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TECHNOLOGY AND LIVELIHOOD EDUCATION TEACHERS' TRAINING NEEDS: BASIS FOR ENHANCEMENT PROGRAM

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Abstract :

This descriptive study was conducted to assess the training needs of Technology and Livelihood Education (TLE) teachers which will serve as basis for developing teachers' enhancement program. The basis of the conceptual framework evolved from the concept Organization-Task-Person (OTP) conception of needs assessment as described by McGehee and Thaye to provide information about where and when training is needed in an organization. It is considered the core framework for needs assessment in the academic literature since most of the models developed have been based on the three-level framework (Holton, E. et al. 2000). This study covered select Technology and Livelihood Education (TLE) teachers and school administrators from the Dagupan City Division for the School Year 2025-2026. Percentage, mean/average, t-test, f-test, and analysis of variance (ANOVA) were used as statistical tools to quantify the data. It utilized the survey form through the use of questionnaire designed by the researcher for the purpose of the study. The instrument was validated by a group of experts. Their corrections, comments, and suggestions were considered in improving the questionnaire. The findings of the study show that there is no significant difference on the competency level when the teachers are grouped according to demographic profile. Findings also imply that there are significant differences identified in all the six components of standard competency and the competency level of the teachers. Three major needs identified are activities that would enhance competency of students in motivation and opportunities to acquire or enhance their skills, renewed professionalism, and rejuvenated teaching advocacy and calling. The study concludes that there exists a significant gap (difference) between the present competency level and the desired standard competency requirements of TLE teaching among the teachers. This study, thereby, recommends enhancement program, projects, and activities to address the competency needs requirement of the TLE teachers. The findings, conclusions, and recommendations of this study can be used as a basis for policy formulation on teachers' development/enhancement programs.

Key Words: enhancement program, Technology and Livelihood Education

INTRODUCTION

A teacher's role in the present time involves more than simply standing in front of a group of students, sharing their thoughts on what they find meaningful. Teaching is one of the most complicated jobs today. Teaching the subject Technology and Livelihood Education (TLE) is even more challenging. It demands broad knowledge of the four components (Agri-Fishery, Computer and Entrepreneurship, Industrial Arts, and Home Economics) of the subject matter, curriculum and standards, enthusiasm, a caring attitude, creativity, love for learning, classroom management techniques, and a desire to make a difference in the lives of young people (Great Schools, n.d.).

The need to ensure the presence of highly qualified teachers in every classroom and to determine how best to define and prepare these qualified teachers has been an old age issue. One could be the best teacher with the best course materials, course activities, learning outcomes, and assessments at one point in time. But as time changes, courses are revised as in the case of TLE to suit the needs of the society, the employers, and the diversity of students; hence teachers, must keep abreast of these changes. A way to find out what needs to be changed, improved or updated is to evaluate the actual state of the teachers' knowledge, attitudes, skills, and strong aspects of their practice, as well as their weaknesses (Stronge & Tucker, 2003).

Professional development keeps teachers up-to-date on new research, on how children learn, on emerging technology tools for the classroom, and on new curriculum resources; but effective professional development enables educators to develop the competencies, such as the knowledge and skills they need to address students' learning challenges. To be effective, professional development, according to Mizell (2010), requires thoughtful planning followed by careful implementation with feedback to ensure it responds to educators' learning needs.

The issuance of Department Order No. 43 in 2002, popularly known as BEC Order, restructured the elementary and secondary curriculum for the purpose of improving the standard of education in the country. The Guidelines for the Pilot

Implementation of the 2002 Secondary Education Curriculum (DepEd Order No.43 series of 2002) describes *Teknolohiya at Edukasyong Pantahanan at Pangkabuhayan* (TEPP) as one of the four component subjects of *Makabayan*, a learning area that serves as a practice environment for holistic learning to develop a healthy personal and national self-identity, designed to develop the personal, social, and work/spatial of learners especially interpersonal skills, empathy with the culture, vocational efficiency, problem solving, and decision making in daily life.

TLE (per DepEd Order No. 37 series of 2003) is one of the learning areas of the Secondary Education Curriculum in Philippine secondary schools. As a subject, its component areas are: Home Economics, Agri-Fishery Arts, Industrial Arts, and Information and Communication Technology. It is also referred to as CP-TLE for Career Pathways in Technology and Livelihood Education. Technology and Livelihood Education is taught in schools, among other subjects, for students to learn how to have the basic necessities and the means to improve upon them in order to have a better life. Students in this subject are taught things like home education, sewing, cooking, etc., as well as how to be innovative with current technology so that they can find solutions to problems they may face in everyday life.

The 2010 Secondary Education Curriculum allocates 240 minutes per week for CP-TLE, which is equivalent to 1.2 units. However, CP-TLE is required to include practical work experience in the community, which may extend beyond its specified school hours.

Two types of curriculum are provided for regular high schools (public and private). These are: Technical-Vocational Education-based TLE and Entrepreneurship Education-based TLE. The Technical-Vocational Education-based TLE is focused on technical skills development in any area. Five common competencies, based on the training regulations of the Technical Education and Skills Development Authority (TESDA), are covered in the exploratory phase (Grades 7 and 8): mensuration and calculation, technical drafting, use of tools and equipment, maintenance of tools and equipment, and occupational health and safety. The specialization phase is from Grades 9 to 12. The Entrepreneurship Education-based TLE is focused on the learning of some livelihood skills every quarter so that the student may be equipped to start a small household enterprise with family members. It covers three domains: Personal Entrepreneurial Competencies, Market and Environment, and Process and Delivery.

Having set the goals of TLE, what would the standard qualifications of a teacher that would best impart the curriculum contents of TLE? These qualifications are often referred to as competencies and are defined in general or specific terms.

Competency, in general, is defined as a set of knowledge, skills, behaviors, attitudes, and characteristics that distinguishes one person from another. While personal competencies refer to individual attitudes and skills required to handle professional relationships and facilitate learning and personal development (e.g., communication), functional competencies relate to technical knowledge or skills required by a particular field or profession (e.g., accounting principles).

In a study conducted by WONG Yu Fai (1996), he opted the definition of the concept of competence offered by the European Tuning project as competencies represent a dynamic combination of knowledge, understanding, skills, abilities, and values.

In the training world, a comprehensive definition of competency is given as a cluster of related knowledge, skills, and attitudes that affects a major part of one's job (a role or responsibility), that correlates with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development (Training magazine: July, 1996).

Retome et al. (2012) from Southern Leyte State University conducted an assessment of the attitude of TLE teachers towards work, the students personal view about the subject, and the physical and learning environment of the school in relation to TLE program. Results showed a moderately positive attitude of teachers while the students' personal view towards the course was moderately low. Both teachers and students believed that the school had to update instructional materials, tools, and equipment; and improve classrooms particularly home technology building. The researchers recommended revisiting the TLE curriculum to ensure relevance of the program to the present career pathways and to hire new teachers specializing in TLE.

In another local study related to TLE, Guiner (2013) developed a training module in industrial arts for instructors of state colleges and universities in Region I to further improve their teaching competency. The research also determined the level of competencies of faculty members along five areas in industrial arts in terms of knowledge, skills, and attitude.

Executive orders, department orders, and memoranda on TLE as a subject taught in high school; its history; legal basis; objectives; components; and programs were briefly summarized to appreciate and better understand the subject and purpose of the current study. Definitions of competency, in general and as applicable to the academic environment, were reviewed from various sources. Minimal materials were found on teaching competency skills requirements specific of a TLE teacher; nevertheless, literature related to generic teaching competency were found. A number of articles talk about scales to measure competency. The National Institute of Health, USA, presented a guide capturing a wide range of ability levels and organized them into five steps from "Fundamental Awareness" to "Expert Individual". WONG (2006) proposed a model composed of five competency levels, from minimal to advanced, for defining competency level in any subject area. The New Mexico Public Education Department issued guidelines for a 3-tiered licensure annual teacher performance evaluation system. Likewise, the Department of Education and Training of Western Australia (2004) developed a Competency Framework for Teachers that provided for 5 parallel dimensions in 3 phases of the teaching profession. These references provided the researcher with important issues that were used in the study which involved the measurements of competency.

Studies conducted in the past on TLE teaching competencies were very limited. A local study focusing on TLE teaching was conducted by Retome et al. (2012) on attitudes of TLE teachers towards work and the students' personal view on the subject; while Guiner (2013) determined teachers' competency in terms of knowledge, skills, and attitudes for the purpose of developing a training module in Industrial Arts for TLE faculty in Region I.

It is, therefore, imperative that an assessment of existing competency of TLE teachers be conducted. The assessment could lead to a well-planned development of activities that could help teachers achieve competencies identified for teaching the subject, or target an improvement of a specified knowledge, skill or attitude to attain a higher competency level. It is along these thoughts that the author pursued the current study.

The study assessed the suitability of existing TLE teachers in teaching the subject. It, likewise, described the level of competencies in teaching TLE in terms of six teaching competencies. Moreover, the author determined specific focus areas for inclusion in the enhancement program for TLE teachers from the Fourth Congressional District of Pangasinan Division II.

