Professional Development and Digital Literacy as Correlates of Technology and Livelihood Education Teachers Performance

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DOI: https://doi.org/10.47772/IJRISS.2025.91100433

Received: 01 December 2025; Accepted: 07 December 2025; Published: 16 December 2025

ABSTRACT

EXCELISE, ELVIE M., Central Mindanao University, Musuan, Maramag, Bukidnon, October 2025. "The level of Professional Development, Digital Literacy, and its relationship to Performance of Technology and Livelihood Education Teachers"

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This study examined the levels of professional development, digital literacy, and performance of Technology and Livelihood Education (TLE) teachers in public secondary schools within the Municipality of Maramag, Bukidnon. Using a validated researcher-made questionnaire and employing descriptive statistics, correlation, and regression analysis, the study explored how key factors such as collaboration, digital competence, and institutional support influence teacher performance. Results revealed that TLE teachers demonstrated advanced professional development, especially in collaborative leadership and shared vision. However, limited access to technological and fiscal support hindered the full impact of professional learning. Teachers also demonstrated strong digital literacy, particularly in productivity and perceived importance, but had moderate confidence in using advanced tools, underscoring the need for more targeted, hands-on digital training. Teacher performance, as assessed using the IPCRF, was consistently rated very satisfactory, with strengths in assessment and professional growth. Correlation analysis showed that supportive conditions and digital productivity were positively and significantly related to teacher performance. Regression analysis identified digital productivity as the only significant predictor. The findings emphasized the importance of equipping TLE teachers with relevant digital tools, supportive working environments, and practical training aligned with their instructional needs. These insights offer actionable guidance for school leaders and policymakers aiming to strengthen teacher effectiveness through sustainable professional development and meaningful digital integration.

Keywords: collaborative leadership, instructional technology, professional development, teacher performance, Technology and Livelihood Education.

INTRODUCTION

Background of the Study

Technology and Livelihood Education (TLE) play a crucial role in preparing Filipino learners for real-world employment, entrepreneurship, and technical careers. As the Philippine education system continues to evolve under the K to 12 curriculum, the integration of digital tools in teaching and learning has become increasingly essential, especially in TLE, where practical skills must align with industry standards and technological advancements.

Professional development is essential for teachers to remain effective and responsive to educational shifts for the continuous acquisition of new knowledge, skills, and competencies. This includes training in emerging technologies, pedagogical innovations, and industry-relevant practices. Digital literacy, meanwhile, goes beyond basic computer use; it involves the ability to integrate digital tools meaningfully into instruction, enhancing student engagement, learning outcomes, and career readiness (Ng, 2022).

The Department of Education (DepEd) has recognized the transformative potential of digital literacy through its Digital Rise Program, which embeds ICT competencies across the K to 12 curriculum. This includes productivity tools for elementary learners, basic programming and multimedia subjects for junior high school, and vocational ICT skills such as computer servicing and broadband installation for senior high school students (DepEd, 2022). For TLE teachers, this shift demands proficiency in digital design, e-commerce, multimedia production, and other technology-driven vocational skills.

Despite these initiatives, many teachers, especially in rural areas, continue to face barriers such as limited access to devices, inconsistent internet connectivity, and insufficient training in emerging technologies. Rural schools often struggle with infrastructure gaps and the "last mile" problem, where digital resources fail to reach remote communities (UNESCO, 2021). Urban schools, while generally better equipped, may still face overcrowded classrooms and uneven teacher readiness (Salvador & Dela Cruz, 2023).

Moreover, the COVID-19 pandemic further exposed and intensified these challenges. With the abrupt shift to remote and blended learning, educators were compelled to adopt digital platforms such as DepEd Commons, the Learning Management System (DLMS), and DepEd TV and Radio. These tools became lifelines for instruction but also revealed disparities in teacher preparedness and access to professional development (Cruz & Ballesteros, 2021). Post-pandemic teaching continues to emphasize digital integration, not only as a contingency but as a permanent feature of modern pedagogy.

