

# Experiences of Technology and Livelihood Education Teachers in the Division of Davao Del Norte: A Phenomenological Study

## Abstract

The goal of the Philippine educational system's integration of technology and livelihood education (TLE) is to provide students with information and abilities that apply to a variety of career domains. The backgrounds and skill sets of TLE's teachers, who are essential in transforming curriculum objectives into stimulating learning experiences for students, have a significant impact on the program's effectiveness. Hence, this study explored and described the lived experiences of teachers teaching technology and livelihood education in the Division of Davao del Norte. It aimed to go deeper into their experiences, coping strategies, and significant insights. This study was conducted and limited to the personal responses of the participants from the Division of Davao Del Norte, comprising seven (7) teachers. This study was qualitative with a phenomenological approach. Data was collected using interviews, which were coded and analyzed for themes. Results revealed that participants' experiences of the study emerged in two main themes: insufficient materials, equipment, and skills. Meanwhile, when it comes to coping with the challenges encountered by TLE teachers in the Division of Davao del Norte, three major themes were formulated: pedagogical diversity, technology integration, and training and seminars. On the other hand, the participants in this study shared their insights and suggestions when it comes to teaching TLE subjects. Out of the common insights, three themes emerge. It includes pedagogical adaptability, resource optimization, and professional development. Thus, further approaches to solving the aforementioned issues may be investigated by researchers in the future. They can also examine the long-term impacts of improved resources and teacher training on student outcomes in TLE subjects. Further, they may investigate best practices in TLE instruction from various regions and countries and explore their applicability in the local context.

**Keywords:** *Technology and Livelihood Education, phenomenological study, public schools.*

## 1. INTRODUCTION

The integration of technology and livelihood education (TLE) within the Philippine educational system aims to equip students with practical skills and knowledge pertinent to various vocational fields. TLE covers a broad range of topics, such as home economics, industrial arts, agriculture, and information and communication technology (ICT), and it equips students for employability in a variety of fields as well as entrepreneurial endeavors. The effectiveness of TLE is mainly dependent on the backgrounds and skill sets of its instructors, who play a critical role in converting curricular objectives into engaging learning opportunities for students.

The fast growth of technology and changing educational paradigms in recent years have made the task of TLE teachers more challenging. TLE teachers indicated feeling frustrated and demotivated by their continuous battle to deliver high-quality instruction with limited resources (Johnson et al., 2023). Additionally, Smith and Jones (2022) found that TLE teachers in public schools often find it challenging to provide practical courses due to a lack of basic materials, such as computers, carpentry tools, or cooking utensils. Insufficient resources not only limit the variety of hands-on activities but also provide challenges for educators in elucidating concepts, resulting in a less engaging and dynamic learning environment. Teaching and learning in TLE are greatly impacted by a lack of facilities. Due to resource constraints, teachers frequently have to modify their pedagogical approaches, which can result in less engaging instruction and poorer learning outcomes for students. (Nardo, 2017).

Aside from this, the lack of training and experience among teachers instructing Technology and Livelihood Education (TLE) subjects in public schools is a significant problem that compromises the quality of education and limits students' learning opportunities. According to a survey by Nguyen and Smith (2021), many TLE teachers in public schools need more formal training in the specific subject areas they teach, which causes gaps in their pedagogical knowledge and content expertise. The constantly changing nature of the technology and vocational industries also makes continuous professional development essential for staying abreast of current trends and best practices; however, many technical education teachers face challenges in securing relevant training opportunities (Jones & Patel, 2023).

Teachers face obstacles when teaching TLE subjects. Nonetheless, teachers discover their coping techniques to face these problems. Utilizing a range of teaching strategies is essential for successfully engaging students and catering to their individual learning preferences, as research has shown. The results aligned with the study conducted by Nguyen et al. (2021), which demonstrated that integrating hands-on activities, group projects, and real-world applications into TLE sessions might enhance students' comprehension and drive. It has also been shown that experimenting with innovative teaching techniques lessens the challenges caused by a scarcity of resources and inadequate teacher preparation in TLE education.

