President	Romblon State University	Doctor of Education	University of the Philippines-Diliman
EFREN LARGUEZA	Research Director	Romblon State University	Doctor of Philosophy in Agriculture	G. Araneta University Foundation
MERIAN C. MANI	Vice President for Research, Extension and Development	Romblon State University	Doctor of Education	Eulogio Amang Rodriguez Institute of Science and Technology
BORROMEO B. MOTIN	Extension Director	Romblon State University	Doctor of Philosophy in Philippine Studies	University of the Philippines-Diliman
ERLINDA V. NAVARRO	Graduate Professor	PNU-Manila	Doctor of Educational Administration	Philippine Normal University
REBECCA NUEVA-ESPANA	Vice President for Administration, Finance and Development	PNU-Manila	Doctor of Philosophy in Science Education	De La Salle University
ROSARIO SOTTO	Graduate Professor	PNU-Manila	Doctor of Philosophy in Physics Education	De La Salle University

Appendix D

Letter to the SUC President

PHILIPPINE NORMAL UNIVERSITY
Taft Avenue, Manila

July 30, 2010

JETER S. SESPENE, Ph.D.
SUC President II
Romblon State University
Odiongan, Romblon

S i r:

Greetings of Peace and Prosperity!

I am Melba M. Madeja, a Doctor of Philosophy in Education with specialization in Educational Management student at the Philippine Normal University-Manila. I am currently writing my dissertation entitled “**Assessment of Teaching Competencies of College Chemistry Faculty: Input to Management Development and Recruitment Program.**” The respondents of this study include college chemistry faculty, their supervisors, other science faculty and chemistry students.

In this regard, I have the honor to request permission to administer my questionnaire to the above-cited group of participants in the different campuses of the University and to personally talk to some of them, for me to gather the necessary data.

Thank you very much for your support. May God bless you always.

Very truly yours,

MELBA M. MADEJA
Ph.D. Student

Noted:

JOSE RIZAL G. SANCHEZ, Ph.D.
Adviser

ROSARIO L. SOTTO, Ph.D.
Adviser

Approved: **JETER S. SESPENE, Ph.D.**
SUC President II

Appendix E

Letter to the Participants

PHILIPPINE NORMAL UNIVERSITY
Taft Avenue, Manila

Dear Participants:

Greetings!

I am **Melba M. Madeja**, an Assistant Professor of RSU-San Andres Campus and a student taking up Doctor of Philosophy major in Educational Management at Philippine Normal University under RSU-PNU Consortium Program. I am currently writing my dissertation titled “**Assessment of Teaching Competencies of College Chemistry Faculty: Input to Management Development and Recruitment Program.**”

In this regard, may I request for your cooperation as one of the participants of the instrument herewith. Please feel free to answer each question according to your honest perception. Rest assured that all responses will be treated with utmost confidentiality and will be used for research purposes only.

Thank you very much and more power!

Very truly yours,

(Sgd) **MELBA M. MADEJA**
Researcher

Noted:

(Sgd) **JOSE RIZAL G. SANCHEZ, Ph.D.**
Adviser

(Sgd) **ROSARIO L. SOTTO, Ph.D.**
Adviser

Appendix F

Table of Specifications

Area	Number of Items /Indicators	Percentage
Predictor Variables: Physiological Status	7	6.25
Spirituality	7	6.25
Values	35	31.25
Emotional Intelligence	7	6.25
Information Technology Skills	7	6.25
Criterion Variables: Communication Competence	7	6.25
Curriculum Expertise	7	6.25
Instructional Organization and Planning	7	6.25
Classroom Management	7	6.25
Assessment of Student Learning	7	6.25
Laboratory Competence	7	6.25
TOTAL	112	100.0

Appendix G

The Questionnaire

(For all groups of participants)

Directions: Please **encircle** the number which corresponds to your answer.

A. To which group of participants do you belong?

1. Students
2. Science Faculty
3. Dean/Campus Director
4. Chemistry Faculty

B. Romblon State University College/Campus:

1. San Andres Campus
2. San Agustin Campus
3. Calatrava Campus
4. Santa Maria Campus
5. Santa Fe Campus
6. College of Agriculture, Fisheries & Forestry
7. College of Arts & Sciences
8. College of Business & Accountancy
9. College of Education & Graduate Studies
10. College of Engineering & Technology
11. Romblon Campus
12. Cajidiocan Campus
13. San Fernando Campus

PART I. DEMOGRAPHIC PROFILE

(For Chemistry Faculty only)

Directions: Please supply the information needed in each of the items below. Where choices are given, check (/) the option which matches your answer to each item.

