

Competence Level of Technology and Livelihood Education (TLE) Teachers and Their Teaching Practices

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Abstract—The National Competency-Based Teachers Standards (NCBTS) serves as the standard for all teachers across the Philippines. This tool kit included the basis for what Technology Livelihood Education (TLE) Teachers should be inside the class instruction. These teachers use various practices when teaching the subject while still following the NCBTS. With this information, this descriptive quantitative study determined the relationship and influence of the present competence level of TLE Teachers from the Davao Oriental DepEd Division and their teaching practices with NCBTS, with its seven domains as the independent variable and the teaching practices as the dependent variable. The dependent variable is measured through the teachers' (1) personal and professional competence, (2) competence in using knowledge of student's skills and talents, (3) competence in using teaching techniques, (4) competence in monitoring and evaluation, (5) competence in establishing relationships with family and society, and (6) competence in using knowledge of curriculum and content. It was found that the teachers are highly competent in teaching TLE subjects and are advanced in their teaching practices. When the two variables were analyzed, it was found out that as the competence level of TLE Teachers increases, their teaching practices also increase. Furthermore, the current competence level of TLE Teachers influenced this increase in their teaching practices. The regression model is statistically significant, according to the results. The results of this study recommended (1) the TLE Teachers to continue their post-graduate studies in line with TLE subjects as their major area of study, (2) the school heads to carefully choose the right teacher to handle TLE subjects, specifically in grades nine and ten for junior high, and grade twelve for senior high learners where skills are highly required.

Keywords— Competence, teaching practices, regression analysis correlation.

I. INTRODUCTION

The Department of Education (DepEd) in the Philippines adopted the global K to 12 Curriculum, which includes Technology and Livelihood Education (TLE). Teachers' practices teaching this subject led to much more accountable education, middle-level human resources, entrepreneurship and employment, and students' actual learning (Philippine Government, 2012). The curriculum also encompasses basic knowledge and skills in Information and Communication Technology (ICT), Agriculture, Home Economics, and Industrial Arts towards the growth and development of teachers and learners and the country as a whole (Omar et al., 2018).

In recent years, the actual investment must have a structuring order of mentors' assessment. The modern breeding of representation of mentor's assessment typically inherits a quality-based view of mentoring with a value-added action of improving learner's knowledge (Hallinger et al., 2014). Meanwhile, teaching practices focused on new research, how stakeholders learn, new technology tools for the classroom, and new curriculum resources. However, good teaching strategies help mentors acquire the abilities and knowledge required to help students overcome 21st-century learning obstacles (Darling-Hammond et al., 2020).

According to the study by Torres (2014), there was an essential gap between the competency level and the anticipated competency standard of TLE mentors. This happens especially in teaching pedagogy that fosters stakeholders' motivation and opportunity to improve their competency.

The researcher needs to pursue this study to determine the capability of mentors in handling the TLE subject, primarily since some teachers were only assigned the TLE subject to them due to a lack of teachers majoring in the subject.

II. RESEARCH OBJECTIVES

The main objective of this study was to determine the relationship and influence of the present competence level of TLE Teachers and their teaching practices.

This study attempted to deal with the following objectives:

1. Determine the present competence level of TLE Teachers in terms of:
 - A. personal and professional competence;
 - B. competence in using knowledge of student skills and talents;
 - C. competence in using teaching techniques;
 - D. competence in monitoring and evaluation;
 - E. competence in establishing relations with family and society; and
 - F. competence in using knowledge of curriculum and content.
2. Determine the level of teaching practices of TLE Teachers in terms of:
 - A. contextual learning;
 - B. integrative learning;
 - C. experiential learning;

- D. authentic learning; and
- E. constructivist learning.
- 3. Ascertain whether there is a meaningful correlation between teachers' current competency levels and their methods of instruction; and
- 4. Ascertain whether there is a meaningful impact between TLE instructors' current competency levels and their methods of instruction.

III. MATERIALS AND METHODS

Research Design

A quantitative method involves many samples and needs relatively much time for data gathering. Some limitations are the regression analysis and quantitative study methods that take a snapshot of a situation (Rahman, 2016). Furthermore, quantitative tests were utilized by inspecting the relationship among factors, which were estimated as an instrument. The information was investigated using the measurable systems (Burke & Christensen, 2014). The study also utilized a correlational method to measure the extent of the relationship among a set of variables, formulating a cause-effect relationship (Salimaco, 2020). This study aimed to determine the relationship between the present competency level of TLE Teachers and their teaching practices.

Research Locale and Sampling

The respondents of this study were TLE Teachers chosen randomly from the municipalities of the Davao Oriental division, namely Tarragona, Manay, Caraga, Baganga, Cateel, and Boston. The researcher selected the respondents based on the set criteria as mentioned.

Research Instrument

A survey questionnaire created for a different study was utilized by the researcher. The adopted questionnaire from Torres (2014), designed to understand the teacher's competence in teaching TLE subjects, served as a model for crafting this research's questionnaire with the adviser's help. A professional scrutinized and gave suggestions for improvement in the improvised questionnaire. This improvisation was used to predict the teaching practices of TLE Teachers formulated from the NCBTS tool kit in the TLE subject.