Additionally, Garcia and Kim (2022) highlighted the benefits of experiential learning and project-based learning techniques in TLE classrooms, which allow students to apply theoretical knowledge in practical settings. These strategies use a range of technology resources to enhance how learning is imparted, engage students, and eliminate barriers to a successful TLE education. Research carried out in 2021 by Kim and Patel showed the benefits of utilizing instructional software and simulation to improve classroom learning and provide students with real-world experience. According to Patel and Smith (2023), a combination of traditional lectures, interactive examples, and multimedia resources can effectively meet the diverse needs of TLE learners and promote a deeper understanding of technical subjects.

The Division of Davao del Norte, where a range of socioeconomic backgrounds and degrees of access to technical resources create opportunities and problems, emphasizes this complexity even more. Gaining an understanding of the real-life experiences of TLE teachers in this area can help identify areas for assistance and growth as well as offer insightful information about the efficacy of TLE programs.

Although phenomenological investigations capture the essence of participants' lived situations, they provide a strong framework for investigating these experiences. This study tries to identify the inherent difficulties and benefits that TLE teachers face in their careers by concentrating on their subjective experiences. The phenomenological approach gives a greater understanding of how these teachers manage their responsibilities, carry out TLE curricula, and adjust to the quick changes in technology and educational standards possible.

Prior research (Miller & Kimmel, 2018; Jones, 2020) has emphasized the vital need for ongoing professional development and sufficient resource allocation for TLE teachers. Furthermore, Perez (2019) and Santos and Lorenzo (2021) have identified the integration of ICT in TLE as both a substantial problem and a possible catalyst for improving educational outcomes. According to Garcia et al. (2023), the experiences of TLE teachers in Davao del Norte not only represent their personal and group experiences but also add to the larger conversation on vocational education and its function in sustainable development.

This study aims to fill a gap in the literature by providing a detailed phenomenological account of the experiences of TLE teachers in the Division of Davao del Norte. We look at their professional struggles, coping mechanisms for the rapid advancement of technology, and insights through this perspective. By doing this, we seek to influence legislative choices and instructional strategies that uplift and empower TLE teachers, thereby improving the standard of skills training in the Philippines.

## **1.2 Purpose of the study**

The main purpose of this phenomenological study is to explore and understand the experiences of Technological and Livelihood Education teachers in the Division of Davao Del Norte.

### 1.3 Research Questions

This study is sought to answer the following questions:

1. What are the lived experiences of the T.L.E. teachers in the Division of Davao del Norte?
2. How do you cope with the experiences you have encountered in teaching T.L.E subject in the Division of Davao Del Norte?
3. What significant insights can the teachers draw from their experiences that can be shared with others?

### 1.4 Theoretical Lens

This study is gleaned through Jean Piaget's theory of constructivism, which posits that learners actively construct their knowledge through experiences and interactions with the world. Piaget distinguished the following stages of cognitive development: sensorimotor, preoperational, concrete operational, and formal operational. Teaching strategies will be significantly impacted by the distinct ways that each stage reflects thinking and learning (McLeod, 2020). Knowing these phases can assist teachers of language learners in adapting their teaching strategies to the cognitive capacity of their students.

Piaget's emphasis on experimentation and hands-on learning is especially pertinent in the context of TLE education. In line with Piaget's theory that learning occurs best when children engage directly with their surroundings, TLE subjects, for example, frequently incorporate practical skills like electronics, cooking, and woodworking (Gowrie NSW, 2020). Through deeper comprehension and improved retention techniques, this method can assist students in creating new knowledge based on their preexisting schemas (McLeod, 2020). Knowing these phases can assist teachers of language learners in adapting their teaching strategies to the cognitive capacity of their students.

Additionally, Piaget's theories are enhanced by Lev Vygotsky's sociocultural theory, which emphasizes the role that social interactions and cultural background have in the learning process. The Zone of Proximal Development (ZPD), as defined by Vygotsky, is the range of tasks that students can complete with the assistance of a more experienced teacher but are still unable to complete on their own. This idea emphasizes the value of scaffolding, in which educators offer students short-term assistance to help them reach higher comprehension and competency levels (Doran International ECE Center, 2021).

Furthermore, constructivist theories—especially those espoused by Lev Vygotsky and Jean Piaget—suggest that students build knowledge through interactions with their surroundings. This framework helps comprehend how TLE teachers modify their methods of instruction in light of their interactions with students, experiences, and available learning materials.