Given these realities, the study was conducted to investigate how professional development and digital literacy directly affect the performance of TLE teachers. Understanding this relationship is crucial for designing responsive, targeted, and sustainable capacity-building programs that empower educators to meet the demands of the 21st-century workforce. Moreover, this study provides evidence-based insights to inform policy, improve instructional quality, and ensure that students receive relevant, future-ready education, especially in a subject area as vital as TLE.

Statement of the Problem

The study aimed to assess the levels of professional development and digital literacy and determine their relationship to the performance of Technology and Livelihood Education Teachers.

Specifically, it sought to answer the following questions:

1. What is the level of professional development of technology and Livelihood Education Teachers in terms of:

1.1 shared and supportive leadership;

1.2 shared values and vision;

1.3 collective learning and application; and

1.4 supportive conditions and structures?

2. What is the level of digital literacy of Technology and Livelihood Education Teachers in terms of:

2.1 productivity;

2.2 importance;

2.3 confidence; and

2.4 anxiety?

3. What is the level of teaching performance of Technology and Livelihood Education Teachers in terms of:

3.1 content knowledge and pedagogy;

3.2 learning environment and diversity of learners;

3.3 curriculum and planning;

3.4 assessment and reporting; and

3.5 personal growth and professional development?

4. Is there a significant relationship between teachers' performance on:

4.1 professional development; and

4.2 digital literacy?

5. Which variable singly or in combination best predicts teachers' performance?

Objectives of the Study

The study was conducted to assess the levels of professional development and digital literacy and determine their relationship to the performance of Technology and Livelihood Education Teachers.

Specifically, it aimed to:

1. Determine the level of professional development of Technology and Livelihood Education Teachers in terms of:

1.1 shared and supportive leadership;

1.2 shared values and vision;

1.3 collective learning and application; and

1.4 supportive conditions- structures.

2. Ascertain the level of Digital Literacy of Technology and Livelihood Education Teachers in terms of:

2.1 productivity;

2.2 importance;

2.3 confidence; and

2.4 anxiety.

3. Describe the level of teaching performance of Technology and Livelihood Education Teachers in terms of:

3.1 content knowledge and pedagogy;

3.2 learning environment and diversity of learners;

3.3 curriculum and planning;

3.4 assessment and reporting; and

3.5 personal growth and professional development.

4. Assess if there is a significant relationship between teachers' performance on:

4.1 professional development; and

4.2 digital literacy.

5. Find out which variable singly or in combination best predicts teachers' performance.

Significance of the Study

The findings of this study would contribute to a deeper understanding of the role of digital literacy in enhancing the professional performance of TLE teachers.

To the students, they can receive more dynamic, interactive, and up-to-date instruction through digital tools and technologies that facilitate hands-on learning, virtual simulations, and access to resources that enhance vocational skills.

To TLE teachers, it enables teachers to deliver more engaging, relevant, and interactive content, improving their overall teaching effectiveness and confidence in the classroom.

To school administrators and curriculum developers, the findings of this study highlight the value of professional development programs that strengthen digital literacy. As TLE teachers enhance their ability to integrate technology into instruction, schools can expect improved teaching quality in vocational subjects and better overall student performance.

To DepEd, the study provides insights that can help enhance teacher performance by strengthening professional development programs focused on digital literacy by providing ongoing support, resources, and training to ensure that TLE teachers are equipped to deliver effective, technology-integrated instruction aligned with national standards.

To future researchers, these findings can help explore other variables that might impact the effectiveness of professional development programs. It can be used to conduct longitudinal studies on the long-term impact of digital literacy training for teachers.

Scope and Delimitation of the Study

The study focused only on the level of professional development, digital literacy, and performance of the secondary Technology and Livelihood Education teachers of all the public high schools in the Municipality of Maramag, Bukidnon, namely: Bukidnon National School of Home Industries, Dologon National High School, Dologon National High School-Kiharong Annex, Dologon National High School-San Roque Annex, Musuan Integrated School, San Miguel National High School, Kuya National High School, La Roxas National High School, and Dagumbaan Integrated School. These schools were chosen because they represent the diverse educational contexts within the municipality and provide a comprehensive view of the professional and technological competencies of TLE teachers across different school settings. The study was conducted from March 2025 to June 2025.