Statement of the Problem

The study sought to determine the training needs of Technology and Livelihood Education (TLE) teachers of Dagupan City Division during the school year 2025-2026.

Specifically, it sought to answer the following sub-problems:

1. What is the demographic profile of Technology and Livelihood Education (TLE) teachers and administrators?
2. What is the competency level of TLE teachers as perceived by the teachers themselves and their department heads in terms of:
   - 2.1 Personal and professional competence,
   - 2.2 Competence in using knowledge of student skills and talents,
   - 2.3 Competence in using teaching techniques,
   - 2.4 Competence in monitoring and evaluation skills,
   - 2.5 Competence in establishing relations with family and society, and
   - 2.6 Competence in using knowledge of curriculum and content?
3. Is there a significant difference in competency level of TLE teachers when they are grouped according to demographic profile?
4. Is there a significant difference between the competency level of the TLE teachers as assessed by themselves and the administrators?
5. What are the standard teaching competency requirements of TLE teachers?
6. What are the gaps between the present competencies of TLE teachers and the standard teaching competencies?
7. What are the competency needs of TLE teachers?
8. What teachers' enhancement program could be proposed to address the needs of the TLE teachers?

METHODOLOGY

This chapter presents the research design, sources of data, instrumentation and data collection and the tools for data analysis.

Research Design

The study utilized the descriptive research design. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984). It often uses visual aids such as graphs and charts to aid the reader in understanding the data distribution. Because the human mind cannot extract the full import of a large mass of raw data, descriptive statistics is very important in reducing the data to manageable form. When in-depth, narrative descriptions of small number of cases are involved. Researchers use description as a tool to organize data into patterns that emerge during analysis. Those patterns aid the mind in comprehending a qualitative study and its implications (Knupfer & McLellan, 2001).

Descriptive research holds a valuable place within education because in contrast to laboratory experiments, the human nature of educational research is critical to the result. Educational environments and experiences inherently contain many extraneous variables that cannot be controlled in a realistic situation which often call for careful observation of specific life situations, and can require the collection of data from a large number of people spread throughout a wide geographic region. The descriptive component is critical to educational research because educational events cannot be reduced to a controlled laboratory environment. The types of questions generated in educational research require descriptions that help to explain the data and direct emergent prescriptions for educational events.

This method was used in the study to gather, organize, analyze, and present the level of competency of TLE teachers. Gap analysis was used to determine the gaps between the competencies of TLE teachers and the acceptable competency levels.

Instrumentation and Data Collection

Two sets of assessment questionnaire were prepared and administered by the researcher - one for TLE teachers and another for school administrators. Inputs to the instrument were taken from the Ministry of National Education, Turkey (n.d.); National Institute of Health, USA; Teacher Education Council, DepEd Module 6.9; DepEd RPMS-PPST; and other foreign and local sources summarized in the review of literature. It was modified by the researcher to make it appropriate for teachers teaching TLE in the country.

Both assessment questionnaires were a checklist of 34 essential competencies for teaching TLE - 8 items for the personal and professional values, 3 items for knowledge of student skills and talents, 7 items each for teaching techniques and monitoring and evaluation skills, 4 items for relations with family and society, and 5 items on knowledge of content. Each of the 34 items was a short description of the skills. The teachers were requested to rate themselves while the administrators were requested to rate the teachers using the following guide.

Prior to the preparation of the self-assessment form for TLE teachers, a pre-testing, instrument was conducted to TLE teachers to determine the need to conduct the current study. In the pre-survey, more than 50% of the teachers indicated their need for training in the listed knowledge and skills related to teaching TLE.

The self-constructed questionnaire was forwarded to the adviser for comments and suggestions. Revisions were incorporated for the improvement of the instrument. The instrument was then validated by a group of experts. These experts are members of the faculty of the Graduate Studies and have been teaching Educational Management for more than a decade in the same institution. Their suggestions were considered in improving the questionnaire.

The researcher used the following steps in gathering the data.

1. The researcher prepared a letter of intent to conduct the study and sent it to the Schools Division Superintendent of Pangasinan Division II.
2. After the approval, copies of the endorsement letter from the Office of the Schools Division Superintendent were sent to the five public secondary schools in the Division through their school administrators and the researcher distributed the questionnaires.
3. The respondents were given a questionnaire and oriented by the researcher in answering the questions.
4. A week after, the questionnaires were retrieved. Finally, the data were analyzed and interpreted.

Gap analysis was done to identify the existing competency skills of the teachers, the gap between the present and the standard competency skills, and the needed skills for improvement among the TLE subject teachers.

A gap analysis is a quality-measurement tool used to identify the difference between present competency and desired (standard) competency and to recommend strategies for bringing the desired competency into actual practice. The process is summarized as follows:

1. *Set targets/expectations*

Gap analysis began with a thorough identification of the expectations from an external perspective which were used as benchmark in the interpretation of the competency scores of the TLE teachers.

The formulation of the six standard competencies and the skills under each of the competency was discussed in chapter 4. The numerical standard competency score was taken from RPMS-PPST, and was slightly modified based on the concepts presented in literature reviewed in the course of the study.

Table 2. Scale and descriptive ratings used in the analysis of the competency scores of the respondents

RPMS-PPST Rating		Used in the current study	
Numerical	Descriptive	Numerical	Descriptive
		4.51 - 5.00	Outstanding
3.51 – 4.00	Expert	3.51 – 4.50	Very Satisfactory
2.51 – 3.50	Experienced	2.51 – 3.50	Satisfactory
1.51 – 2.50	Fair	1.51 – 2.50	Poor
1.00 – 1.50	Lack	1.00 – 1.50	Needs Improvement

Being improved, relevant data about the process were collected. To determine the current-competency level of TLE teachers, the assessment tools proposed by the author were used.

2. Identify the gaps

Present competencies against desired (standard) competencies were identified. The causes of deviation from the ideal were, likewise, referred. The competency needs and specific improvement efforts that could bring greater efficiency to different parts of the process, i.e. to increase the competency of the TLE teachers, were also identified

3. Present and use the result.

In the present study, the results served as inputs in the design and development of an enhancement program for TLE teachers.

Tools for Data Analysis

To derive valid and accurate results, appropriate statistical tools were employed.

1. **Percentage (%).** This was used to describe the demographic profile of TLE teachers in problem 1 and the distribution of teachers under specified competency categories in problem 2.
2. **Mean/Average.** This was used to provide a description of the collective assessment of the respondents of the study. The mean competency scores are presented by demographic profile in problem 2 and according to the six competency components in problem 4.
3. **T-test** for two independent samples. This was used to answer problem 3 by testing the first hypothesis regarding the differences between gender and competency level. It was also used to answer problem 5 by determining the existence of significant difference between the rating of the teachers and the administrators as stated in the second hypothesis.
4. **T-test** for one sample population. This was used to answer problem 8 by testing the third hypothesis on the differences between the present competency scores of TLE teachers and the standard competency score requirement.
5. **F-test or ANOVA.** F-test was used to answer part of problem 3 by testing the first hypotheses on the differences among existing competency when the teachers were grouped according to age, undergraduate courses, teaching experience, and seminars/training attended.

RESULTS AND DISCUSSION

This chapter deals with the presentation, analysis and interpretation of the data gathered relative to sub-problems in the study.

Demographic Profile of TLE Teachers and Administrators

Table 1. Profile of the Teacher - respondents according to Sex and Age

Sex/Age	Number of Teachers	Percentage
Sex		
Male	19	25%
Female	57	75%
Total	76	100
Age (years)		
20-30	21	27.60%
31-40	31	40.80%
41-50	18	23.70%
51-60	6	7.90%
Total	76	100

Table 1 shows that 57 or 75% of the TLE teacher-respondents are female and 19 or 25% are male. According to age, 21 or 27.60% are 20 to 30 years old, 31 or 40.80% are 31 to 40 years old, 18 or 23.70% are 41 to 50 years old, and 6 or 7.90% are 51 to 60 years old. The youngest TLE teacher is 23 years old and the oldest is 58 years old.

The data reveals that majority of the TLE teachers are mostly female. It also shows that most of the respondents are 31 to 40 years old.

Table 2. Profile of the Respondents according to Undergraduate Degree/ Major of TLE Teachers

Undergraduate Degree/Major	Number of Teachers	Percentage
Computer-Related Courses	14	18.40%
BSIT - Computer Education	6	
BSIT - Electronics	2	
BSE - Computer Education	1	
BS Computer Science	2	
BS Math - Computer	1	
BSOA - Computer Education	1	
BS Computer Education	1	
Home Economics	28	36.80%
BSIE – Home Economics	19	
BSTLE – Home Economics	1	
BSIE – Garments Trade	3	
BSIE – Girls Trade	2	
BSIE – Food Technology	3	
Industrial Arts	16	21.10%
BSIE –Industrial Arts	13	
Mechanical Technology	1	
Civil Engineering Technology	2	
Agri-Business	7	9.20%
Agri-Fishery	4	
Animal Husbandry	1	
Agriculture Education	1	
Agribusiness Management	1	
Business Related Courses	7	9.20%
Entrepreneurship	1	
Management	2	
Office Administration	1	
Marketing Management	1	
Distributive Arts	2	
Others	4	5.30%
BSE – English	1	
Nutrition	1	
Hotel and Restaurant Management	2	

The table shows that most of the teachers, 28 or 36.80%, are majors of Home Economics, followed by 16 or 21.10% who are graduates of Industrial Arts, and then by 14 or 18.40% who are computer-related graduates. The least numbers of TLE teachers, 7 or 9.20%, have Agri-business education; and another, 7 or 9.20%, have business-related courses. Four or 5.30% are graduates of other courses like BSE English, Hotel Management, and Nutrition.

