



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

ASIAN JOURNAL OF  
SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology  
Vol. 08, Issue, 08, pp.5241-5246, August, 2017

## RESEARCH ARTICLE

### THE TEACHING OF ELECTRICITY IN THE K-12 PROGRAM IN BATANGAS NATIONAL HIGH SCHOOL

\*<sup>1</sup>Dr. Nerrie E. Malaluan and <sup>2</sup>Mr. Marlon D. Malaluan

<sup>1</sup>College of Teacher Education, Batangas State University, Batangas City, 4200, Philippines

<sup>2</sup>Technology and Livelihood Education (TLE) Department, Batangas National High School, 4200, Philippines

#### ARTICLE INFO

##### Article History:

Received 24<sup>th</sup> May, 2017  
Received in revised form  
13<sup>th</sup> June, 2017  
Accepted 22<sup>nd</sup> July 2017  
Published online 31<sup>st</sup> August, 2017

##### Key words:

TVL instruction,  
Electricity teaching,  
Status of teaching Electricity.

#### ABSTRACT

This research aimed to assess the teaching of Electricity in the K-12 program in Batangas National High School. The study included the assessment on the status of teaching Electricity as to objectives, contents, methodologies and assessment tools. The extent of manifestation of teachers' skills and competencies were also determined. Moreover, the issues and concerns encountered relative to meeting quality instruction were also considered. The researchers proposed measures that would strengthen the teaching of Electricity and improve TVL instruction. The study utilized descriptive method of research with questionnaire and interview as data gathering instruments. The study was limited to the responses of five electricity teachers and 125 Grade 9 students in Batangas National High School. Frequency, ranking and weighted mean were the statistical tools used to treat data in the study. The findings revealed that most of the objectives and contents of Electricity subject under K-12 curriculum were satisfactory attained by the teachers, they often used demonstration and drill to carry out their lessons while direct observation and practical exam were often used in assessing students' performance. The study disclosed that the skills and competencies required in teaching Electricity were manifested to a great extent. Inadequate teaching guide, learning module, facilities, tools and materials were the issues and concerns relative to meeting quality instruction. The proposed measures when consider and implemented may strengthen the teaching of Electricity in secondary schools.

Copyright©2017, Dr. Nerrie E. Malaluan and Mr. Marlon D. Malaluan. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

#### INTRODUCTION

Basic education reforms in basic education have been established in the Philippines to respond to the growing student population and to an emerging economy where the demand for quality education is high. These changes are significant for national and international industrial companies to consider when looking for potential new workers. With K-12 curriculum, future Filipino graduates will be ready and equipped with competencies and standards required in industries around the globe. According to President Aquino, the K-12 program will pave the way for an ever brighter future for young Filipinos by equipping them with basic education that adheres to international standards. The goal of the curriculum is to give Filipino students enough time to master relevant skills and concepts so that they are ready to be employed or to go to tertiary education. Hence, there is an apparent focus not only on academic areas but also on technical and vocational education. Technical and Vocational Education (TVE) is defined by UNESCO (UNESCO, 2012),

as a comprehensive term referring to the educational process that involves in addition to general education, the study of technologies and related sciences and the acquisition of practical skills and knowledge relating to occupations in various sectors of economic and social life. The broad educational goals of technical and vocational education distinguish it from vocational training, which is directed to developing the particular skills and related knowledge required by a specific occupation or group of occupations. Therefore, providing better tertiary and vocational education is crucial as it decides the future of the country. Technical Vocational Livelihood (TVL) is an important part of the current educational structure and plays a major role in developing a flexible and well-educated workforce to address present and emerging industry and labor-market needs and in allowing graduates to compete globally. Technology Education provides students with opportunities for solving problems, for designing, making and doing, and for addressing current trends and issues. It provides practical solutions to problems and develops technical skills, knowledge and attitudes of students. Technical Education and Skills Development Authority (TESDA) is mandated to provide relevant, accessible, high quality and efficient technical education and skills

\*Corresponding author: Dr. Nerrie E. Malaluan,

<sup>1</sup>College of Teacher Education, Batangas State University, Batangas City, 4200, Philippines.