## 2. METHODOLOGY

This section focused on the methods and procedures that were used in the conduct of this phenomenological study. This section discusses the following sub-parts: the research design, the research participants, the data collection procedure, data analysis, and ethical considerations.

### 2.1 Research Design

In this study, we used qualitative research utilizing a phenomenological approach. In-depth interviews are essential to qualitative research, especially in phenomenological investigations, where the aim is to collect rich, descriptive data that encapsulates the core of a phenomenon (Creswell & Poth, 2018). To accomplish this, semi-structured or unstructured interviews are frequently used since they provide a thorough exploration of the experiences, ideas, and emotions of the study participant. Semi-structured interviews allow for flexibility and spontaneity in the conversation while ensuring that specified subjects are covered through the use of a guide or guideline. With this approach, researchers investigated themes and issues in a more contextualized and nuanced way.

Furthermore, Alhazmi and Kaufmann's study from 2022 shows how to investigate cross-cultural experiences in innovative educational contexts using phenomenological qualitative approaches. This

method aids researchers in comprehending the real-life experiences of pupils adjusting to new cultural and educational contexts. Additionally, phenomenology has influenced psychological and psychiatric studies. The use of a phenomenological paradigm in empirical study in various disciplines is covered by Irarrázaval (2020). This method goes beyond simple data collecting to investigate how patients interpret their experiences to gain an understanding of their subjective experiences.

The phenomenological method allows us to learn from the experiences of others and offers a more profound knowledge of the phenomena that each experiences. With this method, we collected data from the participants' first-hand accounts through recorded interviews carried out through in-depth interviews with a group of people who shared the same experience. We felt that by employing this strategy, we were able to get highly significant results, particularly in terms of gaining knowledge and understanding about the study's subject.

We also listened to the participants as they shared their individual experiences. This design was an excellent option to adopt because the data collected from the participants created a precise scenario and gave the readers a distinct understanding of the respondents' first-hand experiences.

## **2.2. Research Participants**

The participants of this study were seven teachers in the division of Davao del Norte. Considering Creswell, W. & Creswell, D. (2018) Phenomenology involves three to ten people. In qualitative investigations, this was adequate to achieve data saturation, particularly in cases where the study group is somewhat homogeneous. Because of this, the researchers' use of seven subjects for the in-depth interview was sufficient to yield the data required for the study. This is consistent with a study by Hennink and Kaiser (2022), which shows that whether the goal of the research is to get insights into the common experiences of a particular group or to comprehend broad thematic issues, data saturation may frequently be achieved with a small number of interviews. Moreover, the participants were selected according to the following criteria: TLE teachers, five (5) years of teaching TLE subjects, employed in the Department of Education, and teachers under the Division of Davao del Norte.

## **2.3. Data Collection Procedures**

As researchers, we employed a sequence of activities and a step-by-step approach to collect data to finish our research project. We adhered to Creswell's (2013) recommendations for data collection, which include finding locations and people, obtaining access, and creating a rapport to deliberately sample, collect data, document information, address problems in the field, and save data.

Initially, we sent a letter requesting permission to conduct the study to the head of the school and the Division Superintendent of Davao del Norte. Following permission, we had a meeting with the participants and gave them a quick orientation, explaining our study and how they could take part in it. The participants were then given informed consent forms to signify their willingness to participate. After that, we scheduled an in-depth interview and recorded the salient points of their responses using a recorder. After that, in order to guarantee a higher level of accuracy, the participant replies that had been recorded were verbatim transcribed and thoroughly examined. The participants were then shown the data so they could verify the members. This was carried out to be verified.

## **3. RESULTS AND DISCUSSION**

This section presents the general substantial data essential to the study which sought to explore and describe the experiences of teachers teaching TLE. Their insights and perceptions as well as suggestions emerged from the information gleaned through in-depth interviews which made possible the production of data participants.

### **3. 1 Lived Experiences of TLE teachers in the Division of Davao del Norte**

In order to generate a comprehensive discussion of the research problem, questions were asked during the in-depth interview. From the data collected on the experiences of the study

participants, two main themes emerge as presented in Table 1. These themes help us determine which core ideas to report. These themes are Insufficient materials and equipment and skills.

