



Technical Vocational Education in the Context of Globalization: Its Pedagogy and Strategies

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Authors' contributions

This work was carried out in collaboration among all authors. Author QLGA steered the group in designing the proposal of the study. Author GCA performed and observed the ethical protocol in obtaining the information from the participants. Author JEGB formulated and validated the research questions. Author MBE spearheaded the focus group and transcribed the recorded information. Author AST reviewed, managed and edited the paper. All authors read and approved the final manuscript.

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ABSTRACT

Aims: The aim of this study was to determine the personal experiences of the teacher-participants in the teaching of Technology and Livelihood Education. It also ascertained and met the following objectives: 1) determine the teaching experiences of the TLE teachers; 2) to identify the training needs of TLE teachers; 3) ascertain the challenges faced by the TLE teachers; 3) discover the pedagogy and strategies used by the TLE teachers; and 4) find out the recommendations of the TLE teachers to improve the delivery of the course.

Study Design: Qualitative-phenomenological approach.

Place and Duration of Study: The study was conducted in Sta Cruz National High School, Sta. Cruz, Davao del Sur. The study was conducted for 6 months.

Methodology: The researchers purposely chose all the Technology and Livelihood Education (TLE) teachers. The information were gathered through Focus Group Discussion (FGD).

Results: Six themes emerged from the data analysis. Generally, the teacher-participants found teaching of TLE subject was challenging because the activities were focused on exploration. Moreover, they felt satisfied because they were able to share their knowledge and skills to their students. It implies that the TLE teachers were committed and dedicated to their jobs despite the difficulties they encountered. However, the teacher-participants revealed that generally, they were not sent outside of the school to attend training-seminar for skills enhancement. It is an indication that the school heads lack concern for their teachers' professional development. In addressing the challenges of the teachers, they collaborate with each other by sharing their resources. Despite the challenges they encountered, they were still optimistic to be globally competitive. It implies that the TLE teachers do not give up easily. They suggested that the school administration needed to develop the participants' personal character so that their teaching goals were met.

Conclusion: The TLE teachers loved and enjoyed their teaching jobs despite the challenges they faced. However, they clamored to the Department of Education (DepEd) to address their needs such as sending them to trainings and seminar-workshop to enhance their skills and capabilities. To show their dedication to their jobs, they brought their own tools and shared the same to other teachers. Notably, the participants only used three teaching strategies. It shows that TLE teachers lack the knowledge of other teaching strategies. The participants were optimistic that sooner or later their TLE programs are accredited and recognized locally and internationally. This implies that the participants were committed to their jobs. Ironically, they suggested that improvement of the teachers' self was better than improving the TLE implementation. This shows that the teachers believed that materials can be easily acquired but not the attitude.

Keywords: Technical vocational education; globalization; pedagogy; strategies; Davao del Sur.

1. INTRODUCTION

Globalization exists and affects the life and work of the people and the societies [1]. Globalization is a force that changed the way how people and nations deal with one another [2] particularly in the area of international commerce [3,4]. Workers should be equipped with different skills which are in demand by the current industries [5,6]. These skills can be achieved through enrolling the technical and vocational education which follows the international standards of the industries. Eti et al. [7] said that skills can be best acquired through training; while [8,9] point out that top skills need of contemporary industries are technical knowledge, problem solving, and collaboration, time management, conceptual competence, and abstract thinking. Thus, [10] aver that academic institutions need to prepare students for the industry jobs, and that curriculum development and implementation should not be the sole responsibility of the academe.

This is now a challenge for Technical Vocational Education (TVE) or Technology and Livelihood Education (TLE) teachers to transfer knowledge and skills to the students aligned with the international standards and competencies of the

different skills and specializations. Technology and Livelihood Education is composed of four (4) areas: Home Economics, Industrial Arts, Information and Computer Technology and Agro-Fishery Arts. This makes teaching TLE a challenging task. TLE teachers must be knowledgeable, skillful and competent in demonstrating skills in any of the four TLE areas. Additionally, several authors mentioned various hindrances in the delivery of TVE like qualitative technological human resources development to make create skilled, self-reliant technicians [11,12]; limited incentives [13]; poverty [14]; lack of resources and low professional capacity [15] and shortage of adequate teaching materials [16].