development in support to the development of quality Filipino middle-level manpower responsive to and in accordance with Philippine development goals and priorities as cited in RA 7796, Section 2 (Republic Act, 1994). However, TESDA is not the sole training ground for TVL graduates in the country, as basic education institutions also offer Technology Education in their curricula. Middle skills developments among students are evident in the integration of vocational courses in the curriculum such as Automotive Servicing; Mechanical Drafting; Computer Hardware; Horticulture, Shielded Metal Arc Welding; Consumer Electronics Servicing; Aqua culture; Dressmaking; Tailoring; Masonry; Caregiving; Household Services; Plumbing; Agri-crop Production; Fish capture; Handicraft; Carpentry; RAC Servicing; Electrical Installation and Maintenance; Bread and Pastry Production; Tile Settling; Animal Production; Food processing; and Beauty Care (DepEd, 2012) (Department of Education Order, 2012). With such a strong focus on promoting technical and vocational programs, foreign employers who are looking for employees to work with them might consider the country's graduates.

The K-12 program is designed using an outcome-based curriculum. By expanding the basic education cycle, graduates are expected to achieve essential knowledge and skills that would make them prepared and ready for the world of work, employment and entrepreneurship. Students who go through the 12 years of basic education are geared up to advance to higher education, middle skills development, entrepreneurship or employment (TESDA, 2013). In this scenario, teachers inevitably play a big role in ensuring greater productivity of graduates. The primary role of teacher is to impart knowledge, skills, and values to young learners and ensure that they will grow as an asset to the society. It is crucial on the part of the teachers to realize the noble purpose of their profession, as they should set as examples to the students. The skills that they impart to the learners must be exhibited first by the teachers, with competencies and higher level of recital. Otherwise, young learners would be taught with skills that are behind the expectations of future employers. Hence it is important on the part of the researcher, as a TLE teacher, to initiate a study that deals with the assessment of the skills and competencies in areas of TVL in light of a number of factors that may affect the teacher's skills and competencies.

Technology and Vocational Livelihood is not as easy as some may think, since TLE teachers encounter issues and concerns which may affect their capabilities. The inability to maximize funds allotted by the government for Technical-Vocational Education and Training (TVET), lack of facilities and equipment necessary in carrying out designed tasks relative to TVE areas, an in-depth focus on knowledge-based education as manifested by a growing population of teachers enrolled in post-graduate studies over those who pursue vocational trainings, lack of school programs that will enhance teachers' competencies on selected TVL areas, and lack of research output that deal with assessment of competencies of TLE teachers are some of the deterrents to effective and timely TVL instruction. The aforementioned issue may eventually affect the performances of the students. The researchers, as educators in Basic Education handling Electricity courses and teaching in the College of Teacher Education offering Bachelor in Secondary Education, major in TLE find it necessary to propose measures to strengthen the teaching of Electricity. The study was undertaken to assess the teaching of

Electricity in the K-12 program in Batangas National High School and the issues and concerns relative to meeting quality instruction towards producing the most skilled, knowledgeable and productive graduates.

## MATERIALS AND METHODS

In this study, the descriptive method of research was employed to assess the status of teaching Electricity and the extent of manifestation of the skills and competencies of teachers. Likewise, focused group discussion was employed to determine the issues and concerns encountered relative to meeting quality instruction. The study included two groups of respondents, the Electricity teachers and Grade 9 students of Batangas National High School. These included 8 Electricity teacher and 125 Grade 9 students who took Electricity subject when they were in Grade 8. To determine the sample size for students, Sloven's Formula at five percent margin of error was used. Research participants were selected through stratified random sampling. No sampling was used for teachers. To facilitate data gathering, the researcher utilized a questionnaire. This is a self-directing instrument structured with questions and indicators for the respondents to react from. An interview was also conducted to validate the responses of the respondents.

## RESULTS AND DISCUSSIONS

### Assessment on the Status of Teaching Electricity

**Objectives:** The objectives of Electricity instruction were considered in the study. These are presented in Table 1.

**Table 1. Assessment of the Status of Teaching Electricity in Terms of Objectives**

Objectives	WM	VI	R
1. Identify electrical supplies, material and tools	3.6	SA	8.5
2. Request appropriate electrical supplies, materials and tools applicable to a specific job.	3.6	SA	8.5
3. Receive and inspect electrical supplies, materials and tools.	3.6	SA	8.5
4. Select electrical measuring tools and instruments	3.4	MA	12
5. Carry out measurements and calculations.	3.4	MA	12
6. Analyze signs, electrical symbols and data.	3.8	SA	4
7. Interpret technical drawings and plans	3.4	MA	12
8. Check condition of tools and equipment	3.8	SA	4
9. Perform basic preventive maintenance	3.6	SA	8.5
10. Store tools and equipment	4.0	SA	1
11. Identify hazards and risk	3.8	SA	4
12. Evaluate hazards and risk	3.8	SA	4
13. Control hazards and risks	3.8	SA	4
Composite Mean	3.6	SA	