Data Gathering

The collection of data in this research involved different important steps. The first essential procedure was to ask permission to conduct a survey and gather the necessary data. Hence, the researcher first requested a permit from the office of the Graduate School Head of Davao Oriental State University to collect the required data for her study. Then, the researcher asked permission from the Office of the Schools Division Superintendent (SDS) of Davao Oriental Division to gather the data in the identified secondary schools through questionnaires. This was done through a formal letter to the office of SDS, together with a recommendation from the graduate school head. After this, the researcher communicated with the school's principal of the identified secondary schools

through a formal letter to the school principals. Attached with the approval letters from graduate school and SDS, and with the principal's approval and help of the TLE Coordinator, the researcher met the teachers who taught TLE subjects for the year 2021. At this point, the questionnaires were administered and retrieved carefully. With the permission of the panelist, due to the COVID-19 pandemic, the number of respondents was reduced from 300 to 153. When the necessary data were intact, it was carefully tallied and tabulated in Excel for statistician analysis and treatment. Appropriate statistician tools were used to answer the research questions in the analysis and interpretation. The data were analyzed and interpreted with the utmost confidentiality.

Data Analysis

The data gathered were scrutinized using the following statistical tools: mean, Pearson R, and Simple Linear Regression. The analysis of data was anchored on the specific objectives of this study. For objective numbers 1 and 2, the *mean* was used to measure central tendency (average). By adding up all of the figures and dividing by the total number of values, one can find the average or mean of a set of statistics (Manikandan, 2011).

For objective 3, *Pearson R* is used to measure the statistical relationship or association between variables of interest because it is based on the method of covariance (Vogt & Johnson, 2015). For objective 4, *Simple Linear Regression* was used to predict a strong positive correlation between the dependent and independent variables. It was also used to estimate the relationship between two quantitative variables. Simple linear regression elucidated the extent of the relationship between two variables and determined the value of the dependent variable at a particular value of the independent variable (Bevan, 2020).

Ethical Considerations

The information obtained from the respondents remained private between them and the researcher without any influences from outside organizations or individuals. All the acquired information were handled with utmost confidentiality, with the researcher having exclusive access. This is under RA 10173, also known as the Data Privacy Law. The researcher ensured that the identity of the respondents in any part of this study and any research gathering should be appropriately kept. The researcher strictly followed the Data Privacy Law (Philippine Government, 2012). This approach was consistent with the DepEd's strict implementation of the commonly known as the DepEd Freedom of Information Manual (Ghavifekr & Rosdy, 2015).

IV. RESULTS AND DISCUSSION

Table 1 provides a summary of the competence levels of teachers teaching TLE across various indicators. The results indicate that teachers consistently demonstrate a high level of competence in several key areas, including personal and professional skills, the ability to recognize and develop student skills and talents, and the effective use of teaching techniques. Additionally, teachers show strong abilities in monitoring and

evaluation, establishing relationships with families and the community, and utilizing their knowledge of curriculum and content. Overall, the competence levels across all assessed areas are uniformly high, reflecting the teachers' strong capabilities in delivering comprehensive and effective TLE instruction.

TABLE 1. Summary on The Competence Level of Teachers Teaching TLE

Indicators	Mean	SD	Descriptive Level
Personal and Professional Competence	4.02	0.72	High
Competence of Using Knowledge of Student Skills and Talents	3.99	0.79	High
Competence in Using Teaching Techniques	3.99	0.74	High
Competence in Monitoring and Evaluation	3.96	0.76	High
Competence in Establishing Relations with Family and Society	3.65	0.76	High
Competence in Using Knowledge of Curriculum and Content	3.81	0.84	High
Average	3.91	0.70	High

This result is consistent to the previous studies which indicated that the competence levels of TLE teachers are consistently high across personal and professional skills, student skill recognition and development, and effective teaching techniques (Larsson, 2010; Elli, 2020). These competencies are further supported by the teachers' abilities in monitoring and evaluation, relationship-building with families and the community, and curriculum and content knowledge (Mihaela, 2015). However, there is a need for further development in specific areas, such as working with disabled students (Elbert, 2003).

TABLE 2. Summary on the Level of Teaching Practices of TLE Teachers.

Indicators	Mean	SD	Descriptive Level
Contextual	4.26	0.71	Very High
Integrative	4.13	0.72	High
Experiential	4.07	0.75	High
Authentic	4.14	0.75	High
Constructivist	4.23	0.75	Very High
Average	4.17	0.69	High

Table 2 summarizes the level of teaching practices of the TLE Teachers. This reveals that *contextual* and *constructivist* are the highest among the five indicators, with a mean of 4.26 and 4.23, respectively. Next was *authentic*, with a mean of 4.14, then *integrative*, with a mean of 4.13, then *experiential*, with a mean of 4.07. All indicators above are described as *very high*. The results of 4.17 and 0.69 mean and standard deviation, respectively, imply that the TLE Teachers are advanced in their teaching practices. This result supports the study of (Makulova et al., 2015) that education emphasizes mastery of abilities that allow people to acquire knowledge independently rather than transmitting knowledge, which is continuously outdated. Individuals create their own conception of the world in which they exist. Constructivism is the term for this way of looking at how knowledge is constructed. This learning comes from a constructive perspective (Akpan & Beard, 2016). Educators have always been curious about the factors that influence students' learning and the school's

performance in imparting the knowledge and skills necessary for successful integration into society and the economy (Portnov-Neeman & Barak, 2013).