The challenges faced by TVE/TLE teachers in teaching 21st century learners in the field of technology and livelihood are tremendous. It is expected that the learners would develop their critical thinking, problem solving skills, and communication skills in the classroom activities. TLE/TVE teachers must be good facilitators of learning and develop knowledge and skills of the students through different laboratory activities which include students' performance tasks and project making. Teachers should have strategies

which could help develop students' creativity, innovativeness and collaborative skills. The use of the community as a laboratory for learning also develops students' 21st century skills as well as the learners' awareness of their environment. However, TLE teachers have difficulties in applying different strategies and transferring of skills to the students [17]. Factors which affect this problem are the shortage of skills and lack of materials [18]. These problems are usually experienced in the implementation of a new curriculum.

The Department of Education encourages TVE/TLE teachers to undergo trainings and gain skills in the different specializations. However, teachers have to spend their own resources and voluntarily subject themselves to NC II Assessments and Trainers' Methodologies trainings in order for them to get the knowledge and skills needed. With the knowledge and skills gained from the trainings and assessments, the teachers come up with an effective pedagogy and strategies to transfer the knowledge and skills in order for their students to become globally competitive.

Thus, this study was conducted to determine the experiences of the TLE teachers in teaching TLE subjects. Moreover, it also looked into the strategies used by TLE teachers in delivering their lessons in the context of globalization. Likewise, it identified the teachers' faced challenges and culled recommendations to improve their teaching. This study was relevant because only few studies dealt with the TLE because it was a new curriculum of the K-12 program. Thus, this study can contribute to the improvement and development of the TLE program.

1.1 Research Questions

The general aim of this study was to determine the personal experiences of the teacher-participants in the teaching of TLE. Particularly, it sought to meet the following objectives:

1. To determine the teaching experiences of the TLE teachers;
2. To identify the training needs of TLE teachers;
3. To ascertain the challenges faced by the TLE teachers;
4. To discover the pedagogy and strategies used by the TLE teachers; and

5. To find out the recommendations of the TLE teachers for improving the delivery of the course.

1.2 Significance of the Study

The following are the beneficiaries of the study:

School administrators: The results of the study will guide school administrators on the conditions of the TLE teachers; thus, initiate programs to address the technical and professional needs of the teachers.

TLE Teachers: The results of the study will help TLE teachers to determine what other pedagogy and strategies can be used in order to enhance the technical skills of the students. Moreover, the results may become their evidence to suggest for relevant innovations for TLE.

Students of TLE: The results of this study may give the student hints to the real situations of the TLE teachers; thus, suggest relevant ideas on what strategies best for them.

1.3 Scope and Delimitation

The focus of this study was on the experiences of the teachers handling different specializations in TVE/TLE such as Agro-fishery Arts, Industrial Arts, Information and Communication Technology and Home Economics. It did not include other subject teachers. Additionally, this study was conducted in different Junior and Senior High Schools in Davao del Sur. Moreover, the study used the qualitative method; hence, only limited number of participants was involved. According to [19,20] a study cannot make generalization of results if the number of participants is not statistically viable. Thus, the results may only be applied to the actual population included in the sampling frame. For [21], because of number-limitation, the study can't offer recommendations, rather an implication.

1.4 Definition of Terms

The following terms used in this study were defined for better understanding of concepts.

Technical Vocational Education (TLE): This pertains to the program offered in Junior High Schools under the K-12 program. This program has four components, Agri-Fishery Arts, Home Economics, and Industrial.

Technical Vocational Education Teachers: These are individuals who are assigned to teach the TLE courses in the Junior or Senior High Schools.

Globalization: This refers to the intensification of cross-area and cross-border social relations [22]; an institutionalized cultural account which describe reality and makes sense about how the world works [23]; a process of greater integration within the world economy through movements of goods and services, capital, technology and labor, including education, which lead to increase economic decisions being influenced by global conditions [24].

Pedagogy: This pertains to a theory on a teaching/learning process that guides the teachers' choice of classroom practices by providing criteria to evaluate specific educational strategies and techniques in terms of the desired course outcomes [25]. It proposed that students expect to learn something generalizable contexts instead of just become informed of facts [26].

Teaching Strategies: In general sense, these are approaches and techniques used by teachers to motivate and engage students [27]. In a deeper and specific sense, [28] cite that teaching strategies may differ depending on the teachers' pedagogical orientation. Thus, a teacher may base his / her strategies on formal, descriptive, and normative theories of teaching.