Based from the above data, 5.30% of teachers who are teaching TLE subject are graduates of other courses and 9.20% are graduates of business-related courses. This results to lack of pedagogical skills, as well as of adequate knowledge of the subject matter they teach (Figueredo, V. and Anzalone S. 2003).

Table 3. Profile of the Respondents according to Years of Teaching Experience of TLE Teachers

Teaching Experience	Number of Teachers	Percentage
0 -5	34	45%
6-10	20	26%
11-15	9	12%
16-20	8	11%
21-25	3	4%
26-30	1	1%
31-35	1	1%
Total	76	100%

The table shows that 34 or 45% of the TLE teachers have 0 to 5 years of teaching experience, 20 or 26% have 6 to 10 years of teaching experience, 9 or 12% have 11 to 15 years of teaching experience, 8 or 11% have 16 to 20 years of teaching experience, and 3 or 4% have 21 to 25 years of teaching experience. One teacher has 26 to 30 years of teaching experience and another one has 31 to 25 years of teaching experience.

The data shows that majority of the TLE teachers have six years or less teaching experience. A detailed inspection of the data gathered indicates that the teaching experiences of the teachers are spent on teaching the TLE subject.

Table 4. Profile of the Respondents according to Attendance to Seminars of TLE Teachers

Attendance to Seminars (hours)	Number of Teachers	Percentage
None	37	48.68%
1 - 5	27	35.53%
6 - 10	9	11.84%
11 - 15	2	2.63%
16 – 20	1	1.32%
Total	76	100%

The table shows that most of the TLE teachers, 37 or 48.68% have not attended any seminar/training, 27 or 35.53% have attended 1 to 5 hours of seminar/ training, and 9 or 11.84% have attended 11 to 15 hours of seminar/training. Two (2) teachers have attended 11 to 15 hours of seminar/training, and one teacher has attended 16 to 20 hours of seminar/training.

The distribution reflects the lack of motivation of TLE teachers to attend seminars. Based on personal observations and experiences of the author of the current study, possible explanations on the lack of motivation to attend seminars/ training is the DepEd policy of giving credit for promotion on seminars attended with 3 days or more duration. Most of the teachers are not willing or do not have the time and money to attend seminars/training or they are not given opportunity to attend by their superiors because there are only limited slots for different schools.

Table 5. Profile of Administrators according to Sex, Age, Undergraduate Degree/Major, Years as Administrator, Years as a Teacher, and Years as TLE Teacher

Gender	Age	Undergraduate Degree/Major	Years as Administrator	Years as Teacher	Years as TLE Teachers
M	41	BSIE/Industrial Arts	6	16	10
M	41	BSIE/Architecture	7	16	11
F	40	BSE/Mathematics	6	17	None
F	42	BSIE/Home Economics	5	16	16
F	55	BSA/Agronomy	13	20	NA

Table 5 shows that out of the five administrators in the Division of La Union, two are males and three are females. In terms of age, one is 40 years old, two are 41 years old, one is 42 years old, and one is 55 years old. All the administrators are 40 years or older. According to undergraduate degree, three of the administrators completed BS Industrial Engineering, one completed BS Education, and one completed BS Agronomy. All of them have been administrators for 6 years or more, where in one has been for 13 years, the longest so far. All of the administrators have more than 16 years of teaching experience, in which 10 years or more is spent on teaching TLE subject, except for one who has not taught TLE in her 17 years of teaching experience.

The data shows that the administrators have long enough experience in the teaching profession and probably have been promoted to their current position. The administrators are assigned to oversee TLE Education in each of the 5 schools in the Division of La Union. The task is in addition to their regular function.

Table 6. Competency Level according to Years of Teaching Experience

Teaching Experience (years)	Competency Score	
	Numerical	Descriptive
0 – 10	2.66	Intermediate
6 – 10	2.92	Intermediate
11 – 15	2.80	Intermediate
16 – 20	2.69	Intermediate
21 – 25	3.27	Intermediate
26 – 30	3.37	Intermediate
31 – 35	3.37	Intermediate
Over-all mean	3.01	Intermediate

It can be observed in Table 6 that the competency scores are within the range of intermediate competency; however, the numerical score generally increases as teaching experience increases. Teachers with the highest competency score of 3.37 are those with more than 25 years of teaching experience and the lowest at 2.66 are those with less than 5 years of experience.

The data shows that the distribution is an indication that experience in teaching results to a gain in competency skills.

Table 7. Competency Level according to Undergraduate Degree/major

Undergraduate Degree/Major	Competency Score	
	Numerical	Descriptive
Computer-Related Courses BSIT - Computer Education BSIT - Electronics BSE - Computer Education BS Computer Science BS Math - Computer BSOA - Computer Education BS Computer Education	2.76	Intermediate
Home Economics	2.93	Intermediate

BSIE – Home Economics BSTLE – Home Economics BSIE – Garments Trade BSIE – Girls Trade BSIE – Food Technology		
Industrial Arts BSIE –Industrial Arts Mechanical Technology Civil Engineering Technology	2.79	Intermediate
Agri-Business Agri-Fishery Animal Husbandry Agriculture Education Agribusiness Management	2.73	Intermediate
Business-Related Courses Entrepreneurship Management Office Administration Marketing Management	2.44	Limited
Distributive Arts Others BSE – English Nutrition Hotel and Restaurant Management	2.66	Intermediate
Over-all mean	2.82	Intermediate

In terms of undergraduate degree completed, shown in Table 7, the highest competency score is the Home Economics Majors at 2.93, followed by the Industrial Arts graduates at 2.79, and then by the graduates of Computer Related Courses at 2.76, which all mean intermediate competency. The lowest is the graduates of Business-Related Courses, at 2.44, which implies limited competency.

The data reveal that the teachers who have business related-courses have limited competency.

Table 8. Competency Level according to Seminars Attended

Attendance to Seminars (hours)	Competency Score	
	Numerical	Descriptive
None	2.92	Intermediate
1 – 5	2.70	Intermediate
6 – 10	2.64	Intermediate
11 – 15	3.12	Intermediate
16 – 20	3.12	Intermediate
Over-all Mean	2.68	Intermediate

The competency level of TLE teachers, when grouped according to number of hours of seminar attended, is highest among those who have attended more than 15 hours of seminar/training, at 3.12, followed by teachers who have not attended any seminar/training, at 2.92.

Upon examination of the data gathered, the 37 teachers who have not attended any seminar/training have teaching experience ranging from 0 to 27 years. It implies that there are teachers who have been teaching for as long as 27 years, yet have not attended any seminar/ training on TLE. The lowest competency score of 2.64 is among those with 6 to 10 hours attendance to seminars. All the scores are within the range of intermediate competency.

Competency level of TLE teachers, in terms of the six areas of competency

2.1 As Assessed by the Teachers Themselves

The competency scores of the teachers are presented in terms of the Key Skill Requirements (KSR) in the six components of the Standard Competency for TLE teachers in two ways: 1) by number of teachers and percentage on three groupings of numerical competency scores, and 2) by mean of the numerical response of the teachers on the assessment form. The competency scores are grouped into three ranges: numerical score of 1.00 to 2.50 to include scores of 1 (Basic competency) and 2 (Limited competency), numerical score of 2.51 to 3.50 to include scores of 3 (Intermediate competency), and numerical score of 3.51 to 5.00 to include scores of 4 (Advanced competency) and 5 (Expert competency).

The groupings are based on the previous result of Problem 2 that the teachers' mean competency is 2.82 (Intermediate) and on the normal distribution, as justified by the Central Limit Theorem and the Law of Large Numbers, which states that the distribution of the sum (or average) of a large number (more than 25 is considered large sample) of independent, identically distributed variables will be approximately normal, regardless of the underlying distribution (Engineering Statistics Handbook). The scores as assessed by the teachers are presented in this section while the scores as assessed by the administrators are presented in the next section.