PERSONAL VARIABLES

1. Age (last birthday):

☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60 & above

2. Gender: ☐ Male ☐ Female

3. Civil Status: ☐ Single ☐ Married ☐ Widow/er ☐ Separated

4. Employment Status: ☐ Part-time/Lecturer ☐ Full-time

5. Academic Rank:

☐ Instructor ☐ Associate Professor
☐ Assistant Professor ☐ Professor

6. Monthly Salary:

☐ P10,000 & below
☐ P11,000-15,000 ☐ P21,000-25,000
☐ P16,000-20,000 ☐ P26,000 & above

7. Grade Point Average in College:

☐ 3.00-2.51 ☐ 2.50-2.01 ☐ 2.00-1.51 ☐ 1.50-1.01

8. Skills and Hobbies:

☐ Computer ☐ Driving
☐ Dancing ☐ Singing
☐ Drawing ☐ Playing musical instrument
☐ Others, please specify _____

PART II. PREDICTOR VARIABLES

(For Chemistry Faculty only)

A. EDUCATIONAL PREPARATION

Highest Educational Attainment: Degree

Field of Specialization

- ☐ B. S. _____
☐ M. S. / M. A. Units _____
☐ M. S. / M. A. Graduate _____
☐ Ph. D. / Ed. D. Units _____
☐ Ph. D. / Ed. D. Graduate _____
☐ Others, please specify _____

B. PROFESSIONAL EXPERIENCE**1. Number of Years Teaching Chemistry**

- ☐ 0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21 & above

2. Work Eligibility (Board Exams Passed)

- ☐ Teachers' Board/Licensure Exam for Teachers
☐ Career Civil Service (Professional)
☐ Career Civil Service (Sub-Professional)
☐ Others, please specify: _____

3. Membership in Professional Organizations (Please write in full)

4. For the past five (5) years, how many seminars, workshops, conferences, etc., have you attended that were specifically related to teaching of chemistry?

- ☐ none ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16 & above

5. Since you began teaching, how many seminars, workshops, conferences, etc., have you attended that were specifically related to teaching of chemistry?

- ☐ none ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16 & above

Directions: Please indicate your honest perception on how often you manifest each of the following given indicators. **Encircle** the number that corresponds to your answer using the following as your guide:

- 5 = Always (81-100% manifested)
 4 = Frequently (61- 80% manifested)
 3 = Occasionally (41- 60% manifested)
 2 = Seldom (21- 40% manifested)
 1 = Never (1- 20% manifested)

C. PHYSIOLOGICAL/HEALTH STATUS		A	F	O	S	N
	1. Observes cleanliness and neatness at all times.	5	4	3	2	1
	2. Indulges in regular physical fitness program.	5	4	3	2	1
	3. Refrains from vices such as cigarette smoking and drinking alcoholic beverages.	5	4	3	2	1
1.	4. Can tolerate dusts, vapors, and strong odors.	5	4	3	2	1
2.	5. Exercises moderation in one's eating habits.	5	4	3	2	1
3.						
6.	6. Is always well-dressed with firm built.	5	4	3	2	1
7.						
	1. Chooses fruits and vegetables over meat served on the table.	5	4	3	2	1
D. PSYCHOLOGICAL STATUS		A	F	O	S	N
D1. Spirituality						
	1. Begins and ends classes with a prayer.	5	4	3	2	1
2.	2. Attends church activities regularly.	5	4	3	2	1
3.						
4.	3. Is ready to help those who are in need.	5	4	3	2	1
5.						
6.	4. Manifests faith in God at all times.	5	4	3	2	1
7.	5. Avoids being judgmental to others especially to students.	5	4	3	2	1
8.						
9.	6. Shows a positive disposition even in unfavorable situation.	5	4	3	2	1
	7. Offers prayer to the sick and to those who have problems.	5	4	3	2	1