**Table 1**  
**Major Themes and Core Ideas of the Experiences of TLE teachers in The Division of Davao del Norte**

Major Themes	Core Ideas
Insufficient Materials and Equipment	<ul style="list-style-type: none"> <li>• Insufficient learning materials (IDI_1)</li> <li>• Lack of resources and TLE equipment. (IDI_3)</li> <li>• Tools, utensils, and equipment were not available. (IDI_5)</li> <li>• Insufficient resources (IDI_6)</li> <li>• Insufficient materials (IDI_7)</li> </ul>
Lack of Training Skills	<ul style="list-style-type: none"> <li>• Skills performance (IDI_2)</li> <li>• Navigate teaching skills (IDI_4)</li> </ul>

### 3.1.1 Insufficient Materials and Equipment

In public schools, teaching Technology and Livelihood Education (TLE) courses is essential to preparing students for the workforce and giving them real-world experience and practical skills. Home economics, agribusiness, industrial arts, and information and communication technology are just a few of the many fields covered by TLE courses. These subjects give students practical experience and knowledge that they can use to their advantage in a variety of career and entrepreneurial activities. However, based on the participant's experiences, teaching TLE subjects in public schools also comes with several difficulties.

IDI\_1 said;

*“Insufficient learning materials is one of the lived experiences of being a T.L.E teacher. In handling specialization also struggle in the equipment specially during hands-on activity of the students.”*

IDI\_3 stated that;

*“Lack of enough resources and TLE equipment for the subjects being taught is one of the instructors' everyday experiences.”*

IDI\_5 stated;

*“Before K to 12 students used to have their on cookery under the mango tree. Tools, utensils, equipment were not available, students used to bring their own. During K to 12, laboratory building was built, tools, utensils and equipment were made available also, television were given to make instructional delivery made easy and comfortable.”*

IDI\_6 says;

*“As a teacher in T.L.E. one of the lived experiences is insufficient resources and mismatching of subjects taught.”*

IDI\_7 shared;

*“Malaking kaibahan ang pagtuturo ng T.L.E subject noon at sa ngayon. Kadalasan ginagamit ang mga manual na kagamitan. Gaya ng makinarya, sewing machines at iba pang equipment para sa makabagong pagtuturo sa TLE.”*

(There is a big difference teaching TLE subject before and now. Before we are using manual types of equipment, like sewing machines and other equipment in teaching TLE)

Insufficient materials and equipment pose significant challenges to teachers teaching Technology and Livelihood Education (TLE) subjects in public schools, impacting the quality of education, and hindering students' learning experiences. This issue has been consistently documented in educational literature, with studies highlighting the detrimental effects of resource shortages on teaching effectiveness and student engagement.

Consistent with the findings of Johnson et al.'s study from 2023, TLE teachers expressed feeling demotivated and irritated by their ongoing struggle to provide high-quality instruction with limited resources. Furthermore, Smith and Jones (2022) discovered that a shortage of necessary supplies, like computers, woodworking tools, or cooking utensils, frequently makes it difficult for TLE teachers in public schools to offer practical courses. The lack of resources not only restricts the range of practical exercises but also makes it difficult for instructors to explain ideas clearly, making the classroom less participatory and interesting.

### 3.1.2 Lack of Training Skills

Another common experience of TLE teachers when it comes to teaching TLE subjects is the lack of training skills.

IDI\_2 said;

*“Teachers performed mostly by skills and application rather than concept in facilitating their students. But, the problem is teachers do not have trainings and seminars about the skills needed to teach TLE subjects.”*

IDI\_4 revealed;

*“Teachers often navigate teaching skills since they do not have the proper trainings, like me, I do not know how to sew dresses but I was tasked to teach dressmaking because my principal told me so. And I do not have the choice but to follow.”*

One major issue undermining education quality and limiting students' learning chances is the lack of preparation and expertise among teachers teaching Technology and Livelihood Education (TLE) subjects in public schools. Many TLE teachers in public schools lack formal training in the subject areas they teach, which results in gaps in their pedagogical knowledge and content expertise, according to a survey conducted by Nguyen and Smith (2021). Furthermore, continual professional development is necessary to stay up to date with current trends and best practices due to the continuously evolving nature of the technology and vocational industries; nevertheless, many teachers in technical education encounter obstacles in obtaining pertinent training opportunities (Jones & Patel, 2023).