Table 9. Frequency and Percentage of Teachers by Competency Score in Component I: Personal and Professional Competency

Competency Skill Requirement	1.00-2,50	Percentage	2.51-3.50	Percentage	3.51-5.00	Percentage
1. Cconduct of researches to improve learning-teaching process	15	20%	46	60%	15	20%

2.	Cconduct of regular self –assessment	31	41%	32	42%	13	17%
3.	Ppreparation of papers for presentation in technical conferences/symposia	16	21%	41	54%	19	25%
4.	Uuse of tools for critical assessment	28	37%	36	47%	12	16%

As shown in Table 9, almost half of the TLE teachers assessed themselves with intermediate competency (2.51-3.50) in all the four areas under component 1: 61% on conduct of researches, 42% on conduct of regular self-assessment, 54% on preparation of papers for presentation, and 47% on use of tools for critical assessment. At most, 25% of the teachers assessed themselves as having advanced competency or expert competency (3.51-5.00): 19% on conduct of researches, 17% on conduct of regular self-assessment, 25% on preparation of papers for presentation, and 16% on use of tools for critical assessment. A big percentage of the teachers assessed themselves as having limited competency or basic competency (1.00–2.50): 20% on conduct of researches, 41% on conduct of regular self-assessment, 21% on preparation of papers for presentation, and 37% on use of tools for critical assessment.

Table 10. Numerical and Descriptive Mean Competency Score in Component I: Personal and Professional Competency

Competency Skill Requirement	Competency Assessment Score	
	Numerical	Descriptive
1. Cconduct of researches to improve learning-teaching process	3.01	Intermediate
2. Cconduct of regular self –assessment	2.63	Intermediate
3. Preparation of papers for presentation in technical conferences/symposia	3.00	Intermediate
4. Uuse of tools for critical assessment	2.64	Intermediate
Over-all mean	2.82	Intermediate

Table 10 shows the mean numerical competency scores of the TLE teachers in each of the key areas under component 1. The highest competency score is on the conduct of researches to improve learning-teaching process at 3.01, followed by on preparation of technical papers for presentation in technical conferences/ symposia at 3.00, on use of tools for critical assessment at 2.74, and last, on conduct of regular assessment at 2.73. The over-all mean competency is 2.82 which means intermediate competency.

The data shows that the low scores on the conduct of regular assessment and on use of critical tools emphasize the need to motivate teachers to learn and use such tools.

Table 11. Frequency and Percentage of Teachers by Competency Score in Component II: Knowledge of Student Skills and Talents

Competency Skill Requirement	1.00-2,50	Percentage	2.51-3.50	Percentage	3.51-5.00	Percentage
1. Mmeasurement and evaluation of talents, skills, and interests of students	5	7%	48	63%	23	30%
2. Planning and conduct of outdoor activities	38	50%	24	32%	14	18%
3. Cconduct of interview/ conference with students and their parents to identify their talents, skills, and interests in the different learning areas of TLE	33	43%	28	37%	15	20%

Table 11 shows 63% assessed themselves with intermediate competency (2.51- 3.50) in measurement and evaluation of talents, skills, and interest of students under component II: 50% assessed themselves with limited to basic competency (1.00-2.50) on planning and conduct of outdoor activities; and 43% assessed themselves with limited to basic competency (1.00-2.50) on conduct of interview/conference with the students and their parents to identify their talents, skills, and interest in the different learning areas of TLE.

A low percentage of the TLE teachers assessed themselves with advanced or competency (3.51- 5.00) in all the three skills under component II: 30% on measurement and evaluation of talents, skills, and interests of students; 18% on planning and conduct of outdoor activities; and 20% on conduct of interview/conference with the students and their parents to identify their talents, skills, and interest in the different learning areas of TLE.

The distribution of scores is indicative of the teachers' need to enhance their skills on measurement and evaluation of talents, skills, and interests of students; on conduct of interview/conference with the students and their parents to identify their talents, skills, and interest in the different learning areas of TLE; and most specially on planning and conduct of outdoor activities.

Table 12. Numerical and Descriptive Mean Competency Score in Component II: Knowledge of Student Skills and Talents

Competency Skill Requirement	Competency Assessment Score	
	Numerical	Descriptive
1. Mmeasurement and evaluation of talents, skills, and interests of students	3.32	Intermediate
2. Pplanning and conduct of outdoor activities	2.55	Intermediate
3. Cconduct of interview/ conference with the students and their parents to identify their talents, skills, and interests in the different learning areas of TLE	2.64	Intermediate
Over-all mean	2.84	Intermediate

The mean competency scores of TLE teachers in component II, as shown in table 12, are all within the range of intermediate competency. Numerical score is highest at 3.32 on measurement and evaluation of talents, skills, and interests of students; followed

by 2.64 on conduct of interview/conference with the students and their parents to identify their talents, skills, and interest in the different learning areas of TLE; and last at 2.55 on planning and conduct of outdoor activities.

The scores imply that outdoor activities are not prioritized by TLE teachers as learning activity and most of the teaching-learning processes only take place inside their classroom.

Table 13. Frequency and Percentage of Teachers by Competency Score in Component III: Teaching Techniques Competency

Competency Skill Requirement	1.00-2,50	Percent-age	2.51-3.50	Percent-age	3.51-5.00	Percent-age
1. Knowledge on the proper use of the latest tools and techniques in relation to teaching TLE	10	13%	43	57%	23	30%
2. Resource management strategies	15	20%	45	59%	16	21%
3. Access to and how to use technological sources related to teaching – learning (database, online sources and etc.) materials	20	26%	35	46%	21	28%
4. Motivating students to improve themselves	7	9%	38	50%	31	41%
5. Finding alternative means if the school has no provisions for a laboratory site in the area being taught	15	20%	37	49%	24	31%
6. Development of new ideas and new designs and skills in doing project making activities	15	20%	42	55%	19	25%
7. Improvising tools to supplement the available tools in the school	11	14%	43	57%	22	29%

As presented in table 13, almost half of the TLE teachers assessed themselves with intermediate competency (2.51- 3.50) in all the seven areas under component III: 59% on resource management strategies, 57% on knowledge on the proper use of the latest tools and techniques in relation to teaching TLE and on improvising tools to supplement the available tools in the school, 55% on development of new ideas and new designs and skills in doing project making activities, 50% on motivating students to improve themselves, and 49% on finding alternative means if the school has no provisions for a laboratory site in the area being taught.

A smaller percentage of the teachers assessed themselves as having advanced competency or expert competency (3.51 - 5.00) as compared to those who assessed themselves as having intermediate competency (2.51-3.50);41% on motivating students to improve themselves, 31% on finding alternative means if the school has no provisions for a laboratory site in the area being taught, 30% on knowledge on the proper use of the latest tools and techniques in relation to teaching TLE, 29% on improvising tools to supplement the available tools in the school, 28% on access to and how to use technological sources related to teaching-learning (database, online sources and etc.) materials, 25% on development of new ideas and new designs and skills in doing project making activities, and 21% on resource management strategies.

The data shows that the distribution of scores is indicative of the teachers' need to enhance their skills on the skills under component III, most specially on access to and use of technological sources related to teaching-learning (database, online sources and etc.) materials, on development of new ideas and new designs and skills in doing project making activities, and on resource management strategies.

Table 14. Numerical and Descriptive Mean Competency Score in Component III: Teaching Techniques Competency

Competency Requirements	Competency Assessment Score	
	Numerical	Descriptive
1. Knowledge on the proper use of the latest tools and techniques in relation to teaching TLE	3.18	Intermediate
2. Resource management strategies	3.00	Intermediate
3. Access to and how to use technological sources related to teaching – learning (database, online sources and etc.) materials	3.01	Intermediate
4. Motivating students to improve themselves	3.39	Intermediate
5. Finding alternative means if the school has no provisions for a laboratory site in the area being taught	3.12	Intermediate
6. Development of new ideas and new designs and skills in doing project making activities	3.11	Intermediate
7. Improvising tools to supplement the available tools in the school	3.13	Intermediate
Over-all mean	3.13	Intermediate

Table 14 presents that the mean competency scores of TLE teachers on the seven skills under component III are within the range of intermediate competency. The numerical competency scores equivalent are as follows: 3.39 on motivating students to improve themselves, 3.18 on knowledge on the proper use of the latest tools and techniques in relation to teaching TLE, 3.13 on improvising tools to supplement the available tools in the school, 3.12 on finding alternative means if the school has no provisions for a laboratory site in the area being taught, 3.11 on development of new ideas and new designs and skills in doing project making activities, 3.01 on access to and how to use technological sources related to teaching-learning (database, online sources and etc.) materials, and 3.00 on resource management strategies.

The scores imply that teachers practice the skills for motivating students; however, lack of technological resources and of the skill to manage these resources seems to be a common problem.

Table 15. Frequency and Percentage of Teachers by Competency Score in Component IV: Monitoring and Evaluation Skills

Competency Skill Requirement	1.00-2,50	Percentage	2.51-3.50	Percentage	3.51-5.00	Percentage
1. Preparation of reliable test questionnaire	13	17%	38	50%	25	33%

2. Preparation of diversified and alternative testing tools for students	21	28%	36	47%	19	25%
3. Use of teachers' evaluation results of students in the improvement of the teaching process	15	20%	44	58%	17	22%
4. Conversion of test results into visual form such as tables and graphs	28	37%	34	45%	14	18%
5. Selection and application of the proper statistical technique in data analysis	33	43%	35	46%	8	11%
6. Doing data analyses using computer software and other information and communication technologies	15	20%	40	52%	21	28%
7. Testing validity and reliability and calibration of testing instruments and tools	20	26%	41	54%	15	20%

Table 15 shows the percentage of teachers who rated themselves with intermediate competency (3) in Component IV: Monitoring and Evaluation Skills: 50% on preparing of valid and reliable tests, 47% on use of evaluation results for the improvement of the teaching process, 58% on use of computer software and other information and communication technologies in analyzing test results, 45% on preparing of diversified and alternative testing tools for students, 46% on establishing the validity and reliability of testing instruments and tools, 52% on preparing of test results in visual form such as tables and graphs, and 20% on selection and application of the proper statistical technique in data analysis.