D2. Values					
D2a. Truth and Honesty	A	F	O	S	N
1. Sets an example to students with regards to decorum and values.	5	4	3	2	1
2. Comes to school promptly and regularly.	5	4	3	2	1
3. Fills up one's daily time record honestly.	5	4	3	2	1
4. Avoids giving false impression to another person.	5	4	3	2	1
5. Practices social justice.	5	4	3	2	1
6. Teaches within the bounds of truth and honesty.	5	4	3	2	1
7. Is strictly honest in his/her public dealings.	5	4	3	2	1
D2b. Love and Goodness	A	F	O	S	N
1. Assists slow learners beyond the call of duty.	5	4	3	2	1
2. Makes one's self available for consultation and mentoring.	5	4	3	2	1
3. Manifests love, care and concern for all people he/she works with.	5	4	3	2	1
4. Is open to give advice to anybody who seeks for help.	5	4	3	2	1
5. Is considerate and kind to everyone without prejudice.	5	4	3	2	1
6. Helps those who are in need regardless of family affiliation.	5	4	3	2	1
7. Controls anger and bad temper.	5	4	3	2	1
D2c. Human Relations	A	F	O	S	N
1. Shows courtesy and respect to superiors and other constituted authorities.	5	4	3	2	1
2. Treats everybody fairly.	5	4	3	2	1
3. Develops strategies so that students will appreciate being peaceful and fair.	5	4	3	2	1
4. Treats all students equally regardless of their socio-economic background.	5	4	3	2	1
5. Reprimands any observed misconduct done by a student against somebody in a peaceful manner.	5	4	3	2	1

6. Can relate well with the members of the academe and administrative community.	5	4	3	2	1
7. Respects the human fundamental freedom.	5	4	3	2	1
D2d. Sustainable Human Development	A	F	O	S	N
1. Finds joy and contentment in his job.	5	4	3	2	1
2. Lives a simple lifestyle.	5	4	3	2	1
3. Uses materials and other resources prudently and wisely.	5	4	3	2	1
4. Does his/her part in protecting and enhancing the quality of the environment.	5	4	3	2	1
5. Practices thrift and economy in spending money	5	4	3	2	1
6. Participates in environment protection and conservation activities.	5	4	3	2	1
7. Is against legal gambling as a means to improve one's economic status.	5	4	3	2	1
D2e. Nationalism and Globalism	A	F	O	S	N
1. Ties up lessons with current national situation problems and thrusts.	5	4	3	2	1
2. Participates in the observance of significant national celebrations and events.	5	4	3	2	1
3. Provides situational problems related to national development in his/her teaching.	5	4	3	2	1
4. Is in favor of science and technology transfer/exchange.	5	4	3	2	1
5. Keeps informed of the global trend especially in technology.	5	4	3	2	1
6. Strives for global competitiveness in terms of instruction, innovation, and application.	5	4	3	2	1
7. Patronizes local products and talents to help our country progress.	5	4	3	2	1
D3. Emotional Intelligence	A	F	O	S	N
1. Shows that he/she is a highly motivated person.	5	4	3	2	1
2. Deals effectively with people.	5	4	3	2	1
3. Shows a number of good qualities.	5	4	3	2	1

4. Is able to influence the way other people feel.	5	4	3	2	1
5. Finds ways to control his/her emotions when he/she wants to.	5	4	3	2	1
6. Shows that he/she is pleased with his life.	5	4	3	2	1
7. Describes himself/herself as a good negotiator.	5	4	3	2	1
E. INFORMATION TECHNOLOGY SKILLS	A	F	O	S	N
1. Uses related information in the computer.	5	4	3	2	1
2. Presents the lesson by using power point.	5	4	3	2	1
3. Accesses information on CD-ROM, floppy drive, and hard drive.	5	4	3	2	1
4. Creates, edits and prints various types of documents.	5	4	3	2	1
5. Accesses to internet, website and the like.	5	4	3	2	1
6. Transfers/sends files to fast drives/hard drives.	5	4	3	2	1
7. Uses spreadsheets in doing calculations.	5	4	3	2	1

PART III. TEACHING COMPETENCIES OF COLLEGE CHEMISTRY FACULTY
(For all groups of participants)

Directions: Please indicate your honest perception on how often the chemistry faculty in your college/campus manifests each of the following given teaching competencies **Encircle** the number that corresponds to your answer using the following as your guide:

- 5 = Always (81-100% manifested)
 4 = Frequently (61-80% manifested)
 3 = Occasionally (41-60% manifested)
 2 = Seldom (21-40% manifested)
 1 = Never (1-20% manifested)

A. COMMUNICATION COMPETENCE	A	F	O	S	N
1. Speaks in clear, pleasant, and well-modulated voice.	5	4	3	2	1
2. Observes correct grammar both oral and written.	5	4	3	2	1
3. Observes systematic and orderly presentation of ideas in speech and in writing.	5	4	3	2	1
4. Explains clearly the content/details of the lesson.	5	4	3	2	1
5. Uses examples/illustrations to help clarify topics.	5	4	3	2	1
6. Clarifies topic when it is not understood.	5	4	3	2	1
7. Asks questions which develop analytical and critical thinking.	5	4	3	2	1
B. CURRICULUM EXPERTISE	A	F	O	S	N
1. Demonstrates excellent mastery of subject matter.	5	4	3	2	1
2. Teaches topics which are consistent with the course prescription in the syllabus.	5	4	3	2	1
3. Helps students to relate subject matter concepts to past lessons and their own lives.	5	4	3	2	1
4. Updates one's self with current technologies in the field of chemistry.	5	4	3	2	1
5. Cites current and relevant information to enrich information in textbooks/hand-outs.	5	4	3	2	1
6. Serves as consultant/expert in the field of chemistry.	5	4	3	2	1

	7. Directs students to use the electronic sources for additional information.	5	4	3	2	1
	C. INSTRUCTIONAL ORGANIZATION AND PLANNING	A	F	O	S	N
	1. Organizes subject matter consistent with course syllabi/ outline.	5	4	3	2	1
	2. Shows that there is considerable agreement between announced objectives and what is actually taught.	5	4	3	2	1
	3. Presents the lesson in clear, logical, and organized manner.	5	4	3	2	1
	4. Sequences instruction to help students see relationships and connections across subject matter areas.	5	4	3	2	1
5.	5. Assists students in summarizing or emphasizing major points	5	4	3	2	1
6.	in the lesson.					
	6. Provides activities for remediation, reinforcement, and enrichment.	5	4	3	2	1
	7. Uses a variety of techniques and strategies to make the lesson interesting.	5	4	3	2	1
	D. CLASSROOM MANAGEMENT	A	F	O	S	N
	1. Starts and ends classes on time.	5	4	3	2	1
	2. Adopts a systemic, peaceful and orderly conduct of classroom routine and other activities.	5	4	3	2	1
	3. States clearly and explicitly classroom rules to prevent disciplinary problems.	5	4	3	2	1
	4. Establishes supportive and cooperative classroom atmosphere.	5	4	3	2	1
	5. Enhances students' self-esteem through proper recognition of their performance.	5	4	3	2	1
	6. Maintains order and discipline among students.	5	4	3	2	1
	7. Maintains professional role while being friendly.	5	4	3	2	1
	E. ASSESSMENT OF STUDENT LEARNING	A	F	O	S	N
	1. Informs students the basis of evaluation.	5	4	3	2	1
	2. Uses varied, valid and reliable assessment strategies in evaluating student performance.	5	4	3	2	1
	3. Gives fair grading system.	5	4	3	2	1
	4. Adheres to academic policies regarding examination schedules	5	4	3	2	1

	and grading system.					
	5. Returns test papers of students within reasonable time.	5	4	3	2	1
	6. Uses test results to improve instruction.	5	4	3	2	1
	7. Conducts authentic assessment techniques such as performance tests and observation of behavior.	5	4	3	2	1
	F. LABORATORY COMPETENCE	A	F	O	S	N
	F1. Laboratory Safety					
	1. Ensures that the laboratory is clean and orderly.	5	4	3	2	1
2.	2. Conducts pre-lab discussion before students are allowed to perform experiments.	5	4	3	2	1
3.	3. Ensures that students observe and practice proper disposal of solid and liquid chemicals.	5	4	3	2	1
	4. Teaches students to observe precautionary measures.	5	4	3	2	1
	5. Ensures that first aid kit is always available in case of accidents.	5	4	3	2	1
	6. Prepares students to proactively respond to accident or any untoward incident.	5	4	3	2	1
	7. Instructs students to wear gloves and protective eyeglasses when performing laboratory activities.	5	4	3	2	1
	F2. Laboratory Skills/Techniques	A	F	O	S	N
	1. Ensures proper handling of apparatus and supplies.	5	4	3	2	1
	2. Demonstrates skills in measuring volumes of liquid.	5	4	3	2	1
	3. Observes proper techniques in handling substances.	5	4	3	2	1
	4. Demonstrates skills in using weighing scales.	5	4	3	2	1
	5. Observes proper techniques in determining odors of substances.	5	4	3	2	1
	6. Demonstrates knowledge in improvising laboratory apparatus/equipment.	5	4	3	2	1
	7. Ensures that faucets are closed and lights are turned off before leaving the laboratory.	5	4	3	2	1