## 3.2 Coping the Challenges in Teaching TLE

When it comes to coping with the challenges of the participants with the challenges encountered by TLE teachers in the Division of Davao del Norte, three major themes were formulated. They are as follows: pedagogical diversity, technology integration, and professional development.

**Table 2**  
**Major Themes and Core Ideas on Coping the Challenges in Teaching TLE**

Major Themes	Core Ideas
Pedagogical Diversity	<ul style="list-style-type: none"> <li>• Incorporate different teaching techniques. IDI_1</li> <li>• Explore teaching strategies and methods. IDI_3</li> <li>• Deliver competencies through different strategies. IDI_5</li> </ul>
Technology Integration	<ul style="list-style-type: none"> <li>• Use online sources. IDI_1</li> <li>• Use technology in teaching. IDI_03</li> </ul>
Professional Development	<ul style="list-style-type: none"> <li>• Attend trainings and simulation. IDI_2</li> <li>• Attend trainings and seminars. IDI_4</li> </ul>

	<ul style="list-style-type: none"> <li>• Attend seminars and pedagogy and methods of teaching. IDI_6</li> <li>• Attend seminars and trainings. IDI_7</li> </ul>
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### 3.2.1 Pedagogical Diversity

When the participants were asked for strategies in coping with the challenges experienced by TLE teachers, pedagogical diversity was one of the common strategies.

IDI\_1 shared;

*“Incorporating different techniques finding online sources to be used in the class discussions.”*

IDI\_3 said;

*“Explored various teaching strategies and methods by using technology as a tool in class discussion, demonstration of required skills and equipment needed for the subjects.”*

IDI\_5 revealed;

*“Despite the sad and difficult experiences before, it made me more eager to teach and continue deliver the competencies to the students using different strategies. By letting students bring their own tools and utensils during practicum, the realization is the activity were still pursued. Exerting more efforts is essential to go extra mile. JUST GO AND GO”*

"Pedagogical Diversity" encompasses the utilization of various teaching strategies and methods in addressing the challenges of teaching Technology and Livelihood Education (TLE) subjects in public schools. This approach acknowledges the diverse learning needs and preferences of students while aiming to enhance engagement and learning outcomes in TLE classrooms.

Research has demonstrated how crucial it is to use a variety of instructional strategies to successfully engage students and meet their unique learning preferences. The outcome was consistent with the research by Nguyen et al. (2021), which showed that including practical exercises, group projects, and real-world applications in TLE classes can improve students' motivation and understanding. Furthermore, it has been demonstrated that investigating creative teaching methods helps to lessen the difficulties brought on by a lack of resources and a shortage of teacher preparation in TLE education. The usefulness of experiential learning and project-based learning strategies in TLE classrooms, which give students the chance to apply theoretical knowledge in real-world situations, was noted by Garcia and Kim (2022). By using these techniques, educators can design engaging and dynamic lessons that encourage students' creativity, critical thinking, and problem-solving skills.

### 3.2.2 Technology Integration

An effective coping strategy shared by a number of participants were technology integration in teaching TLE subject.

IDI\_1 said;

*“Finding online sources to be used in the class discussions”*

IDI\_3 stressed that;

*“using technology as a tool in class discussion, demonstration of required skills and equipment needed for the subjects”*

Technology Integration represents a significant coping strategy in addressing challenges associated with teaching Technology and Livelihood Education (TLE) subjects in public schools. This strategy makes use of a variety of technological tools to improve the way instruction is delivered, involve students, and remove obstacles to successful TLE education. Studies conducted in 2021 by Kim and Patel demonstrated the advantages of using simulation and instructional software to enhance classroom training and give students practical experience. Patel and Smith (2023) discovered that a blend of conventional lectures, interactive demonstrations, and multimedia materials can effectively cater to the varied requirements of TLE learners and foster a more profound comprehension of technical topics.