This study was delimited only to the information provided by the respondents in the survey questionnaires of professional development and digital literacy questionnaires. In addition, to determine the TLE teachers' performance, Individual Performance Commitment and Review Form (IPCRF) was used.

Definition of Terms

For the purpose of this study, the following terms are operationally defined:

Digital literacy refers to the ability of TLE teachers to integrate digital tools into instruction, manage online

resources, and create technology-enhanced learning environments, measured through four subcomponents: productivity, importance, confidence, and anxiety.

Individual performance commitment and review form (IPCRF) is a standardized DepEd tool used to assess TLE teachers' performance across five key result areas: content knowledge and pedagogy, learning environment and diversity of learners, curriculum and planning, assessment and reporting, and personal growth and professional development.

Professional Development is the average score of TLE teachers' responses on a questionnaire measuring four dimensions: shared and supportive leadership, shared values and vision, collective learning and application, and supportive conditions and structures.

Technology and Livelihood Education refer to a subject in the secondary public schools being focus of the study within the Municipality of Maramag, Bukidnon.

Technology and Livelihood Education teachers are educators specialized in teaching Technology and Livelihood Education in the secondary public schools being studied in the Municipality of Maramag, Bukidnon.

Teachers' performance refers to the educator's effectiveness and quality of TLE teachers in the secondary public schools in the Municipality of Maramag, Bukidnon.

THEORETICAL FRAMEWORK

This chapter contains the conceptual framework and a review of the related literature of the study. Literature is presented in terms of the variables under investigation.

Review of Related Literature and Studies

Professional Development

Professional development (PD) is a continuous process aimed at enhancing the skills, knowledge, and effectiveness of educators and other professionals. According to Darling-Hammond, Hyler, and Gardner (2017), effective PD involves active learning, sustained engagement, and is content-focused, directly influencing teaching practices and student achievement. In addition, professional development (PD) plays a vital role in improving student learning outcomes. According to the Education Commission II (2024), PD programs in the Philippines that focus on 21st-century skills, technology integration, collaboration, and curriculum alignment significantly enhance teachers' instructional competence, which consequently leads to improved student achievement. Similarly, Reyes and Dela Cruz (2024 found that PD initiatives improved teachers' classroom practices, lesson planning, assessment techniques, and overall teaching quality, which fostered a more positive and engaging learning environment.

For Technology and Livelihood Education (TLE) teachers, whose curriculum emphasizes technical and practical skills, professional development provides not only theoretical knowledge but also hands-on training, technological support, and opportunities for specialization. Moreover, higher instructional competence among TLE teachers strengthened through continuous professional development and graduate studies was positively correlated with improved teaching performance and student engagement. However, Anderson (2023) noted that challenges such as limited access to instructional materials, heavy workloads, and inadequate technological resources still hinder the full potential of professional development programs in sustaining long-term teacher and student growth.

Shared and supportive leadership is one of the components of professional development that refers to leadership practices where decision-making and responsibility are distributed among members of an organization rather than concentrated in a single leader. In the context of education and professional development (PD), this leadership style fosters an inclusive culture where teachers and staff feel empowered to contribute ideas and shape their learning experiences. According to Harris (2014), shared leadership creates a

collaborative environment that enhances teacher motivation and professional growth by promoting trust and accountability among colleagues.

Furthermore, research has shown that shared and supportive leadership positively influences professional development by creating conditions for meaningful, sustained learning. A study by Leithwood and Sun (2018) found that schools with distributed leadership models had higher levels of teacher engagement in PD activities. This engagement was linked to increased collaboration, collective problem-solving, and a stronger sense of ownership over PD initiatives. The study emphasizes that when teachers are actively involved in shaping PD, the relevance and effectiveness of these programs improve significantly.