THANK YOU VERY MUCH FOR YOUR ASSISTANCE!

CURRICULUM VITAE

Personal Data:

Name	: Melba F. Mallorca-Madeja
Contact Number	: 09282215006
Date of Birth	: May 27, 1959
Place of Birth	: Alegria, Corcuera, Romblon
Address	: Poblacion, San Andres, Romblon
Civil Status	: Married
Spouse	: Manuel Quezon T. Madeja.
Daughter	: Lydel Janine M. Madeja

Educational Background:

2006 – 2011	: PhD Educational Management (Romblon State University Local Scholar) Philippine Normal University Taft Avenue, Manila
1996 – 2002	: Master of Arts in Education, Major in Science (Civil Service Scholar: 2001-2002) Romblon State College Odiongan, Romblon
Summer 1987	: Master of Arts in Education units (National Science & Technology Authority Scholar) Philippine Normal College Taft Avenue, Manila

Summer 1986	: BS in Secondary Education units Romblon College Odiongan, Romblon
Summer 1983 & 1984	: BS in Secondary Education units Aklan College Kalibo, Aklan
1877-1981	:BS in Agricultural Chemistry (Coconut Producers Federation Scholar) G. Araneta University Foundation Malabon, Metro Manila
1972-1976	:Romblon School of Fisheries Cabolutan, San Agustin, Romblon (Graduated Valedictorian, Insular Life Gold Eagle Awardee for Academic Excellence and Batch Alumni Association President)
1966.1972	: Long Beach Elementary School Long Beach, San Agustin, Romblon (Graduated Valedictorian)

Civil Service Eligibility:

1988	: Career Service Professional Examination (88.16)
1985	: Professional Board Examination for Teachers (80.56)
1980	: Career Service Sub-Professional Examination (88.07)

Professional/Work Experience:

2008 to date	: Assistant Professor IV Romblon State University
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	San Andres Campus San Andres, Romblon
2005-2007	: Assistant Professor II Romblon State College Tablas Branch San Andres Campus San Andres, Romblon
2002-2004	: Instructor III Romblon State College Tablas Branch San Andres Campus San Andres, Romblon
1993-2001	: Master Teacher I Romblon State College Tablas Branch San Andres Campus San Andres, Romblon
1983-1993	: Teacher I Romblon College of Fisheries & Forestry Cabolutan, San Agustin, Romblon
July 1982 to Dec. 1982	: Cashier Ever Department Store Conception, Ermita, Manila
Aug. 1981 to June 1982	: Laboratory Assistant Laboratory Department Century Tobacco Corporation Quirino Avenue, Tambo Paranaque, Metro Manila

Professional Organizations:

2009-present: State Universities and Colleges Teacher Educators' Association (SUCTEA)

2008-present: Public Services Labor Independent Confederation (PS LINK)

2008-present: Romblon State University Faculty Association (ROSUFA)

2000-present: Research and Educational Development Training Institute Inc. (REDTI Inc.)

1999-present: Association of Social Science Educators, Researchers and Trainers (ASSERT)

1989-present: Southern Tagalog Association for Vocational Education (STAVE)

Seminars/Workshops Attended (Past 10 Years)

A. International:

03/21-05/8/2009 : Basic Japanese Language Program by JapFil Inter-Culture Language Institute, Inc.