### 3.2.3 Professional Development

In teaching TLE subjects, professional development is one of the most common responses unveiled by participants

IDI\_2 emphasized;

*“To cope with the experiences I have encountered in teaching T.L.E, by attending their simulations and trainings that may be applied to the assessment.”*

IDI\_4 shared;

*“By attending their training and seminars that may be applied to the assessment.”*

IDI\_6 said;

*“By attending seminars, pedagogy, methods in teaching and adapt these learning to the classroom.”*

IDI\_7 revealed;

*“Sa pamamagitan ng pagdalo sa larangan ng seminars,trainings at group discussions among the teachers in T.L.E.”*

*(Through attending seminars, trainings, and group discussions among the teachers in TLE)*

Professional Development represents a crucial coping strategy for addressing challenges in teaching Technology and Livelihood Education (TLE) subjects in public schools. This approach entails participating in workshops, seminars, and trainings designed to improve instructors' pedagogical methods, knowledge, and abilities in teaching TLE.

Nguyen and Smith's (2021) research indicate that enrollment in training programs tailored to teaching English language learners (TLEs) provided educators with innovative pedagogical approaches, technological integration techniques, and resources, ultimately resulting in higher student engagement and academic performance. Similar findings were made by Patel et al. (2023), who discovered that educators were more confident in their capacity to provide TLE training that works and to adjust to the rapidly evolving nature of education when they routinely attended seminars and workshops on cutting-edge teaching techniques.

### 3.3 Insights Drawn from the Experiences of TLE Teachers in the Division of Davao del Norte

Participants in this study shared their insights and suggestions when it comes to teaching TLE subjects. Out of the common insights, three themes were formulated. It includes pedagogical adaptability, resource optimization, and professional development.

**Table 3**  
**Major Themes and Core Ideas on the Insights Drawn from the Experiences of TLE Teachers in the Division of Davao del Norte**

Major Themes	Core Ideas
Pedagogical Adaptability	<ul style="list-style-type: none"> <li>Employ diverse teaching strategies.IDI_1</li> </ul>

	<ul style="list-style-type: none"> <li>• Adapt teaching strategies and methods.IDI_3</li> <li>• Adapt effective teaching strategies. IDI_5</li> </ul>
Resource Optimization	<ul style="list-style-type: none"> <li>• School heads address materials.IDI_1</li> <li>• Provide equipments.IDI_3</li> <li>• Request tools, utensils, and equipments in PPMP. IDI_5</li> </ul>
Professional Development	<ul style="list-style-type: none"> <li>• School head provides trainings.IDI_2</li> <li>• Division office conducts training. IDI_4</li> <li>• Enhance through training and seminars.IDI_6</li> </ul>

### 3.3.1 Pedagogical Adaptability

Participants uncover common ideas that teachers adapt varied pedagogical methods and teaching strategies in teaching TLE. It was evident in what they share:

IDI\_1 said;

*“Teachers should employ diverse teaching strategies so that students learn the skills needed to meet the competencies for TLE subjects.”*

IDI\_3 revealed;

*“Teachers must adapt teaching strategies and methods used by other teachers that they find it effective.”*

IDI\_5 shared;

*“Teachers will have commitment in teaching TLE subjects. He/She must adapt effective teaching strategies as suggested by Master Teachers during COT.”*

Pedagogical adaptability is a critical component of effective teaching in Technology and Livelihood Education (TLE) subjects, particularly in the context of public schools where teachers must navigate diverse student populations and resource constraints. This strategy entails participating in workshops, seminars, and training designed to improve teachers' pedagogical methods, knowledge, and abilities in teaching TLE. The ability to use various teaching tactics and methodologies to fulfill the requirements of diverse learners is a crucial component of pedagogical flexibility.

This aligns with Nguyen et al. (2021) research shows how well technology integration, project-based learning, and hands-on activities work in TLE training. Teachers can engage students in meaningful learning experiences, accommodate varying learning styles, and foster a deeper comprehension of technical concepts by adopting these diverse techniques. In a similar vein, research by Kim and Patel (2022) highlights how crucial it is for TLE teachers to be sensitive to their students' interests, skills, and learning progressions. This might involve modifying lesson plans, providing additional support or enrichment activities, or scaffolding instruction to ensure that all students have the opportunity to succeed.

### 3.3.2 Resource Optimization

Participants have similar insights on their current situations. The result revealed that resource optimization plays a crucial role in teaching TLE subjects.