Similarly, Wenner & Campbell (2017) emphasized that shared leadership not only boosts the implementation of PD practices but also supports a culture of continuous improvement. Teachers in environments with supportive leadership report greater satisfaction with PD experience and a stronger commitment to applying new strategies in their classrooms. The study also underscores the importance of leadership support in providing time, resources, and emotional backing for professional learning, especially during times of change or reform.

Effective shared leadership in PD involves several key mechanisms, including the establishment of Professional Learning Communities (PLCs), distributed leadership roles, and active communication channels. PLCs, as described by DuFour (2015), are collaborative groups where teachers engage in data-driven discussions, reflect on teaching practices, and co-develop strategies for improvement. Shared leadership within PLCs ensures that all members contribute to decision-making, enhancing the overall impact of professional learning activities. The role of school administrators in fostering supportive leadership is also crucial.

According to research by Hallinger and Heck (2015), principals who distribute leadership responsibilities and provide consistent support enable teachers to take more initiative in their professional learning. This supportive environment has been linked to higher rates of teacher retention and greater adaptability to new educational practices.

Another component of professional development is the shared values and a common vision, which are fundamental to effective professional development in education. This element fosters coherence and a unified approach among teachers, administrators, and other stakeholders. When educators share a common purpose and align their efforts, professional learning becomes more meaningful and impactful, supporting sustained school improvement. Moreso, these elements foster coherence and a unified approach among teachers, administrators, and other stakeholders. When educators share a common purpose and align their efforts, professional learning becomes more meaningful and impactful, supporting sustained school improvement. According to Senge (2014), shared vision serves as a driving force, motivating all members of the educational community to work collaboratively towards common goals.

In addition, professional development anchored in shared values fosters an environment where teachers feel a strong sense of belonging and commitment. DuFour & Fullan (2015) emphasize that professional learning communities (PLCs) thrive when there is a collective understanding of the school's mission and values. This shared sense of purpose aligns teachers' professional development goals with the broader aims of the school, enhancing engagement and ensuring that PD activities are relevant and focused.

A study of Hord (2016) demonstrated that schools with a clearly articulated vision and shared values among staff members experienced higher levels of teacher collaboration and a stronger sense of community. These schools reported greater success in implementing new instructional practices, as teachers were motivated to work together and support one another in achieving the school's vision for student success.

Collective learning and application is another component in professional development, which emphasizes collaboration among educators to improve teaching practices and student outcomes. Accordingly, structured collaboration helps educators refine and implement instructional strategies effectively. The study revealed that shared leadership and continuous support from school administrators, such as principals, are critical to sustaining PLCs (Emerald Insight, 2023).

Supportive conditions in professional development play a crucial role in sustaining effective professional learning communities (PLCs). Gavin Publishers (2019) highlighted that administrative support and structural organization are fundamental in promoting effective PLCs. Providing time and space specifically for professional collaboration ensures that teachers can engage meaningfully in shared practices. Enabling school structures fosters a culture of trust and collaboration, empowering teachers to engage in collective learning.

A study of Emerald Insight (2023) indicated that supportive organizational frameworks, such as streamlined communication and teacher autonomy in decision-making, significantly contribute to PLC sustainability and effectiveness. Teachers in schools with well-established supportive structures often demonstrate higher engagement in professional development activities. Examples include mentoring programs and scheduled team meetings, which are shown to increase teaching efficacy and knowledge application (Academia, 2020).

In addition, the role of innovative PLCs in promoting sustainable educational practices through digital transformation found that effective PLCs integrate formal structures with broader, informal collaborative networks, fostering innovation and sustainable pedagogical shifts. By incorporating digital tools and shared strategies, PLCs enhance teacher efficacy, contributing to improved teaching quality and student performance. The findings emphasize that PLCs should remain dynamic, adapting to evolving educational landscapes to maintain relevance and impact (Kustec et al., 2024).