Legend: WM – Weighted Mean

VI – Verbal Interpretation

R – Rank

SA – Satisfactory Attained

MA – Moderately Attained

As shown in the table, the teachers assessed that the objective of storing tools and equipment was satisfactory attained. It obtained the highest weighted mean of 4.0. It appeared that one of the major concerns in Electricity is to teach the students on the proper way of storing the electrical equipment and tools. This finding also shows the teachers concerns on the proper use of material resources which is very important in any subject that requires practical application. This is in

contrast with the findings of Torres (2004) which revealed that the desired learning competencies in different areas of TLE were attained to some extent. Similarly, the teachers revealed that they satisfactorily attained the objectives of analyzing signs, electrical symbols and data, checking the condition of tools and equipment, identifying, evaluating and controlling hazards and risks. These items got a weighted mean of 3.8 which ranked fourth among the objectives. This means that teachers perform their instructional duties well to develop the capacity and skills of learners in Electricity most especially when it comes to safety working habits and attitudes in the preparation to the world of work. This supports the findings of Untalan (Untalan, 2005), that work values have significant relationship in the performance of students. However, selecting electrical measuring tools and instruments, carrying out measurements and calculations and interpreting technical drawings and plans garnered a weighted mean of 3.4 and ranked last on the set of objectives and were described as moderately attained. This indicates that the teachers need to strengthen and give more focus on these objectives. It implies also that the teachers need to develop the knowledge and skills of students in measuring, interpreting and calculating which are also very important in electrical works. Overall, the composite mean of 3.6 revealed that generally objectives of Electricity instruction were satisfactory attained by teachers. It can be inferred that Electricity teachers performed their duties and responsibilities in developing learners' skills and abilities. As stated by Mallari (Mallari, 2002), skills learned in TLE instruction were related to the overall goal of improving personal, family and community living.

**Content:** The other important component of Electricity as one of the subjects in TVL is the content. It consists of a wide range of learning tasks that are work-oriented in nature. Such learning tasks are learned and prepare students for a more practical, productive and meaningful life of service. The assessment of TVL teachers on content is presented in Table 2.

**Table 2. Assessment of the Status of Teaching Electricity in Terms of Content**

Content	WM	VI	R
1. Electrical materials and tools	3.8	SA	1
2. Mensurations and calculations	3.4	MA	4
3. Interpret technical drawings and plans	3.6	SA	3
4. Maintain tools and equipment	3.6	SA	3
5. Practice occupational health and safety procedures	3.6	SA	3
Composite Mean	3.6	SA	

Legend: WM – Weighted Mean

VI – Verbal Interpretation

R – Rank

SA – Satisfactory Attained

MA – Moderately Attained

As shown in the table, the topic electrical and tools was satisfactorily attained by the teachers as observed by them. This topic got the highest weighted mean of 3.8 and ranked first among the topics in Electricity. It indicates that the teachers find the topic easy to understand since all the needed concepts were properly explained in the different learning resources provided by the DepEd. Thus, the teachers can easily prepare workable lesson plans and can choose appropriate teaching strategies to teach this topic. Likewise, the topics interpret technical drawings and plans, maintain tools and equipment and practice occupational health of safety

procedures were satisfactory attained by the teachers. This was proven by the weighted mean of 3.6 and ranked third among the topics in Electricity. This result tells the teachers need to think and use more appropriate and effective teaching strategies which can make learning productive and to achieve the set of objectives under these topics. This conforms to the idea of Leonard (Leonard, 2004), that there is a need for a novel pedagogical approach and teachers should learn to translate this approach into classroom practice. By using typical activities wherein students could easily respond. On the other hand, the weighted mean of 3.4 revealed that the content in the topic mensurations and calculations was moderately attained by the teacher which ranked last among the topics. This implies that the teachers have insufficiency on the topic. This might be because this topic requires calculation and skills in Math which TVL teachers not yet mastered. However, teachers need to find time in improving instruction in this topic since this is also vital in understanding concepts and theories in Electricity. In general, the teachers noted that they satisfactorily attained the set instruction in the different topics in Electricity. This was proven by the composite mean of 3.6. This could mean that teachers used appropriate teaching strategies in teaching different concepts in Electricity. It also infers that teachers have enough content knowledge in dealing with various lessons in the subject. However, they still believed that they can still improve their teaching skills on the topics that involved problem solving or calculation by having more trainings and workshops. As cited by Patalinhug (Patalinhug, 2000), teacher trainings with the use of technology were found to be important and helpful in improving student learning. Teachers who participated in the trainings are observed to have a sense of impact on their teaching practice.