Table 16. Numerical and Descriptive Mean Competency Score In Component IV: Monitoring and Evaluation Skills

Competency Requirements	Competency Assessment Score	
	Numerical	Descriptive
1. Preparation of reliable test questionnaire	3.20	Intermediate
2. Preparation of diversified and alternative testing tools for students	3.00	Intermediate
3. Use of teachers' evaluation results of students in the improvement of the teaching process	3.12	Intermediate
4. Conversion of test results into visual form such as tables and graphs	2.76	Intermediate
5. Selection and application of the proper statistical technique in data analysis	2.57	Intermediate
6. Doing data analyses using computer software and other information and communication technologies	3.05	Intermediate
7. Testing validity and reliability and calibration of testing instruments and tools	2.91	Intermediate
Over-all mean	2.94	Intermediate

Table 16 gives the numerical competency scores of the teachers on Component IV: Monitoring and Evaluation Skills. The scores are all within the range of intermediate competency. The highest is on preparation of valid and reliable test questionnaires at 3.20, followed by on use of teachers' evaluation results of students in the improvement of the teaching process at 3.12, and then on doing data analyses using computer software and communication technologies at 3.05. The lowest are on use of statistical tools for data analysis at 2.57 and on conversion of test results to visual forms at 2.76.

Table 17. Frequency and Percentage of Teachers by Competency Score in Component V. Relations with Family and Society

Competency Skill Requirement	1.00-2,50	Percentage	2.51-3.50	Percentage	3.51-5.00	Percentage
1. Organization of meetings and seminars in accordance with interests and needs of families and students	42	55%	24	32%	10	13%
2. Inviting professionals from fields such as industry, trade, agriculture, etc. within the same environment to lessons related to their professions.	47	62%	21	28%	8	10%
3. Tapping institutions and organizations in the vicinity for educational purposes	43	57%	27	35%	6	8%
4. Membership/leadership in any of non-governmental organization, society and educational groups, and other technology related organizations	38	50%	27	36%	11	14%

Table 17 shows that quite a small percentage of the TLE teachers rated themselves 4 or 5 (Advanced or Expert) in Component V: Relation with Family and Society: 13% on organizing meetings and seminars in accordance with interests and needs of families and students; 10% on inviting professionals from fields such as industry, trade, agriculture, etc. within the same environment to give lecture/talk on lessons related to their professions; 8% on tapping institutions and organizations in the vicinity for educational purposes; and 14% on membership/leadership of any non-governmental organizations, society and educational groups, and other technology related organizations. On the other hand, more than half of the teachers rated themselves 3 (Intermediate) in Component V: 55% on organizing meetings and seminars in accordance with interests and needs of families and students; 62% on inviting professionals from fields such as industry, trade, agriculture, etc. within the same environment to give lecture/talk on lessons related to their professions; 57% on tapping institutions and organizations in the vicinity for educational purposes; and 50% on membership/leadership of any non-governmental organizations, society and educational groups, and other

technology related organizations. Among the six components, the lowest percentage of teachers with Basic and Limited competency is on component V.

Table 18. Numerical and Descriptive Mean Competency Score in Component V: Relations with Family and Society

Competency Requirements	Competency Assessment Score	
	Numerical	Descriptive
1. Organization of meetings and seminars in accordance with interests and needs of families and students	2.43	Limited
2. Inviting professionals from fields such as industry, trade, agriculture, etc. within the same environment to lessons related to their professions.	2.30	Limited
3. Tapping institutions and organizations in the vicinity for educational purposes	2.30	Limited
4. Membership/leadership in any of non-governmental organization, society and educational groups, and other technology related organizations	2.46	Limited
Over-all mean	2.37	Limited

Table 18 is another view of the TLE teachers' competency rating in Component V: Relation with Family and Society: 2.43 on organizing meetings and seminars in accordance with interests and needs of families and students; 2.30 on inviting professionals from fields such as industry, trade, agriculture, etc. within the same environment to give lecture/talk on lessons related to their professions; 2.30 on tapping institutions and organizations in the vicinity for educational purposes; and 2.46 on membership/leadership of any non-governmental organizations, society and educational groups, and other technology related organizations.

Table 19. Frequency and Percentage of Teachers by Competency Score in Component VI: Knowledge of Curriculum and Content

Competency Skill Requirement	1.00-2,50	Percentage	2.51-3.50	Percentage	3.51-5.00	Percentage
1. Full awareness of the objectives of TLE	5	6%	31	41%	40	53%
2. Full awareness of the learning competencies to develop among students in each of the EPP/TLE areas						
2.1 Industrial Arts	35	46%	20	26%	21	28%
2.2 Home Economics	22	29%	25	33%	29	38%
2.3 Computer and Entrepreneurship	35	46%	22	29%	19	25%
2.4 Agriculture and Fishery Arts	53	70%	11	14%	12	16%

In table 19, the percentages of the TLE teachers who rated themselves 4 or better in Component VI: Knowledge of Curriculum and Content are as follows: 53% on awareness of the objectives of Technology and Livelihood Education; and 38%, 28%, 24%, and 16% on awareness of the learning competencies to be developed among the students in Home Economics, Industrial Arts, Computer and Entrepreneurship, and Agriculture and Fishery Arts, respectively. The percentages of the TLE teachers who rated themselves as having intermediate competency (3.00) in Component VI are as follows: 41% on awareness of the objectives of Technology and Livelihood Education; and 26%, 33%, 29%, and 14% on awareness of the learning competencies to be developed among the students in Home Economics, Industrial Arts, Computer and Entrepreneurship, and Agriculture and Fishery Arts, respectively.

Table 20. Numerical and Descriptive Mean Competency Score in Component VI: Knowledge of Curriculum and Content

Competency Requirements	Competency Assessment Score	
	Numerical	Descriptive
1. Full awareness of the objectives of TLE	3.61	Intermediate
2. Full awareness of the learning competencies to develop among students in each of the EPP/TLE areas		
2.1 Industrial Arts	2.62	Intermediate
2.2 Home Economics	3.00	Intermediate
2.3 Computer and Entrepreneurship	2.59	Intermediate
2.5 Agriculture and Fishery Arts	2.08	Limited
Over-all mean	2.78	Intermediate

Table 20 shows the mean numerical competency scores of the TLE teachers in Component VI as follows: 3.61 on awareness of the objectives of Technology and Livelihood Education; and 2.62, 3.00,2.59, and 2.08 on awareness of the learning competencies to be developed among the students in Home Economics, Industrial Arts, Computer and Entrepreneurship, and Agriculture and Fishery Arts, respectively.

2.2 As Assessed by the Administrators

The ratings of the five administrators were computed as the average competency level of all the TLE teachers under their supervision based on their response on the assessment form attached as Appendix C.

Table 21. Administrators' Assessment of Teachers Competency

Components of Competency	Competency Score

I	Personal and Professional Values	3.30	Intermediate
II	Knowledge of Student Skills and Talents	3.40	Intermediate
III	Learning and Teaching Techniques	3.57	Advanced
IV	Monitoring and Evaluation Skills	3.40	Intermediate
V	Relationship with School-Family and Society	3.35	Intermediate
VI	Knowledge of Curriculum Content	3.90	Advanced
	Over-all mean	3.5	Intermediate

The table shows that the administrators' ratings range from intermediate to advanced competency. The highest rating of 3.90 which means advanced competency was provided by the administrators on Component VI: Knowledge of Curriculum and Content. A rating of 3.57, which is, likewise, interpreted as advanced competency was also provided by the administrators in Component III: Learning and Teaching Techniques. A rating of intermediate competency was given to TLE teachers by the administrators in components II: Knowledge of Students Skills and Talents at 3.40, Component V: Relationship with School-Family and Society at 3.35, and Component 1: Personal and Professional Values at 3.30.

The data shows that the administrator's trusts or expectation to their teachers in teaching the subject are relatively higher than the rating of the teachers.

Significant difference in competency level of TLE teachers when they are grouped according to demographic profile

The above stated problem was answered by testing the first null hypothesis that there is no significant difference in the competency scores of TLE teachers when they are grouped according to demographic profile.

The difference in competency scores between male and female TLE teachers were tested using t-test, and the differences between competency scores according to the rest of the demographic variables were tested using F-test in the Analysis of Variance approach. The results are shown in Tables 22 and 23.