A study of Capraro et al. (2016) empahasized that PLCs, particularly those that focus on project-based learning and sustained professional development, foster environments where teachers can engage in collaborative reflection. This leads to significant improvements in both teaching practices and student achievement are key factors in its success (Learning Policy Institute, 2020).

Moreover, effective professional development involves engaging teachers directly in learning activities, such as designing and applying new teaching strategies in their own classrooms. It also highlights the importance of providing sustained, reflective practices that lead to lasting changes in teaching behaviors. Active learning, in particular, is crucial, as it ensures that teachers are not passive recipients but active participants in shaping their teaching practices (Learning Policy Institute, 2017).

Additionally, effective Professional Learning Communities (PLCs) depend heavily on supportive structural conditions. For instance, Harris, Jones, and Huffman (2017) highlight that PLCs must include scheduled collaboration time, adequate resources, and strong administrative support to foster teacher professional growth and lead meaningful educational reform globally. They illustrate how focused teacher collaboration drives systemic school improvement by addressing authentic teaching and learning challenges within a structured environment.

The importance of structural supports, such as dedicated collaboration time and access to expert guidance, in fostering successful professional development (PD) for teachers. In particular, Darling-Hammond, Hyler, and Gardner (2017) highlight that creating organizational structures that prioritize PD, such as scheduling regular time for collaboration, increases teacher engagement and enhances the practical application of new strategies. These structures help to build a culture of continuous improvement and provide teachers with the resources and support necessary for effective implementation of new practices. The study stresses that schools should ensure that PD is embedded within the workday and supported by school leadership to increase participation and create a sense of shared purpose among teachers.

According to DuFour et al. (2016), successful Professional Learning Communities (PLCs) require clear communication, leadership support, and dedicated time for collaboration to foster teacher innovation and teamwork. Similarly, Darling-Hammond, Hyler, and Gardner (2017) emphasize that when professional development is embedded within well-supported school systems with adequate resources, leadership backing, and coherent policies, that leads to sustained teacher growth and better student outcomes.

A study by Hamilton Broad (2015) highlighted significant structural barriers to professional development (PD), such as rigid schedules, limited resources, and increased workload, particularly in the further education

sector. The research found that such conditions often hinder meaningful engagement in PD and may lead to performative compliance rather than substantive growth.

Moreover, Avalos (2018) conducted a comprehensive review of professional development in Teaching and Teacher Education, noting how continuous learning opportunities contribute to long-term instructional improvement. Similarly, Avalos-Bevan et al. (2018) highlighted the importance of systemic support for sustained professional learning, showing that teachers thrive when professional development is backed by organizational structures.

A study of Gonzales & Magsayo (2024) found that collaborative practices among TLE teachers led to stronger professional development outcomes, reinforcing Desimone's model of active, sustained learning. Likewise, Dela Cruz and Umali (2021) emphasized the value of collaborative teaching practices, which enhanced lesson planning and classroom delivery among TLE educators. Almodovar and Tugade (2023) demonstrated how shared values in schools can strengthen TLE instruction, promoting a unified direction for teacher growth.

Further, Gutierrez (2019) explored teachers' lived experiences with professional development in a public school, revealing that supportive leadership and peer networks play an essential role in sustaining engagement. DuFour and Fullan (2020) and Vescio et al. (2018) supported the concept of Professional Learning Communities (PLCs) as essential structures for developing teaching practice and improving school outcomes. The Department of Education (DepEd, 2016; 2017; 2019; 2022) also institutionalized learning action cells (LACs) and national standards to guide professional growth aligned with the Philippine Professional Standards for Teachers.

Digital Literacy

Digital literacy is the ability to effectively use digital technologies to find, evaluate, create, and communicate information in a variety of contexts. According to Ng (2019), digital literacy encompasses technical, cognitive, and socio-emotional dimensions, all of which are essential for participating fully in the digital world. UNESCO (2021) defines it as the set of skills, knowledge, and attitudes that enable individuals to use digital tools safely, critically, and creatively for lifelong learning and active citizenship. For teachers, especially in technical and vocational fields such as Technology and Livelihood Education (TLE), digital literacy is vital in integrating technology into instruction, developing digital teaching materials, and engaging learners in innovative ways (Acedo & Hughes, 2020).