### Methodologies

Teaching strategy or method is important component of instruction because it greatly determines the quality of desired outcomes. Table 3 presents the assessment of the TVL teachers on methodologies used in teaching Electricity.

**Table 3. Assessment of the Status of Teaching Electricity in Terms of Methodologies**

Methodologies	WM	VI	R
1. Deductive	3.4	SU	5
2. Inductive	3.4	SU	5
3. Demonstration	4.0	OU	1
4. Discovery	3.2	SU	8.5
5. Drill	3.6	OU	2
6. Lecture	3.4	SU	5
7. Project	3.2	SU	8.5
8. Group instruction	3.4	SU	5
9. Individual Instruction	3.4	SU	5
Composite Mean	3.4	SU	M

Legend: WM – Weighted Mean

VI – Verbal Interpretation

R – Rank

SU – Sometimes Used

OU – Often Used

As shown in the table, teachers noted that they often used the demonstration method which is one of the suggested approaches to be used in the K-12 TVL curriculum. It obtained the highest weighted mean of 4.0 which shows that teachers carried out lessons that give students concrete experiences in explaining some points in electricity. It also indicates that the

teacher were practical cautious in conducting laboratory works in electricity. Using this method they are able to attain the objective without wasting supplies and destroying sensitive apparatuses. Similarly, the study of Osongco (Osongco, 2004) revealed that demonstration was one of the most widely used teaching methodologies in teaching TLE subjects. Similarly, teachers often used drill in teaching lessons in Electricity. This got a weighted mean of 3.6 which ranked second among the listed teaching strategies. This means that teachers always provide worksheets and exercises to facilitate the exploration and application of ideas and analytical skills of students. Furthermore, independent skills were also enhanced among them using this method. Conversely, discovery and project methods were sometimes used by the teachers in teaching Electricity. These gained the lowest weighted mean of 3.2. Discovery method was sometime used by the teachers because this method requires higher order thinking skills thus, it is too time consuming and difficult to use most especially in the lower sections. On the other hand, the low rating on project method indicates that the teachers were not accustomed in using project method. This is because this strategy requires money or funds in order to be executed and poses some safety and financial issues. Generally speaking, the teaching methodologies in Electricity were assessed by the teachers as sometimes used, as evidence in composite mean of 3.4. The results show that the teacher did not use regularly various strategies in attaining the objectives to enrich the learning interest of learners. According to Fontaine (Fontaine, 2001), it is no longer sufficient for teachers to teach a certain body of knowledge and skills. They are further expected to help students to acquire higher levels of cognitive skills by using innovative teaching methods and strategies.

**Assessment tools:** Assessment is the process of determining the learning process of the learners. Through this, appropriate methods or strategies to be used in teaching are determined. Table 4 presents the assessment tools used by the teachers in Electricity.

**Table 4. Assessment of the Status of Teaching Electricity in Terms of Assessment Tools**

Assessment Tools	WM	VI	R
1. Written test	3.4	SU	4
2. Performance test	3.4	SU	4
3. Direct observation	3.6	OU	1.5
4. Actual Demonstration	3.4	SU	4
5. Practical Exam	3.6	OU	1.5
6. Assignment/Homework	3.0	SU	7
7. Oral test	3.2	SU	6
Composite Mean	3.4	SU	