Table 22. Results of Tests for Differences between Competency Scores of TLE Teachers when grouped according to Sex, Age, and Undergraduate Degree

Demographic Profile	Competency Score	Test statistic Computed	Degrees of Freedom (n,k)	P – Value
Sex		t = 0.35		p = 0.36
Male	2.82			
Female	2.89			
Age (years)		F = 0.65	72,3	p = 0.58
20-30	2.85			
21-40	2.73			
41-50	2.95			
51-60	2.73			
Undergraduate degree		F = 0.77	70,5	p = 0.57
Computer- related	2.76			
Home Economics	2.96			
Industrial Arts	2.79			
Agri-business	2.73			
Business-related	2.44			
Others	2.66			

$p > 0.05$ are not significant, $p < 0.05$ are significant

The T-test result shows no significant difference in the competency scores among male and female teachers. Likewise, ANOVA indicates no significant differences in competency gap when the teachers were grouped according to age, and undergraduate degree completed.

Table 23. Results of Tests for Differences between Competency Scores of TLE Teachers when grouped according to Teaching Experience and Seminars Attended

Demographic Profile	Competency Score	Test statistic computed	Degrees of Freedom (n,k)	p – value
Teaching Experience		F = 2.07	71,4	p = 0.09
0 – 5 years	2.66			
6 – 10 years	2.92			
11 – 15 years	2.80			
16 – 20 years	2.69			
21 – 25 years	3.27			
26 - 35 years	3.37			
Seminars Attended		F = 0.84	72,3	p = 0.48
None	2.92			
1 - 5 hours	2.70			
6 – 10 hours	2.64			
11 – 20 hours	3.12			

$p > 0.05$ are not significant, $p < 0.05$ are significant

As shown in table 23, ANOVA indicates no significant differences in competency scores when the teachers were grouped according to teaching experience and seminar/training attended. Based on the results, there were no significant differences in competency scores of TLE teachers

It can be concluded that the competency level of the TLE teachers is not related to demographic profile. It can also be deduced that generally, whether males or females, young or old, graduates of any courses, have attended seminars or not, and experienced teacher or not so experienced, they have a common competency level of 2.82, intermediate level.

Significant difference between the assessment of teachers and the administrators

The above stated problem 5 was answered by testing the null hypothesis:

H_o2: There is no significant difference between the competency assessments of the teachers and the administrators.

Table 24. Competency Assessment of Teachers and Administrators

Components of Competency	As Assessed by Teachers	As Assessed by Administrators
I Personal and Professional Values	2.82 Intermediate	3.30 Intermediate
II Knowledge of Student Skills and Talents	2.84 Intermediate	3.40 Intermediate
III Learning and Teaching Techniques	3.14 Intermediate	3.57 Advanced
IV Monitoring and Evaluation Skills	2.94 Intermediate	3.40 Intermediate
V Relationship with School-Family and Society	2.38 Intermediate	3.35 Intermediate
VI Knowledge of Curriculum Content	2.76 Intermediate	3.90 Advanced
Over-all mean	3.5 Intermediate	3.5 Intermediate

t computed = 4.76, p = 0.0004

Table 24 shows that, in all the six competency components, the administrators' ratings were consistently higher than the teachers' ratings. The teachers' self-rating was highest in Component III: Learning and Teaching Techniques while the administrators rated the teachers highest on Component VI: Knowledge of Curriculum and Content. The lowest self-rating among the teachers was on Component V: Relationship with School-Family and Society while the administrators' lowest rating was on Component 1: Personal and Professional Values. Despite the differences in the numerical ratings, the ratings were all within the range of intermediate competency except in Component III: Learning and Teaching Technique, where the administrators rated the teachers with advanced competency skills.

Teaching competency requirements of TLE teachers

Teaching competencies for TLE teachers used in the study were developed by the researcher, using as references, the six main competencies as determined by the Ministry of Education Turkey (2006); the RPMS-PPST self-assessment tool for teachers developed by DepEd; and the Teacher Education Council, DepEd TLE Module 6.9.

Table 25. Assumptions of the TLE Competency Standard

Very competent on the following domains (lifted from DepEd, NCBTS)

Social Regard for Learning

Can demonstrate social regard for learning in an advance level

Professional Growth & Development

Can uphold dignity of profession; translate teaching philosophy to action; manifest personal qualities like enthusiasm, flexibility and caring in an advanced level

Curriculum

Have advanced level mastery of the subject; can integrate, explain, link, and align lesson in an advance level; can support other teacher's improvement

Planning, Assessing & Reporting

Are very competent in the development, utilization and implementation of appropriate instructional plan; can support other teachers' improvement

Desired Standard Competency Requirements for TLE Teacher

Advanced skills (numerical score of 4 or better) in the following components:

I. Personal and Professional Competence

1. Use of tools for critical assessment
6. Preparation of papers for presentation in technical conferences / symposia
7. Conduct of regular self-assessment.
8. Conduct of researches to improve learning-teaching process

II. Competence in Using Knowledge of Students' Skills and Talents

1. Measuring and evaluating the talents, skills, and interests of students
2. Planning and conducting outdoor activities
3. Conducting interview/conference with the students; previous teachers; and their parents to identify their talents, skills, and interest in the different learning areas of TLE

III. Competence in Using Teaching Techniques

1. Knowledge on the proper use of the latest tools and techniques in relation to teaching TLE
2. Use of resource management strategies
3. Use of technological sources related to teaching-learning (database, online sources, and etc.) materials
4. Motivating students to improve themselves
9. Finding alternative means if the school has no provisions for a laboratory site in the area/school
10. Developing new ideas, new designs, and skills in doing project making activities

11. Improvising tools to supplement the available tools in the school.

IV. Competence in Monitoring and Evaluation

1. Preparing valid and reliable tests
2. Preparing diversified and alternative testing tools for students.
3. Use of evaluation results for the improvement of the teaching process.
4. Preparing of test results in visual form such as tables and graphs.
5. Selection and application of the proper statistical technique in data analysis
6. Use of computer software and other information and communication technologies in analyzing test results.
7. Establishing the validity and reliability of testing instruments and tools

V. Competence in Establishing Relations with Family and Society

1. Organizing meetings and seminars in accordance with interests and needs of families and students
2. Inviting professionals from fields such as industry, trade, agriculture, etc. within the same environment to give lecture/talk on lessons related to their professions
3. Tapping institutions and organizations in the vicinity for educational purposes
4. Membership/leadership of any non-governmental organizations, society and educational groups, and other technology related organizations

VI. Competence in Using Knowledge of Curriculum and Content

1. Awareness of the objectives of Technology and Livelihood Education
2. Awareness of the learning competencies to be developed among the students in each of the following learning areas.
   - 2.1 Industrial Arts
   - 2.2 Home Economics
   - 2.3 Computer and Entrepreneurship
   - 2.4 Agriculture and Fishery Arts

Gaps between the present competencies of TLE teachers and the standard teaching competencies

The gaps were determined by comparing the numerical means of the competency scores as previously presented and discussed in Problem 4 of the study and the standard or desired competency as presented and discussed in Problem 6 of the study. The ranges in the mean numerical competency scores are explained in Chapter 3. As discussed, individual desired standard score is 4 or 5, and standard collective competency score is within the range 3.51 to 5.00. Since intermediate competency has an individual numerical score of 3 and the collective mean score is within the range 2.51 to 3.50, a present competency score of 3.49 and below is considered lower than the standard; hence, a gap exists. The differences in the scores are tested and discussed in Problem 8 of the study.

Table 26. Gap between Desired (Standard) and Present Competency Skills in Component I: Personal and Professional Competence

Skill	Competency		Gap/Comment
	Present	Desired	
1. Use of tools for critical assessment	3.01 Intermediate	4 Advanced	-0.99 Below desired level
4. Preparation of papers for presentation in technical conferences/symposia	2.63 Intermediate	4 Advanced	-1.39 Below desired level
5. Conduct of regular self-assessment	3.00 Intermediate	4 Advanced	-1.00 Below desired level
6. Conduct of researches to improve learning-teaching process	2.64 Intermediate	4 Advanced	-1.36 Below desired level

A gap of -0.50 and below is within the desired level

As shown in table 26, there exists a gap in all the four skills under component I. The highest gap is on the conduct of researches to improve learning and teaching process and the lowest is on the use of critical tools for assessment.

The data reveals that the skills of the TLE teachers in personal and professional component are below the desired or the standard level.

Table 27. Gap between Desired (Standard) and Present Competency Skills in Component II: Competence in Using Knowledge of Student Skills and Talents

Skill	Competency		Gap/Comment
	Present	Desired	
1. Measuring and evaluating the talents, skills, and interests of students	3.32 Intermediate	4 Advanced	-0.68 Below desired level
2. Planning and conducting outdoor activities	2.55 Intermediate	4 Advanced	-1.45 Below desired level
3. Conducting interview/conference with students/ previous teachers and their parents to identify their talents, skills and interest in the different learning areas of TLE	2.64 Intermediate	4 Advanced	-1.36 Below desired level

A gap of -0.50 and below is within the desired level

As shown in table 27, there exists a gap in all the three skills under component II. The highest gap is on planning and conducting outdoor activities and the lowest is on measuring the talent and skills of the students. This is an indication that the skills of the TLE teachers in knowledge and skills of the students are below the desired or the standard level. The low competence in conducting outdoor activities provides the students limited exposure and understanding of the environment and the community, which is considered as the best learning laboratory for technology and livelihood education.