Furthermore, Hatlevik and Christophersen (2023) emphasize that teachers with higher levels of digital literacy tend to create more interactive, student-centered learning environments, leading to improved motivation and performance among students. In the Philippine context, the Department of Education (DepEd, 2022) has reinforced digital literacy as part of its Digital Rise Program, promoting ICT integration and capacity-building to prepare both teachers and learners for 21st-century education.

A study assessing TLE teachers' performance found that those who effectively use digital technologies received high ratings from students for their instructional skills and engagement methods. The effective use of technology was correlated with improved classroom management and personalized instruction techniques. Moreover, frameworks like TPACK (Technological Pedagogical Content Knowledge) have been instrumental in guiding teachers to combine digital skills with subject expertise. Training programs emphasizing digital literacy have been shown to increase TLE teachers' confidence in utilizing various educational technologies to foster interactive learning environments.

Digital literacy's impact on productivity is also well-documented in educational settings. According to Nikolopoulou & Gialamas (2016) teachers with strong digital skills were able to manage classroom activities more effectively, resulting in improved student performance and engagement. Digital literacy extends beyond the ability to use technology for communication and information retrieval.

In addition, Tang & Chaw (2016) mentioned that digital literacy extends beyond basic technical skills to include cognitive and social-emotional dimensions. Components such as the ability to evaluate and synthesize

information, navigate digital environments ethically, and collaborate effectively online. It also highlights the importance of adapting digital literacy frameworks as technology and societal needs evolve.

Additionally, Rini et al. (2022) and Karagul et al. (2021) underlined the significant role of self-directed learning and educational settings in enhancing digital literacy. These studies suggest that fostering autonomy and providing structured digital learning experiences can significantly boost digital literacy among students. These findings align with the increasing recognition of digital literacy as a crucial competency for navigating the complexities of modern education and professional environments.

Further, the Organization for Economic Co-operation and Development (OECD, 2016) stressed that digital literacy is critical for preparing students for the workforce. As more jobs require proficiency with technology, students must be equipped with the skills to work with digital tools, solve complex problems, and adapt to technological advancements. In fact, digital literacy is seen as a fundamental aspect of lifelong learning, with students needing to develop these competencies to thrive in a knowledge-based economy.

A study by Lee (2021) highlights that mid-career teachers, typically those with significant classroom experience, are particularly adept at integrating digital tools into teaching practices. Continuous professional development programs tailored for digital literacy significantly enhance their ability to create interactive and diverse learning activities, track student progress, and collaborate effectively with peers. These programs also help teachers stay current with technological advancements, ensuring the practical application of digital skills in the classroom.

Similarly, Miller et al. (2020) emphasized the critical role of digital literacy in fostering innovative teaching strategies. Their findings suggest that teachers who engage in regular digital literacy training can better align technology with pedagogical goals, leading to improved student engagement and learning outcomes.

Furthermore, a study by Johnson & Brown (2023) underscored the importance of addressing gaps in digital literacy skills among educators. They found that integrating digital literacy training into teacher education and ongoing professional development programs fosters a culture of innovation and equips teachers to meet the demands of modern classrooms effectively.

Voogt et al. (2015) argue that digital literacy is essential for teachers to foster 21st-century skills in their students. In an increasingly connected world, teachers must model the use of digital technologies, not just for accessing information but also for collaboration, critical thinking, and creativity. This requires teachers to engage in continuous learning to stay updated on emerging technologies and pedagogical strategies.

Val & Lopez-Bueno (2024) explored teacher education programs across various countries and emphasized that despite teachers receiving technical training, gaps remain in their ability to bridge digital inequalities effectively. Their findings suggest that training programs should include not only technical skills but also strategies to overcome the digital divide and incorporate digital tools in meaningful ways that address diverse classroom needs.