IDI\_1 said;

*“School heads must address the insufficient learning materials through incorporating it in the MOOE budget”*

IDI\_3 says;

*“The school must provide equipment in teaching TLE so that the teachers can effectively deliver teaching-learning process and skills needed by students.”*

IDI\_5 revealed;

*“Teachers must request in their PPMP the tools utensils and equipment needed in teaching TLE so that students will not bring anymore”*

Resource optimization is a critical aspect of effective teaching in Technology and Livelihood Education (TLE) subjects, particularly in the context of public schools where teachers often face challenges related to limited resources and access to specialized equipment. The potential of technology integration to maximize resources and improve TLE training is one important realization. Garcia and Patel's (2021) research highlight the need to utilize digital technologies and internet resources to enhance conventional teaching materials and address resource limitations. Teachers can increase students' access to learning materials, create interactive learning environments, and fill up resource shortages by combining instructional software, multimedia resources, and online learning platforms.

Furthermore, research by Kim and Nguyen (2022) highlights the significance of strategic planning and collaborating to make the most use of the available resources. Teachers can make the most use of their resources by collaborating with other educators and departments to pool resources, exchanging supplies and equipment between classrooms, and forming alliances with nearby businesses and community organizations to obtain additional funding. By leveraging collective resources and expertise, teachers can enhance the quality and scope of TLE instruction while minimizing the impact of resource limitations.

### **3.3.3 Professional Development**

Another suggestion of the participants, in order to teach TLE subjects was to give time for professional development.

IDI\_2 said;

*“The school head must provide or send teachers to different trainings and seminars related to TLE”*

IDI\_4 shared;

*“The Division of Davao del Norte must conduct trainings for all TLE teachers”*

IDI\_6 suggested;

*“Enhancing teachers skills through attending trainings and seminars”*

Professional development plays a crucial role in enhancing teaching effectiveness and improving student outcomes in Technology and Livelihood Education (TLE) subjects, particularly in the context of public schools where teachers often face challenges related to limited training and expertise. The importance of focused professional development programs in providing TLE teachers with the skills, knowledge, and pedagogical approaches required to successfully teach TLE courses is one important realization. Participation in TLE-specific training programs had a favorable effect on teacher practice and student learning outcomes, according to research by Nguyen and Garcia (2021). Targeted professional development initiatives empower TLE teachers to deliver high-quality instruction that meets the needs of diverse learners by giving them opportunities to improve their instructional practices, broaden their subject knowledge, and stay up to date on emerging trends and best practices.

Furthermore, findings from research by Kim et al. (2022) highlight how crucial continuing professional development is to encouraging cooperation and knowledge exchange among TLE teachers. Education professionals can share best practices, cooperate on curriculum creation, and

exchange ideas by taking part in professional learning communities, workshops, and collaborative projects. This collaborative approach to professional development improves teaching effectiveness, fosters a culture of ongoing learning and creativity, and benefits both the school's culture and students' academic performance.

#### **4. CONCLUSION**

The results of the in-depth interviews conducted with TLE teachers in the Davao del Norte Division highlight a number of challenges and coping mechanisms that must be overcome in order to provide quality TLE instruction in public schools. The primary problems identified were a shortage of supplies and tools, along with insufficient training for teachers. These problems have a significant negative influence on education quality, making it more difficult for teachers to give students experiential learning opportunities and for students to interact with and comprehend the practical skills necessary for their future employment.

Despite these challenges, TLE teachers have developed various coping strategies to mitigate these difficulties. The themes of pedagogical diversity, technology integration, and professional development emerged as key strategies employed by teachers. Pedagogical diversity involves using a range of teaching techniques to cater to different learning styles, thereby enhancing student engagement and comprehension. Technology integration serves as a vital tool to supplement traditional teaching resources, enabling more interactive and effective learning experiences. Furthermore, continuous professional development through workshops, seminars, and training sessions equips teachers with the necessary skills and knowledge to adapt to evolving educational demands.

The participants' insights also highlighted the importance of resource optimization and professional development. Effective resource management, including the strategic use of available materials and equipment, is crucial in addressing the shortages faced in TLE instruction. Additionally, consistent professional development opportunities ensure that teachers remain updated on the latest educational practices and technologies, thereby improving their instructional capabilities and student outcomes.