Table 28. Gap between Desired (Standard) and Present Competency Skills in Component III: Competence in Using Teaching Techniques

Skill	Competency		Gap/Comment
	Present	Desired	
1. Use of the latest tools and techniques in relation to teaching TLE	3.18 Intermediate	4 Advanced	-0.92 Below desired level
2. Use of resource management strategies	3.00 Intermediate	4 Advanced	-1.00 Below desired level
3. Use of technological sources related to teaching-learning (database, online sources etc.) materials	3.01 Intermediate	4 Advanced	-0.99 Below desired level
4. Motivating students to improve themselves	3.39 Intermediate	4 Advanced	-0.61 Below desired level
7. Finding alternative means if the school has no provisions for a laboratory site in the area/school	3.12 Intermediate	4 Advanced	-0.88 Below desired level
8. Developing new ideas, new designs and skills in doing project making activities	3.11 Intermediate	4 Advanced	-0.89 Below desired level
9. Improvising tools to supplement the available tools in school	3.13 Intermediate	4 Advanced	-0.87 Below desired level

A gap of -0.50 and below is within the desired level

As shown in table 28, there exists a gap in all the seven skills under component III. The highest are those related to access, use and management of technology, and use of alternative and improvised tools. This is expected due to the low budget allotted to public education by the national government; hence, teachers are expected to augment available resources through innovative teaching techniques.

Table 29. Gap between Desired (Standard) and Present Competency Skills in Component IV: Competence in Monitoring and Evaluation

Skill	Competency		Gap/Comment
	Present	Desired	
1. Preparing of valid and reliable tests	3.20 Intermediate	4 Advanced	-0.80 Below desired level
2. Preparing of diversified and alternative testing tools for students	3.00 Intermediate	4 Advanced	-1.00 Below desired level
3. Use of evaluation results for the improvement of the teaching process	3.12 Intermediate	4 Advanced	-0.88 Below desired level
4. Preparing of test results in visual form such as tables and graphs.	2.76 Intermediate	4 Advanced	-1.24 Below desired level
5. Selection and application of the proper statistical technique in data analysis	2.57 Intermediate	4 Advanced	-1.33 Below desired level
6. Use of computer software and other information and communication technologies in analyzing test results.	3.05 Intermediate	4 Advanced	-0.95 Below desired level
7. Establishing the validity and reliability of testing instruments and tools.	2.91 Intermediate	4 Advanced	-1.09 Below desired level

A gap of -0.50 and below is within the desired level

Table 29 shows the gaps in all the seven skills under component IV. The skills involve knowledge, use of alternative and diversified instruments, testing tools, and presentation and interpretation of the assessment results.

The gaps emphasize the deficiencies to be addressed to enhance the teachers' competence in monitoring and evaluating students' performance.

Table 30. Gap between Desired (Standard) and Present Competency Skills in Component V. Competence in Establishing Relations with Family and Society

Skill	Competency		Gap/Comment
	Present	Desired	
1. Organizing meetings and seminars in accordance with interests and needs of families and students	2.43 Intermediate	4 Advanced	-1.57 Below desired level
2. Inviting professionals from fields such as industry, trade, agriculture etc. within the same environment to give lecture/talk on lessons related to their professions.	2.30 Intermediate	4 Advanced	-1.70 Below desired level
3. Tapping institutions and organizations in the vicinity for educational purposes.	2.30 Intermediate	4 Advanced	-1.70 Below desired level
4. Membership/leadership on any non-governmental organizations, society and educational groups, and other technology related organizations.	2.46 Intermediate	4 Advanced	-1.54 Below desired level

A gap of -0.50 and below is within the desired level

As shown in table 30, there exists a bigger gap in all the four skills under component V as compared to the first four components. The skills under component V involving establishing relationship with the community and organizations outside the classroom are linked to low competence in planning outdoor activities in component II. Forging linkage with the community, industry, and other organizations outside the classroom is deemed necessary to address not one but a lot of connected gaps.

Table 31. Gap Between Desired (Standard) and Present Competency Skills in Component VI. Competence in Using Knowledge of Curriculum and Content

Skill	Competency		Gap/Comment
	Present	Desired	
1. Awareness of the objectives of Technology and Livelihood Education	3.61 Intermediate	4 Advanced	-0.39 Within desired level
2. Awareness of the learning competencies to be developed among the students in each of the following learning areas.			
2.1 Industrial Arts	2.62 Intermediate	4 Advanced	-1.38 Below desired level
2.2 Home Economics	3.00 Intermediate	4 Advanced	-1.00 Below desired level
2.3 Computer & Entrepreneurship	2.59 Intermediate	4 Advanced	-1.41 Below desired level
2.4 Agriculture and Fishery Arts	2.08 Limited	4 Advanced	-1.92 Below desired level

A gap of -0.50 and below is within the desired level

Table 31 shows that the teachers' awareness on the objectives of TLE is within standard; however, awareness on the competency requirements of all the four subject areas is below the desired level, particularly in Agriculture and Fishery Arts.

This implies that, theoretically, teachers are competent of the knowledge of the TLE curriculum and its content, and it is the lack of knowledge and skills on other competency areas that collectively defines their present competency level below the desired standard level.

Competency Needs of TLE teachers

Based on the identification, analysis, and significance testing of the gaps in problems 7 and 8, the following competency needs were determined.

1. TLE teachers to prioritize the following learning activities that would enhance competency of students:
   - 1.1 Tapping institutions and organizations in the vicinity for educational purposes;
   - 1.2 Inviting professionals from fields such as industry, trade, agriculture, etc. within the same environment to give lecture/talk on lessons related to their professions;
   - 1.3 Organizing meetings and seminars in accordance with the interests and needs of families and students;
   - 1.4 Conducting interviews/conferences with the students, previous teachers, and their parents to identify their talents, skills, and interests in the different learning areas of TLE; and
   - 1.5 Planning and conducting outdoor activities.
2. Motivation and opportunities to acquire/enhance and apply skills on the following:
   - 2.1 Conducting scientific researches;
   - 2.2 Preparation of papers for presentation in technical conferences/symposia;
   - 2.3 Statistical technique in data analysis and presentation of test results in visual form such as tables and graphs;
   - 2.4 Preparation and use of test instruments and critical assessment tools that are valid and reliable;
   - 2.5 Preparation of diversified and alternative testing tools for students;
   - 2.6 Creation of resource management strategies; and
   - 2.7 Creation of new ideas, new designs, and skills in doing project making activities.

3. Renew professionalism and rejuvenate teaching advocacy and calling by doing the following:
   3.1 Conducting of regular self assessment;
   3.2 Membership/leadership of any non-governmental organizations, society and educational groups, and other technology related organizations;
   3.3 Awareness of the learning competencies to be developed among the students in the area of Home Economics, Computer and Entrepreneurship, Industrial Arts, and Agriculture and Fishery Arts;
   3.4 Motivating students to improve themselves; and
   3.5 Finding alternative means if the school has no provisions for a laboratory site in the area/school.

Summary

The study sought to analyze the gap between the competency level and the standard teaching competencies and to identify the competency needs of TLE teachers in Dagupan City Division. The study employed a descriptive type research method wherein TLE teachers and administrators served as respondents of the study. Two sets of assessment questionnaires for each set of respondents were used as instruments of the study. Both assessment questionnaires were a checklist of 34 essential competencies for teaching TLE. The standard competency skills were based with some modifications on the mapping of the DepEd RPMS-PPST and Generic Teaching Competencies as determined by the Ministry of Education, Turkey (2006), as an output of a 4 year study funded by the European Union.

The study was guided by the Organization-Task-Person (OTP) framework of needs assessment described by McGehee and Thayer (2011) to provide information about where and when training is needed in an organization.

Percentages and averages were used to summarize and describe the data. Gap analysis was done to answer the problems posted in the study. T-test and Analysis of Variance were used to test the hypotheses of the study.

The data gathered from the study after a careful detailed analysis yielded the following significant findings:

1. Seventy five percent (75%) of the TLE teachers are female and 69% are below 40 years old. Thirty seven percent of the teachers are Home Economics majors, 21 percent are Industrial Arts majors, 18 percent are graduates of computer related courses, 9 percent are graduates of Agri- business courses, and 14 percent are graduates of business-related and other courses. Seventy one percent have less than 10 years teaching experience and 49 percent have not attended any seminar/training. All of them have less than 24 accumulated hours of seminar/training. Administrators are more than 40 years old with more than 15 years teaching experience and have been administrators for more than 5 years.