TABLE 3. Correlation Between Competency Level and Teaching Practices.

Competency Level of TLE teachers	Teaching Practices of TLE teachers	
	R	p-value
	.879**	.000

** : Significant at 1% probability level

Table 17 shows the correlation between competence level and teaching practices among TLE Teachers. This result revealed that the competence level of TLE Teachers is significantly associated with their teaching practices. Hence, the null hypothesis was rejected. This implies that as the competency level of TLE Teachers increases, the level of their teaching practices also increases. The higher the competency level of the teachers, the higher the level of their teaching practices. This result supports the study of (Caena & Redecker, 2019) that the European Framework exemplifies the endeavor for Educators' Digital Competence, which takes stock of the requirements. Using a teacher competence framework to describe educator requirements can help with a range of goals at different levels of the educational system.

TABLE 4. Regression Analysis on the Influence of Competence Level Towards the Teaching Practices Among Teachers Teaching TLE.

Model	Unstandardized Coefficients		Standardized Coefficients	T	p-value	Decision on H ₀
	B	SE	Beta			
(Constant)	0.793	0.152		5.228	0.000	
Competence Level	0.863	0.038	0.879	22.611	0.000	Reject

Model Summary: R= 0.879; R square = 0.772; F-value =511.249; p =0.000

Table 4 shows the regression analysis on the influence of competence level towards the teaching practices of the TLE Teachers. This table reveals that the competence level of TLE Teachers significantly influences their teaching practices ($p < .001$), which is directed toward rejecting the null hypothesis. This further indicates that the regression model is statistically significant, with an F-value of 511.249 and $p < .001$. The indicators of their competence level influence 77.20% of the teaching practices of TLE Teachers. According to experts, the remaining traditional ways of managing classrooms and conveying information and skills are insufficient to equip students to deal with increasing change. Teachers must develop an approach to education that initiates changes, fosters diversity, and establishes a foundation for ongoing and inventive learning for all students to reach the highest standards. 22.8% are due to other factors not included in this study.

R square is a statistical measure representing the proportion of the variant for a dependent variable that is explained by an independent variable/s in a regression model (Colignatus, 2018). While the P-value represents the probability that a particular statistical measure, such as the mean or standard deviation of an assumed probability distribution, will be greater than or equal to (or less than or

equal to some instances) the observed result (Gelman, 2013). The F value represents the analysis of variants. It is calculated by dividing two means squares. This calculation determines the explained variant to the unexplained variant (Seltman, 2013).

This result supports the finding of (Omar et al., 2018). The competency of Instructors will have a positive influence on students' academic growth skills and help teachers improve their teaching techniques. The strengths and weaknesses were also analyzed based on the achievement of the TLE Teachers. Zabala & Adelante (2018) stated that teachers are the backbone of any education system. After all, without qualified teachers, how can government and academe secure each child's right to quality education and build a society of educated citizens capable of shaping their future (Carvalhoes, 2017). The intrinsic and altruistic discipline motivates learners to take courses during the four-year pre-service practice and develop and make a contrast in the commitment of the would-be teacher in their career (Salatan, 2018). Effective teaching techniques include an awareness of context, including how students learn and absorb information, what motivates them to learn more, and what obstructs the learning (Kopotun et al., 2020).

V. CONCLUSION AND RECOMMENDATION

Concerning the findings of this study, the following conclusions and recommendations were drawn. TLE Teachers have high personal and professional competence and are highly competent in using students' skills and talents. They are highly skilled in using different teaching techniques in their classes, monitoring and evaluating their students and their teaching, establishing relations with their family and society, using their knowledge of the curriculum and content, and teaching TLE subjects. They also manifest a high level of teaching practices in contextual, integrative, experimental, authentic, and constructivist learning.

TLE Teachers must enhance their competence by attending and updating professional development such as upskilling training, seminars or webinars, workshops, and other professional engagements. This will strengthen their application of 21st-century skills to learners. Towards monitoring and evaluation, teachers may consider the new-normal assessment tool in line with the learning continuity plan of DepEd. Teachers may apply community professional learning to establish relations with family and society.

TLE subjects may integrate technology in delivering the content and curriculum. The teaching practices of TLE Teachers should be aligned with the learning process of TESDA practices. To apply contextualized learning, teachers may utilize the process of localization and indigenization.

TLE Teachers may use the DepEd learning resources (DepEd Common, Learning Portals and other technological platforms) for active learning. Authentic learning can be intensified by collaborating with private stakeholders, agencies, and institutions where learners can practice on-the-job training. Lastly, TLE Teachers should apply the teaching-learning process in output-based, program-based, and project-based approaches.

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