B. National:

08/27-28/2008 : National Environmental Summit /by Philippine Association of Research Managers - Dept. of Environment & Natural Resources /RSC, Odiongan, Romblon

08/03/2007 : Basic Orientation/Awareness Seminar on Responsible Public Sector Unionism /by PS Link & LO/FTF Danish Trade Union Council for International Development Cooperation /RSC, San Agustin, Romblon

10/19-21/2005 : National Research Summit /by Research & Educational Development Training Institute /in Benguet State University, La Trinidad, Benguet

12/10-12/2003 : National Seminar – Workshop on Chemistry/Physics Education /by Research & Educational Development Training Institute /in Hotel Supreme, Baguio City

10/17-19/2002 : Geo – Science Roving Lecture Series /by National Institute of Geological Sciences /in RSC, Odiongan, Romblon

06/05-07/2002 : Geo – Science Summer Institute /by National Institute of Geological Sciences /in RSC, Odiongan, Romblon

08/09-11/2000 : National Research Forum /by Research & Educational Development Training Institute /in Bocobo Hall, College of Law, UP- Diliman, Quezon City

06/15-16/2000 : National Congress of Science Educators /by Research & Educational Development Training Institute /in Balay Kalinaw, UP-Diliman, Quezon City

04/12-14/2000 : National Conference on Research in Education /by Research & Educational Development Training Institute /in Balay Kalinaw, UP- Diliman, Quezon City

C. Regional:

11/17-20/2009 : Performance Management System – Office Performance Evaluation System /by Philippine Civil Service Commission Reg.IV /in RSU, Odiongan, Romblon

11/04-06/2009 : Southern Luzon Zonal R&D Symposium /by PCAMRD Southern Luzon Zonal Center for Aquatic and Marine R&D /in Partido State University, Goa, Camarines Sur

05/06-07/2008 : Seminar – Workshop on Research, Development & Extension Formulation and Program Prioritization /by Southern Tagalog Agriculture & Resources Research & Development Consortium /in RSC, Odiongan, Romblon

02/06/2008 : Information Dissemination on the DOST Funding Mechanisms and HRD Opportunities /by Department of Science & Technology /in RSC, Odiongan, Romblon

11/22-23/2001 : Civil Service Forum for Teachers II /by Philippine Civil Service Commission Reg. IV /in San Andres Central School, San Andres, Romblon

D. Local:

07/13-15/2010 : Seminar-Workshop and Capability Building on Research, Extension and Production /by RSU Research, Extension and Production Center /in RSU, Odiongan, Romblon

02/02-03/2009 : RDE Capability Building con In-House Review /by RSC Research, Development, and Extension Center /in RSC, Odiongan, Romblon

08/12-13/2008 : Research Capability Enhancement Training /by RSC Research Center /in RSC, San Andres, Romblon

- 06/06/2008 : Echo - Seminar on Classroom Management /by Romblon State College /in RSC, Odiongan, Romblon
- 06/04-05/2008 : Echo - Seminar on Current Trends on Classroom Management /Application of Test Measurement /by Romblon State College /in RSC, Odiongan, Romblon
- 10/15-16/2007 : Implementation of the Experiential Learning Courses: Field Study and Practice Teaching /by Romblon State College /in RSC, Odiongan, Romblon
- 03/17/2007 : First Provincial Power Point Presentation Seminar – Workshop /by Romblon State College /in RSC, Odiongan, Romblon
- 03/10/2007 : Second Provincial Human Resource Management Seminar /by Romblon State College /in RSC, Odiongan, Romblon
- 04/27-28/2006 : Echo-Seminar on Competency – Based Curriculum Training Workshop for Ladderized Program Under EO-358 /by Romblon State College /in RSC, Odiongan, Romblon
- 04/17-21/2006 : Seminar – Workshop on Managing for Excellence in Performance /by Romblon State College /in RSC, Odiongan, Romblon
- 11/17-18/2005 : Echo – Seminar Workshop on Revisiting the Teacher Education Program /by Romblon State College /in RSC, Odiongan, Romblon
- 03/05-06/2005 : Lecture – Seminar on Graduate Education Program in the Philippines, Innovation Through Research, & Human Resource Management: Strategic Planning /by Romblon State College /in RSC, Odiongan, Romblon
- 01/17-18/2005 : Seminar – Workshop on Data Processing & Interpretation /by Romblon State College /in RSC, Odiongan, Romblon
- 10/22-24/2004 : Seminar – Workshop on Basic Education Curriculum /by Romblon State College /in RSC, Odiongan, Romblon