2. The existing competency level of the TLE teachers is intermediate competency (2.51- 3.50). Numerical rating of the teachers was 2.82 and the numerical rating of the administrators was higher at 3.50. The numerical competency rating of the teachers, as assessed by the teachers and the administrators in each of the 6 components, were: 2.82 and 3.30 on Personal and Professional Values, 2.84 and 3.40 on Knowledge of Student Skills and Talents, 3.14 and 3.57 on Learning and Teaching Techniques, 2.94 and 3.40 on Monitoring and Evaluation Skills, 2.38 and 3.35 on Relationship with School-Family and Society, and 2.78 and 3.90 on Knowledge of Curriculum and Content, respectively.

3. The present competency levels of TLE teachers are lower than the desired standard competency. Significant differences (gaps) were identified in all the six components of standard competency. Three major needs identified were activities that would enhance competency of students; motivation and opportunities to acquire/enhance, and apply enhanced skills; and renewed professionalism and rejuvenated teaching advocacy and calling. Specifically, the needs include programs/ projects/activities related to 1) tapping institutions and organizations in the vicinity for educational purposes; 2) organizing meetings and seminars in accordance with interests and needs of families and students; and 3) membership/leadership on any non-governmental organizations, society and educational groups, and other technology related organizations. There is also a need for enhanced skills on 1) application of the proper statistical techniques in data analysis, 2) conduct of researches to improve learning-teaching process, 3) planning and conducting outdoor activities, and 4) assessment and development of the learning competencies among the students in Agriculture and Fishery Arts.

Conclusions

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

1. The TLE teachers are mostly female aged 40 years or less, with less than 10 years of teaching experience. The undergraduate courses of most of the teachers are related to TLE; however, most of them have not attended seminar/ training programs related to TLE. The administrators are male and female aged 40 years and older with more than 15 years teaching experience. All, except one, are graduates of TLE-related courses and have taught TLE for more than 10 years.

2. The administrators rated the TLE teachers' competency level significantly higher than the self-rating of the teachers; however, the ratings were both interpreted as intermediate competency.

3. There are no significant differences in the competency rating of TLE teachers when they are grouped according to demographic profile. Ratings are interpreted as intermediate competency.

4. There exists a significant gap (difference) between the present competency level and the desired standard competency requirements of TLE teaching among the teachers.

Recommendations

Based on the conclusions drawn from the findings of the study, the following enhancement programs were recommended.

1. Programs/projects/activities to make the teachers closer to the community. Programs to include tapping resources and personalities from the industry, government agencies, and non-government organizations.

2. Development of an effective Observation Process for both administrators and teachers o to include not only the criteria for rating of existing competencies but also feedback mechanism and observer-teacher conferencing strategies for the improvement of the teachers' teaching competency. The process should be able to identify excellent and low performing teachers. It should also include a monitoring scheme to determine improvements along areas that need improvement for low performing teachers.

1. Mandatory monthly retooling activities on topics like:
   1. Conduct of research,
   2. Preparation of paper for presentation,
   3. Construction of test instruments,
   4. Alternative testing methods, and

5. Non-traditional assessment tools.

3. Moral and value recovery programs to remind the teachers on the advocacies of teaching and to rekindle their interest for self-improvement for the benefit of the students and the community.

4. An evaluation of the assessment tool used in this study is, likewise, recommended. It is suggested that teacher evaluation be conducted by peers, students, and administrators.

REFERENCES

Burch, Noel (n.d.). Four stages of learning. Cited in Wikipedia. Available at http://en.wikipedia.org/wiki/Four_stages_of_competence

Caparas,H. Technology and livelihood education. Retrieved from http://en.wikipedia.org/w/index.php? Title=Technology_and_Livelihood&oldid=558902782

Department of Education Order No. 43 series of 2002

Department of Education Order No. 37 series of 2003

Department of Education Memorandum No. 468 series 2008

Department of Education Memorandum No. 399 series of 2009

Department of Education Order No. 76 series of 2010

Department of Education Order No. 67 series of 2012, Enclosure No. 2

Department of Education Order No. 31 series of 2012

Department of Education, Philippines. National Competency-Based Teacher Standards

Department of Education and Training, Perth, Western Australia. (2004). Competency framework for teachers.

Dubois, J. & Rothwel, W.(2004).Competency-based or a traditional approach to training? *ProQuest Education Journals,58-4 p.46*. Retrieved from http://vetbiotech.um.ac.ir/parameters/vpb2/filemanager/behsazi/EnglishArticles/ traditional%20approach.pdf

Edutopia staff.(n.d.). Why is teacher development important? Retrieved from http://www.edutopia.org/teacher-development-introduction

Engineering Statistics Handbook. Available at http://www.itl.nist.gov/div898/handbook/index.htm

Figueredo, V. and Anzalone, S (2003). Alternative models for secondary education in developing countries: Rationale and realities. Improving educational quality (IEG) project. Washington, DC: American Institute of Research.

Gap Analysis. Retrieved from http://www.businessdictionary.com/definition/gap-analysis.html

Great Schools.(n.d.) What makes a great teacher? Retrieved from http://www. greatschools.org/improvement/quality-teaching/79-what-makes-a-great-teacher.gs

Guilford, J. and Frucher. B. (1973). Fundamental statistics in psychology and education. New York: MC Graw-Hill

Guiner, D. (2013). Competencies of technology and livelihood education (TLE) instructors: Input to a training module in industrial arts. *E – International Scientific Research Journal*, VOLUME – V, ISSUE – 2

Holton, E., Bates, R. and Naquin, S. (2000). Large-scale performance driven training needs assessment: A case study. *Public Personnel Management*, 29 (2). Summer 249–268. As cited in Ghufli,Ali (2009). Training needs analysis: A case study of the Abu Dhabi police.

Knupfer, N. and McLellan, H. (2001). Descriptive research methodologies

Lefgren, L. & Jacob, B. (2003). When principals rate teachers. *Education Next*. Spring 2006. 6 (2)

Ministry of Education, Quebec.(n.d.) Scales of competency levels, secondary school education, cycle two. Available at http://www.mels.gouv.qc.ca/DGFj/de/echellessec.htm

Ministry of National Education, Turkish Republic (2006).Generic teacher competencies. Available at http://otmg.meb.gov.tr/belgeler/otmg/Generic_Teacher_Competencies.pdf

Mizell, H. (2010). Why professional development matters. Retrieved from http://www.Learningforward.org/advancing/whypdmatters.cfm

National Park Service, USA..(n.d.) What is competency-based training? Retrieved from http://www.nps.gov/training/uc/whcbt.htm

New Mexico Public Education Department, Educator Quality Division (2005). Guidelines for the New Mexico annual teacher performance evaluation: Third Edition. *Retrieved from teachnm.org/uploads/docs/eval_guide.pdf*

Pantic, N., Wubbels, T. & Mainhard, T. (2011). Teacher competence as a basis for teacher education: Comparing views of teachers and teacher educators in five Western Balkan Countries. *Comparative Education Review*, 55, (2) 165-188.

Parry, S. R. (1996). The quest for competence. *Training Magazine*. July 1996, 48-56. Cited in Sawant, B. and Avinash D. (2012). Competency mapping of the employees: A study of CIMMCO Spinning Mill, SOLAPUR. *Rising Research Journal Publication, Global J. of Arts & Mgmt.*, 2012: 2 (2)

Passos, A. A comparative analysis of teacher competence and its effect on pupil performance in upper primary schools in Mozambique and other Sacmeq countries. University of Pretoria 2009. Available in http://www.yumpu.com/en/ document/ view/4598729/a-comparative-analysis-of-teacher-competence-and-its-sacmeq

Republic Act No. 105233. Basic Education Act of 2013 Section 8

Retome, V. Instructional assessment of technology and livelihood education (TLE) program. Published Online: August 2012, 9; August 2012doi: http://dx.doi.org/10.7719/jpair.v9i1.14

Santos,L .(n.d.). Teacher education council. The Philippine basic curriculum: Module 2. Department of Education

SEAMEO INNOTECH. K to 12 toolkit. Reference guide for teacher educators, school administrators and teachers

Spasovski, R. (2009).Teacher competence as a basis for teacher education: Tuning teacher education curricula in five western Balkan countries. Retrieved from http://htk.tlu.ee/tepe/wp-content/uploads/2009/05/spasovski.pdf

Stronge, J. & Tucker, P (2003). Handbook on teacher evaluation: Assessing and improving performance. Larchmont, NY: Eye on education

Teacher Education Council, Department of Education.(n.d). Module 6.9, Curriculum and instruction: The teaching of technology and livelihood education

Thanasoulus, D.(2002). What do teachers bring to the teaching-learning process? Retrieved from www.TEFL.net

WONG T. (1996). RELATIONSHIP BETWEEN TEACHER COMPETENCE AND TEACHERS' INFERENCES OF STUDENTS' MULTIDIMENSIONAL SELF-CONCEPT. MASTER'S THESIS. RETRIEVED FROM HTTP://WWW.FED.CUHK.EDU.HK/EN/CUMPHIL/96FWONG/ABSTRACT.HTM

Zuzovsky,R.(n.d.). Teachers' qualifications and their impact on student achievement: Findings from TIMSS 2003 data for Israel. Available in http://www.isbe.state.il.us/GMWG/pdf/growth_model_case_study.pdf