Legend: WM – Weighted Mean

VI – Verbal Interpretation

R – Rank

SU – Sometimes Used

OU – Often Used

As reflected in the table, direct observation and practical exam were often used by the teachers as evaluation tool in assessing the performance of the student. This was supported by the weighted mean of 3.6 and ranked 1.5. This could mean that the teachers' observation was taken into consideration in grading the performance of the learners in which the observed behaviors of the learners affect their ratings. Another basis of students' performance was the result of practical exam. It could be an implication that the teachers found this tool as an effective one because student can be able to demonstrate the

skills learned and the teachers will be able to gauge students' progress through their actual outputs. This conforms with the findings of Guzman (Guzman Norberto, 2001), that practical assessment was always used in teaching technology courses. On the other hand, assignment/homework was rated by the teachers as sometimes used. This was proven by the lowest weighted mean of 3.0. This suggests that among the seven assessment tools this was least appreciated by the teachers. In general, the different assessment tools were sometimes used by the teachers as revealed in the composite mean of 3.4. This suggests that traditional and authentic evaluation tools are being used interchangeably by teachers in tracking students' progress in the attainment of the standards, promoting self-reflection and personal accountability for one's learning and provides basis in measuring learners' performance as explained in the K-12 Toolkit.

### Manifestation of Skills and Competencies among Teachers

Teachers are expected to be equipped with knowledge and skills needed in Electricity to make the teaching-learning process effective. Electricity deals with information about using tools, equipment and materials in electrical installation and maintenance to provide quality services. Table 5 presents the respondents' assessment on the skills and competencies of TVL teachers particularly in Electricity.

**Table 5. Assessment on the Skills and Competencies in Teaching Electricity**

Skills and Competencies	WM	VI	R
1. State specific skills, task and content to be taught and learned.	3.4	MGE	2
2. Use appropriate teaching methods and procedure.	3.3	MGE	6
3. Handle the subject matter clearly following the logical sequence of topics.	3.2	MGE	10.5
4. Present lessons meaningfully to make students alive during discussion.	3.2	MGE	10.5
5. Draw from several resources ideas related to the subject matter for relevance and functionality.	3.0	MGE	16
6. Motivate students to apply concepts, principles and skills learned.	3.3	MGE	6
7. Employ different communication styles and strategies in facilitating lecture discussion.	3.1	MGE	14
8. Adapt to different communication styles and strategies in facilitating lecture discussion	3.8	MVGE	14
9. Prepare instructional materials to capture student's interest.	3.4	MGE	2
10. Employ new technology and modernized instructional materials to capture students, interest.	3.1	MGE	14
11. Provide learning activities as enrichment to the topics.	3.3	MGE	6
12. Select, check and prepare necessary tools and equipment.	3.2	MGE	10.5
13. Apply the proper use and care of tools and equipment.	3.3	MGE	6
14. Carry out measurements and calculations in a required task	3.2	MGE	10.5
15. Aware of the basic preventive maintenance and safety in the workplace.	3.4	MGE	2
16. Evaluate students' work using outcome-based assessment tools.	3.3	MGE	6
Composite Mean	3.2	MGE	

Legend: WM – Weighted Mean

VI – Verbal Interpretation

R – Rank

MGE – Manifested to a Great Extent

MVGE – Manifested to a Very Great Extent

The table reveals that stating specific skills, task and content to be taught and learned, preparing instructional materials that capture students' interest and awareness of the basic preventive maintenance and safety in the workplace were manifested to a great extent by all Electricity teachers as assessed by the students' respondents. These items got weighted mean of 3.4 and ranked second. It shows that the teachers had enough skills in attaining the given competencies. It can also be inferred from the results that the teachers can prepare and deliver lessons creatively and effectively. As revealed in the study of Aquino (Aquino, 2004) values that could enhance teaching competence particularly with the use of different teaching methodologies. Furthermore, using appropriate teaching methods and procedure, motivating students to apply concepts, principles and skills learned, selecting, checking and preparing necessary tools and equipment and evaluating students' works using outcome-based assessment tools were also manifested to a great extent by teachers. These got a weighted mean of 3.3 and ranked sixth. It appears that the teachers were competent enough in teaching Electricity because they have necessary knowledge and skills on what appropriate and effective teaching technique to be used and even the evaluative tools that could really measure the performance of the learners. Drawing from several resources ideas related to the subject matter for relevance and functionality was manifested to a great extent by the teachers as evaluated by students. It garnered the lowest weighted mean of 3.0 and least rated. The lowest rank may be because some of the teachers were not able to discuss in detailed the relevance and functionality of the lesson discussed due to lack of time. Similarly, lack of time was one of the serious problems identified in the study conducted by Banglo 2001. Overall, students assessed that all the skills and competencies are manifested to a great extent by electricity teachers as assessed by students and revealed in the composite mean of 3.2. Data implied that the teachers have the necessary skills needed in teaching Electricity subjects and they are competent enough in teaching the subject since they continuously upgrade themselves through trainings and seminar.