2. MATERIALS AND METHODS

2.1 Research Design

This study used the qualitative-phenomenological approach. According to [29], qualitative method is used when investigation needs to know the participants' opinions. Likewise, it is also used when a study tries to understand individuals' personal encounter of an experience [30]. Moreover, [31] say that qualitative method is essentially relevant if the study aims to determine the importance of the individual's lived experiences. On the other hand, [32] mentions that qualitative method is best when a study needs personal narration and reflection of lived experience. On the other hand, phenomenological approach focuses on the experience-based design [33]. The use of focus group allows individual who have similar

experiences to be together [34]; it is an effective mechanism to generate understanding and gain insight of the participants [35]. In this investigation, the individuals' lived experiences of the TLE teachers were in focus. They were formed into group and in turn shared their experiences.

2.2 Locale of the Study

The study was conducted in public secondary schools in Sta. Cruz, Davao del Sur. Particularly in Sta Cruz National High School. It is located specifically located at Camposo Road, Poblacion, Sta. Cruz. Moreover, it is a Department of Education manage partially urban secondary public school.

2.3 Sampling Procedure

This qualitative-phenomenological study used the non-probability sampling method in selecting the teacher-participants. The researchers purposely chose all the TLE teachers of Sta. Cruz National High School, Davao del Sur. They were selected because they were the individuals who had the knowledge about the topic under study. [36] avers that purposive sampling allows the selection of participants who are most suitable to pre-determined criteria set by the researchers. In same vain, [37] point out that purposive sampling is usually used by researcher if they have in mind and participants who suit the purpose of the study.

2.4 Research Instrument

The research instrument used in this study was a researchers-made interview guide questionnaire. The questions and probe-questions were based on the research questions. The interview-guide questions were validated by experts. This was done to assess and shape its contents [38]; determine its reliability [39]; ascertain its outcome efficiency [40]. The researchers were convinced that validating the interview guide-questions gave them the opportunity to polish thoroughly the questions for its purpose.

2.5 Data Collection Procedures

Observation of proper data collection procedures allows the attainment of reliability and transparency [41]. It also permits a systematic conduct of the study [42]. In this study, three steps were followed.

Preliminary Stage: During this stage, the researchers got the approval to conduct the study through a formal letter. After the permission was obtained, formal letters of invitations were also sent to the different TLE teachers. Moreover, it was during this stage when the research questions, together with the interview guide questionnaire, were composed and subjected to validation.

Data Collection Preparation Stage: At this stage, a focus group discussion was conducted. During the interview, the researchers allowed all participants to talk and disallowing manipulation of answers. With permission from the participants, the interview proceedings were recorded. After the focus group interview, the researchers transcribe the proceedings.

Data Analysis Stage: At this phase, the thematic analysis of information was conducted. In the analysis, data analyst involved memoing, coding, and thematic analysis. Then, patterns of responses were formulated into themes.

2.6 Trustworthiness of the Study

In handling the issues of trustworthiness [43] of this research, the researchers observed four essential procedures in order for gathered information to be reliable. These included credibility, transferability, dependability, and confirmability. [44] explained that credibility is established when there is a prolonged engagement between the participants and the researchers. In this study, this was not an issue because all the participants and researcher were DepEd teachers and they have known each other for some time. Animosity among the participants was not an issue because they already built trust with each other. Thus, the researchers were confident because the atmosphere of easiness with the participants was established.

On the other hand, [45] said that transferability is obtained when the results of the study will be utilized by other researchers in their search for clarifications; and degree in which the research can be transferred to other contexts. This particular aspect was realized in this study because its result would give essential insights to the school heads, readers and researchers information on the reality of TLE programs. Moreover, transferability is addressed when the researchers make specific details of the

situations and methods which readers can compare to similar situation that they have knowledge about.

The concept of dependability is based on the assumption of replicability or repeatability of the study [46,38]. The researchers observed this aspect by strictly following the standard in the conduct of research. The researchers subjected the research questions to experts' validation for validity and reliability. Likewise, enough related studies were provided in all areas of this study to strengthen the results and claims. Lastly, confirmability refers to the authenticity of the results which could be verified by others [3]. This aspect was established in this research through the thematic analysis of information. The thematic analysis of data applied memoing, coding, and vertical and horizontal procedures. Further, recordings and transcripts of the gathered information were available upon the request of the readers.

2.7 Data Analysis

After the recorded interview was transcribed, the researchers gave the same to a data analyst. In the process of data analysis, the analyst applied memoing thru vertical analysis, coding thru horizontal analysis, and thematic analysis thru looking for patterns. [5] mention that memoing is used to assist in making the conceptual leaps from the raw data. Moreover, [40] points out that memoing is used to make reflections on the data under analysis. Likewise, coding is conducted to facilitate the process of reading to create a storyline; to categorize the information into codes; and to clarify and interpret the information [47]. Finally, thematic analysis is used to look for patterns in the responses of the participants [48] and identifying meaning [24]. The results of the analyses were put into table indicating the themes, frequency of responses, and core ideas.