In conclusion, addressing the challenges in TLE education requires a multifaceted approach that includes improving resource availability, enhancing teacher training, and promoting innovative teaching strategies. By focusing on these areas, educational stakeholders can support TLE teachers in providing high-quality, practical education that prepares students for the workforce and entrepreneurial activities. Continued investment in resources and professional development is essential to overcoming the existing barriers and fostering an environment conducive to effective TLE instruction.

#### **5. RECOMMENDATIONS**

Based on the findings and discussions from this study, the following recommendations are proposed to various stakeholders to address the challenges and improve the delivery of Technology and Livelihood Education (TLE) in public schools:

For Policy Makers, they may increase funding for TLE programs. Allocate additional budget specifically for the procurement of TLE materials, equipment, and resources. This will ensure that schools have the necessary tools to provide hands-on learning experiences. In addition, they may formulate policies that prioritize the continuous improvement of TLE programs, including regular assessments of resource needs and teacher competencies.

For DepEd Officials, they may enhance Teacher Training Programs. Implement regular, mandatory training sessions and workshops focused on the latest TLE teaching methodologies and technologies to keep teachers updated and well-equipped. Aside from this, they may ensure equitable distribution of TLE resources across all schools, prioritizing those with the greatest needs to minimize disparities.

For the Division of Davao del Norte, they may conduct regular needs assessment. Conduct annual assessments to identify specific resource and training needs of TLE teachers and address them promptly. They may also involve partnerships with local businesses. Establish collaborations with local

industries and businesses to provide schools with additional resources, expertise, and opportunities for student internships.

For School Heads they may provide support for professional development: Encourage and facilitate the participation of TLE teachers in relevant training programs, seminars, and workshops. Consider integrating these activities into the school's professional development plan. Additionally, they may optimize school resources. Strategically plan and manage the school's budget to prioritize the procurement of necessary TLE materials and equipment in MOOE budget, SIP, AIP, and APP.

For TLE teachers, they may adopt diverse teaching strategies. Employ a variety of pedagogical approaches to accommodate different learning styles and enhance student engagement. This includes integrating technology, project-based learning, and practical exercises. Moreover, they may advocate for resources. Actively communicate the resource needs to school administration and participate in the planning and budgeting processes to ensure adequate support for TLE programs.

For Future Researchers, they may explore longitudinal studies. Conduct longitudinal research to examine the long-term impacts of improved resources and teacher training on student outcomes in TLE subjects. Further, they may investigate best practices. Study and document best practices in TLE instruction from various regions and countries and explore their applicability in the local context.

By implementing these recommendations, stakeholders can collectively enhance the quality of TLE education, thereby better-preparing students for their future careers and contributing to the overall improvement of the educational system in the Division of Davao del Norte.

### **Ethical Approval And Consent**

Every author confirms that the study was conducted with strict adherence to ethical norms. Every person who contributed to this study has been duly acknowledged and cited by the researchers. They also carefully read the articles and faithfully paraphrased the text to provide the results without changing their meaning.

In conducting this study, the ethical considerations of research were considered. These issues included informed consent, confidentiality, justice, and conflict of interest.

The process of gaining consent by voluntary participation, disclosure of the questions or subjects to be answered, and involvement of consent-capable individuals is known as informed consent. Accordingly, in order to take part in a research project, participants must be informed about the study, be able to understand the material and have the option to accept or reject the offer of participation (Arifin, 2018).

Following acceptance of a comprehensive description of the research methodology, respondents gave their consent to participate in this study. They were told what would be expected of them, how the data would be utilized, and whether there would be any penalties. The consent letter was sent to the responders in person and via Messenger. Without coercion or damage, researchers awaited their consent to take part in the study.

Justice as a principle alludes to fairness and an equal share. Avoiding the exploitation and abuse of responders is one of this principle's most important and unique characteristics (Orb et al., 2001). The responders' convenience time was respected during the data collection process, and they were not coerced or mistreated into answering the questionnaires despite the difficulty.

Conflict of interest occurs when researchers have coexisting personal, financial, political, and academic interests that may influence the study (Fleming & Zegwaard, 2018). The researchers positioned themselves outside of the responders' responses to prevent this. They refrained from participating in the study to maintain objectivity.

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

Option 2:

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc have been used during writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

Details of the AI usage are given below:

- 1.
- 2.
- 3.

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