#### Issues and Concerns Relative to Meeting Quality Instruction in Electricity

Issues and concerns are being encountered in acquiring skills and competencies towards meeting quality instruction in Electricity. Table 6 presents the assessment on the issues and concerns relative to meeting quality instruction in Electricity. As shown in the table, majority of the respondents have same assessment on the inadequate teaching guide and learning module, which is first in the rank and interpreted as agree which obtained the highest weighted mean of 3.3. It shows that the teachers were sometimes meet constraints and difficulties in delivering quality instruction due to lack of teaching and learning materials which are very important in teaching and learning process. This implies that inadequate resource materials may lead to failure in skill development among students. In this reason, resourcefulness of the teachers is necessary. As revealed in the study of Gloriana <sup>[15]</sup> that the availability of instructional materials was the primary problems encountered. The existing facilities and equipment were far behind and obsolete especially in dressmaking, electronics and electricity. In like manner, respondents also agree that inadequate facilities that are required to improve and practice teachers' skills and competencies, fast change in

curriculum experienced by teachers and lack of tools, materials and equipment needed by teachers and students are some of the major issues and concerns relative to meeting quality teaching. These items gained the same weighted mean of 3.2 and ranked third. It is an indication that most of the teachers were not be able to perform practical or laboratory works due to lack of facilities and equipment. This might be due to the unavailability of the funds. The school head and teachers are encouraged to find ways to help solve this problem in order to meet the students' needs and to achieve the targeted learning competencies.

**Table 6. Issues and concerns Relative to Meeting Quality Instruction in Electricity**

Issues and Concerns	WM	VI	R
1. Lack of interest of teachers to pursue more trainings	3.1	Agree	6.5
2. Incapacity of teachers to pursue continuing education.	3.1	Agree	6.5
3. Inadequate facilities that are required to improve and practice teachers' skills and competencies.	3.2	Agree	3
4. Fast change in curriculum experience by teachers thus hampering their skills and competencies.	3.2	Agree	3
5. Requiring re-training of TVL teachers to be National Certified before they can teach.	3.1	Agree	6.5
6. Inadequate teaching guide and learning module to be used by teachers.	3.3	Agree	1
7. Inadequate trainings for TVL teachers which results difficulties in teaching the topics and skills.	3.1	Agree	6.5
8. Lack of tools, materials and equipment needed by teachers and students.	3.2	Agree	3
9. Insufficient funds for training and professional development for TVL teachers.	3.0	Agree	9
	3.1	Agree	

Legend: WM – Weighted Mean

VI – Verbal Interpretation

R – Rank

On the other hand, least rated by the respondents among the nine issues and concern was insufficient funds to training and professional development to TVL teachers. The result indicates that despite of the training and seminars conducted by DepEd it is still insufficient for TVL teachers to become skillful and competent. Teachers need some financial assistance from the government or other agency for their professional development. In general, the composite mean of 3.1 indicates that Electricity teachers all agree that despite of the efforts that DepEd exerted, still there are issues and concerns that need to be addressed to meet quality delivery of instruction. However, the ratings tell that the teachers were still open for further improvement to fully and effectively implement K-12 program. According to Cabauatan (Cabauatan, 2002), teachers are inclined to value their work which provides them with opportunities for great achievements, with chances to enjoy interesting and challenging activities, and with genuine desire to assume responsibility in their area of work.

#### Measures to Strengthen the Teaching of Electricity

The researcher proposed measures to strengthen the teaching of Electricity. Measures were based on the findings of the study. Teachers are the most significant components in the learning process. They need to have theoretical and practical training to really enhance their technical skills and competencies. They should be the first to learn the different

competencies to ensure that they will teach the required skills according to standards. They will also help to motivate the students in the learning process if they observed that their teachers are well versed in the skills taught and ultimately move them toward greater learning. This study determined the status of Electricity instruction as to objective, content, methodologies and assessment tools. It also explored the skills and competencies of teachers including the issues and concerns relative to meeting quality instruction in Electricity. Findings revealed that the teachers moderately attained the objectives on the topic mensuration and calculation. It was also revealed in the study that teaching rarely employ new teaching and modernized instructional materials to capture students' interest and they were not able to used variety of communication styles and strategies. This implied the need for teachers to undergo more trainings and seminars focusing on enriching their skills and competency. As to issues and concerns topping the list were inadequate teaching guide and module, facilities, tools and materials. It indicates that measures must be necessary such as training on module development, establishing of linkages and prioritizing the purchase of tools and equipment. In view of the aforementioned statements, measures were conceptualized and proposed focusing on the different weaknesses identified in the study.