3. RESULTS AND DISCUSSION

Shown below are the results of the focus group conducted among the TLE teachers of various educational backgrounds. [45] argue that in presenting qualitative information, a table may be provided although its use is still debated. However, [21] mentions that qualitative research has the prerogative to decide on the format. Thus, in the presentation of the results of this study, a table is used for better and easy understanding. Moreover, in classifying the

Table 1. Themes and core ideas on TLE pedagogical strategies

Themes	Frequency of response	Core ideas
Perceptions on teaching	General	<ul style="list-style-type: none"> - Challenging because it focuses on exploration - Enjoying to share knowledge to students
Professional growth attended	General Variant	<ul style="list-style-type: none"> - Having no training attended - Spending personal money - Schooling through scholarship
Handling difficulties in teaching	Typical Variant	<ul style="list-style-type: none"> - Collaborating with other TVE teachers - Bringing own tools - Using video clips - Reading food magazines
Methodologies used in teaching	Variant	<ul style="list-style-type: none"> - Cooperative learning - Demonstrating to students - Using independent learning
Aspiration for certification	General	<ul style="list-style-type: none"> - Aiming to be globally competitive
Recommendations for improvement	General	<ul style="list-style-type: none"> - Developing teachers' personal character

information obtained, the frequency is considered *General* if the responses have 50% of more recurrence; *Typical* if there is 21-49% reactions specified in the interview; and *Variant* if the reactions' occurrence is 20% less.

3.1 Perceptions on Teaching

Generally, the teacher-participants considered the teaching of TLE to be challenging. It was so because the activities were focused on exploration. Moreover, they also felt satisfied because they were able to share their knowledge and skills to their students. This implies that the TLE teachers were committed and dedicated to their jobs despite the difficulties they encountered. Moreover, these teachers were most likely oriented to the tasks assigned to them. [49] mention that TLE teachers understand their roles which are to improve teaching and learning strategies, develop TLE students' competencies, and meet the industry requirements. Thus, teachers should train students to be equipped with the essential skills for their future jobs [50,51] like technical knowledge, problem solving and collaboration, time management, conceptual ability, and abstract thinking [8,9]. It is inevitable for the academe and the industries to have collaborative effort to develop industry-based curricula [10].

3.2 Professional Growth Attended

It was a sad revelation that generally, the teacher-participants hadn't attended training-

seminar which could enhance their skills. It is an indication that the school heads lack concern on his/her teachers' professional development. It was also revealed that the teachers used their own money to finance their attendance to trainings. This implies that their schools have no budget for their teachers' skills development. Hence, other teachers looked for scholarships. [50] mentions that TLE training has always been the issue not only in Indonesia but also in other ASEAN member countries. [11,12] added that development of human resource to develop them into skilled and self-reliant technicians was one of the many hindrances in the delivery of TVE. [45,52] point out that teachers' re-training programs are essential to improve and develop not only their performance skills and knowledge but also their abilities to make teaching and learning effective.

3.3 Handling Difficulties in Teaching

In addressing the challenges of the teachers, they collaborate with each other by sharing resources. Variantly, some teachers brought their tools to school because the school didn't have materials. [15] mention that lack of resources and shortage of adequate teaching materials for TVE are sad realities for teachers handling TVE courses. Innovatively, teachers used video clips so that students could better understand the concepts. Other teachers used food magazines because these reading materials had colorful illustrations. [53] that aside from other challenges encounter by the TLE teachers, they also face

the limited numbers of teaching facilities; [30] also points out that generally, teachers in developing countries need to deal with the lack of necessary laboratories where they can conduct their TLE classes. [6] also mentions that available TLE materials are outdated and lack maintenance. This implies that the TLE implementation is not thoroughly planned because of inadequacy of necessary materials for the realization of its goals. Thus, this problem hinders the students to acquire different skills required by the current industries [50,51].