11/07-08/2002 : Echo Seminar – Workshop on the Evaluation & Review of Faculty Qualification Under the Provisions of NBC 461 /by Romblon State College /in RSC, Odiongan, Romblon

05/06-10/2002 : Division Mass Training on Restructured Basic Education Curriculum /by Department of Education /in Romblon National High School, Odiongan, Romblon

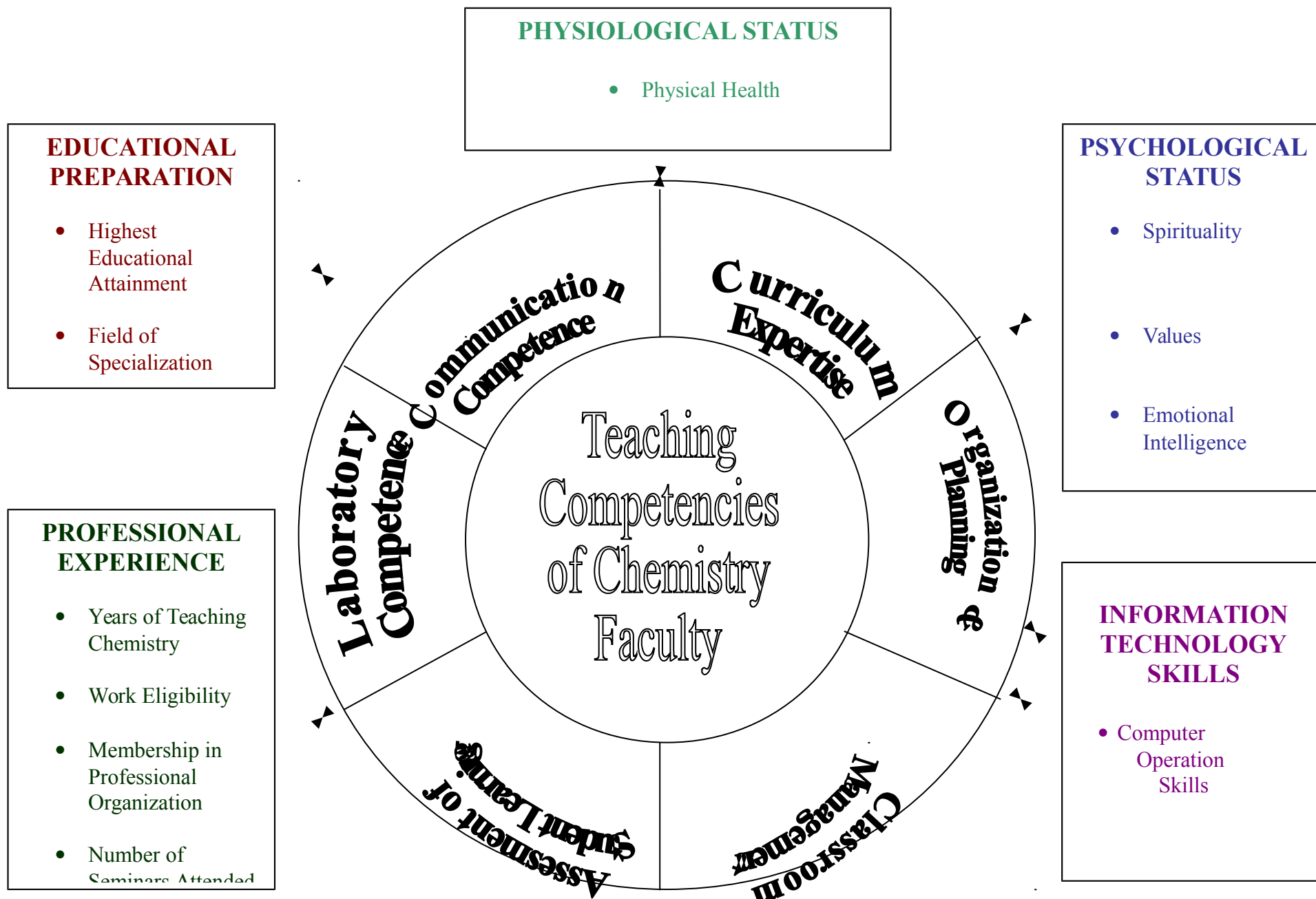


Figure2. CONCEPTUAL FRAMEWORK OF THE STUDY

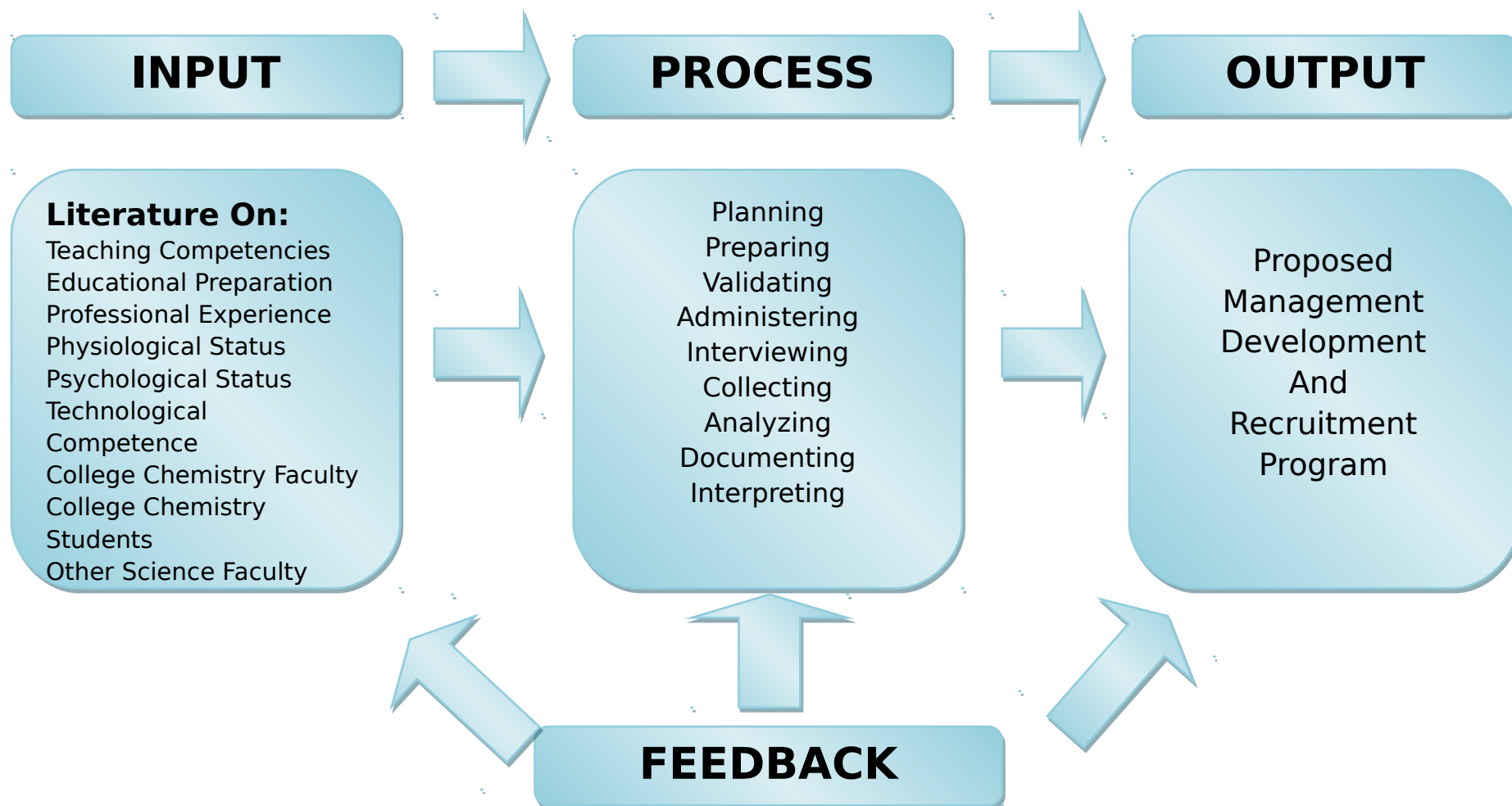


FIGURE 3. RESEARCH PARADIGM OF THE STUDY