The proposed measures are the following:

- Conduct seminar workshops or training program focusing on enhancing teaching competencies on different topic in Electricity particularly on mensurations and calculations and interpreting drawings and plans.
- Send TVL teacher to training-workshops on module development.
- Conduct peer sharing of the knowledge and skills on different communication styles and innovative strategies in teaching specific lessons in Electricity.
- Collaborate with TESDA accredited training center and other educational institutions for TVL teachers' observation and participation in employing new technology and modernized instructional materials.
- Establish Tie-up with TESDA-accredited training center.
- Launch fund raising activities like Fun Run campaign in coordination with LGU, NGO's and PTA for the acquisition of tools and equipment.
- Request government officials for donation and create committee for soliciting financial assistance for the construction of adequate facilities for practical and laboratory works.

### Conclusions

- Most of the objectives and contents of Electricity subject under K-12 curriculum are satisfactory attained by the teachers, they often used demonstration and drill to carry out their lessons while direct observation and practical exam are often used in assessing students' performance.
- The skills and competencies required in teaching Electricity are manifested to a great extent by the teacher.

- Inadequate teaching guide, learning module, facilities, tools and materials are the major issues and concerns relative to meeting quality instruction in Electricity.
- The proposal measures when consider and implemented may strengthen the teaching of Electricity in secondary schools.

### REFERENCES

- Aquino, J. 2004. "Teaching Competencies and Work Values of Teachers in Oriental Mindoro" Thesis, Batangas State University, Batangas City.
- Banglo L. 2001. "The Implementation of the Technology and Livelihood Education in the Vocational Schools of Mountain Province, SY 2000-2001" Thesis, Baguio Central University, Baguio City.
- Cabauatan, R. 2002. "Organizational Commitment and Work Values: Its Effects to Teaching Efficiency and Effectiveness of Intermediate Mathematics Teacher in Selected Elementary Schools in Cavite" Dissertation, TUP Manila.
- Department of Education Order No. 67, 2012; Enclosure No. 2.
- Fontaine M. Teacher Training with Teaching: Experience in Five Country Programs. *TechknowLogia*, Nov./Dec. 2001, 69-71.
- Gloriana, E. 2004. "Status and Factors Affecting the Implementation of Technology and Livelihood Education in the Division of Mandaluyong City" Dissertation, EARIST, 2004.
- Guzman Norberto P. "Implementation of the Technology and Home Economics Program in National Vocational Schools at State Agricultural University in Benguet Province" Thesis, Baguio Central University, Baguio City 2001.
- Leonard K. *Teaching for Meaning*. New Jersey: Prentice Hall, 2004.
- Mallari G. "Influence of Home Technology IV Curriculum and other Factors on the Achievement of Students in the Division of Makati" Dissertation, Technological University of the Philippines Manila, 2002.
- Osongco R. "Evaluation of Technology and Home Economics Program of the New Secondary Education Curriculum in Public High Schools in Region III" Dissertation, Tarlac Stae University 2004.
- Patalinhug E. *Managing Technology for Global Competitiveness*. Quezon City: UP Center for Integrative and Development Studies, 2000.
- Republic Act No. 7796 or the Technical Education and Skills Development Act of 1994.
- TESDA Policy Review No. 2, Retrieved from <http://www.tesda.gov.ph/uploads/File/policybrief2013/PB%20kto12%2013.pdf>.
- Torres S. "Implication of Technology and Home Economics in the New Secondary Education Curriculum in Some Public High Schools in Pangasinan SY 2002-2003" Thesis, Baguio College Foundation, Baguio City 2004.
- UNESCO, *Shaping the Education of Tomorrow*. Full Length Report in the UN Decade of Education for Sustainable Development, DESD Monitoring and Education. United Nations Educational, Scientific and Cultural Organization, 75732 Paris 07 SP, France;2012.
- Untalan B. "Work Values of THE Teachers of University of Batangas" Thesis, Batangas State University, Batangas City, 2005.