3.4 Methodologies Used in Teaching

In explaining the concepts to the students, teacher used various methods. One of these was cooperative learning, demonstration, and independent learning. In cooperative learning, students were formed in a group so that they collectively work the task given. Usually in cooperative learning, the group chose its leader who steered the group. On the other hand, in demonstration, the teacher followed the modeling approach where he or she performed the task first for the students to follow. The focus of this approach was on the process on how something was to be done appropriately. Thus, students learn the skill. Lastly, teachers allowed the students to have independent learning which aimed at allowing the students to constructively discover knowledge and skills on their own. [54] mention that TLE teachers should emphasize the development of skills among students such as teamwork, communication, and problem solving. On the other hand, [55] assert that for the transfer of ability to be successful, teachers should use metacognitive teaching strategy which includes independent learning. By this, students learn to discover their technical skills.

3.5 Aspiration for Certification

Despite all the challenges the teachers were dealing with, the lack of technical trainings, seminars, and the lack of materials, they were optimistic to be globally competitive. This implies that the TLE teachers do not give up easily. These teachers clamor for certification because they want their TLE programs to be recognized, competitive, and attractive. Certification of program implies quality [18] and good management [25]. Thus, certification is an important means of legitimizing the TLE as a good course to take.

3.6 Recommendations for Improvement

Interestingly, all the teachers' recommendations did not focus on addressing their needs rather on developing their personal character so that their teaching goals were met. According to [56] personal indicators such as expectations about the job become the reasons some individuals strive to understand teachers' expectations. Moreover, [29] say that making learning personally meaningful comes from the constructivist perspective, which stresses cooperation to accommodate the many time-constraints imposed by personal responsibilities and commitments.

4. CONCLUSION

Generally, TLE teachers are enjoying their jobs despite the difficulties they faced. However, this happiness is may be short-lived if the Department of Education will remain unmindful of the needs of TLE teachers. Moreover, the teacher-participants showed their dismay because they had not been attended trainings to enrich their skills and to learn new knowledge. Due to the lack of equipment and supplies, teachers bring their own tools and share the same with others. It implies that the TVE program is implemented despite the inadequacy of materials or budget. On the other hand, only three teaching strategies are used by the study-participants. This only shows that TLE teachers lack knowledge of the many teaching strategies. This can be addressed through trainings and workshops. However, despite their conditions, teacher-participants remain positive that sooner or later their TLE program will be accredited and recognized locally and internationally. Ironically the participants did not suggest improvement for the schools rather improvement for themselves. They fatally accepted their powerlessness. They know that the great and strong bureaucracy in the Department of Education (DepEd) hinder the delivery of the necessary materials and professional development. Ironically, the Department of Education boosts the conduct of annual re-tooling; however, those trainings are only intended for the selected few. Thus, many teachers clamor for more trainings. Likewise, the issue of teacher-student ratio remains unresolved but getting worst. How can a lone TVE teachers teach 50 or more students? Everything becomes superficial and hypocritical learning. Students come to class for compliance and not really to obtain skills. Recently, skills' evaluation results of the first batch of graduates of K-12 program show that students are not

industry ready workforce. The Department of Education may consider conducting regular evaluation so that needs can be identified and given appropriate solutions.

5. RECOMMENDATION

The challenges in teaching TLE in public high schools are real. It can't be solved by the TLE themselves rather by a strong and concrete solution involving other stakeholders. Teachers are known to be resilient; however, everything has its limits. The results of this study implicate that the Department of Education (DepEd) needs to review its Recruitment and Selection Requirements (RSR). It should only consider and hire qualified teachers who are expert of their field. Moreover, the Department needs to re-visit its annual retooling program for teachers because its effectiveness is not felt. The Department may consider a clinical approach. Likewise, DepEd may allocate budget for acquisition of TLE equipment and subscription of readings materials and videos or school heads may ask the help of the Parents' Teachers Association (PTA) to help in provide the essential materials for the TLE. Further, school heads should not only aim for NC II certification but also international accreditation. The school heads may collaborate with international academic institutions for skills and knowledge enhancement. Lastly, curriculum evaluation and mapping may be conducted in partnership with the identified industry partners to determine the needs of the course.

CONSENT

To address the ethics in conducting a research study, the researchers considered some measures to handle the confidentiality of the participants and the information obtained. Firstly, consent letters were given to the participants to seek for their permissions. Secondly, the interview protocol which states that no revelation of true identity shall be done and participants may opt to use pseudonyms to hide their identities was strictly observed. Thirdly, the in-depth interview was conducted in a secluded office that provided ample privacy, little distractions, and comfortable environment to the participants. Lastly, the participants were assured that the recorded interview was kept by the researchers for safe-keeping and would be destroyed after two years. Moreover, the information obtained was to be used for research purposes only.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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