Another study by Choudhary & Bansal (2022) reviewed the effectiveness of Digital Literacy Training Programs (DLTPs) in reducing digital inequalities, particularly among marginalized groups. They found that well-designed programs that address barriers like access to technology and digital skills gaps can significantly improve equitable educational outcomes. The study highlights the importance of tailoring programs to the specific needs of teachers and students while providing robust support systems. These findings reinforce the need for comprehensive and adaptive approaches in teacher training and professional development to ensure that digital literacy initiatives are inclusive and effective.

Digital literacy also plays a crucial role in student engagement. According to Johnson et al. (2016), students who are digitally literate are more likely to engage in collaborative learning, use digital platforms for communication, and take ownership of their learning. Digital tools provide students with personalized learning experiences and immediate feedback, which can increase motivation and academic achievement. On the other hand, collaborative learning and digital literacy highlights that collaborative learning (CL) in digital environments enhances critical thinking, problem-solving, and social interaction. Studies suggest that students

in digitally enriched CL settings function as resources for each other, engaging in peer discussions, sharing ideas, and making joint decisions. This approach fosters both cognitive and social skills critical for 21st-century learning (Ramadevi et al., 2023; Schunk & Greene, 2017).

A case study on language education during the pandemic argued for digital pedagogy that promotes participatory culture. It suggested that fostering interactive, student-centered digital environments encourages the development of digital literacy. This includes creating diverse online content and facilitating collaborative interactions through digital tools, preparing students for broader digital communication demands (Ju-Zaveroni & Lee, 2023).

Furthermore, Wang et al. (2014) found that students with higher levels of digital literacy are more confident in their ability to use technology for problem-solving, researching, and producing digital projects. These students show greater persistence and motivation when faced with challenges related to technology, as they believe in their ability to find solutions. The confidence fostered by digital literacy leads to better learning outcomes, particularly in environments that require independent use of digital resources.

Shin and Kang (2014) suggested that teachers who are comfortable with digital tools and have a strong foundation in digital literacy are more likely to integrate technology into their teaching methods. This confidence allows teachers to explore innovative teaching strategies, such as flipped classrooms or blended learning, which rely heavily on digital technologies.

A study of Antonietti et al. (2022) found that teachers' digital competence significantly influences their willingness to adopt technology in classrooms. Professional development focused on technology enhances confidence, leading to improved teaching practices in vocational education.

In addition, Basilotta Gomez Pablos et al. (2022) reviewed digital competencies in higher education. The study highlighted the role of targeted professional development in fostering confidence and continuous learning among educators. Therefore, effective professional development programs are vital for building both digital literacy and confidence.

Furthermore, according to Tondeur et al. (2017), digital literacy is crucial for reducing digital anxiety, as individuals with higher digital literacy levels tend to feel more confident when interacting with technology. Conversely, Liu et al. (2016) argued that those with lower levels of digital literacy are more likely to experience anxiety, particularly in environments that require them to use technology for communication, learning, or work-related tasks.

Aydin (2018) further elaborated that digital literacy plays a significant role in reducing anxiety related to technology. His study on university students revealed that a lack of digital literacy directly correlated with increased anxiety when tasked with using digital tools for academic work. The anxiety stemmed not only from a lack of competence but also from fears of making mistakes in a digital environment, which was exacerbated by the high stakes of academic success.

In the context of education, students' digital literacy and the resulting anxiety have been studied extensively. Van Deursen et al. (2015) examined the impact of digital literacy on students' anxiety levels during online learning. Their research found that students who struggled with digital tools such as online platforms, digital content creation, and virtual communication faced higher levels of anxiety, which negatively impacted their academic performance and engagement.

Liu et al. (2016) conducted a study that examined how digital literacy affects students' online learning experiences. Their findings indicated that students who had limited digital skills were more likely to experience anxiety when engaging with online courses. Students with higher levels of digital literacy, however, were more confident and felt more in control, resulting in better academic outcomes. The study suggests that improving students' digital literacy through targeted training programs can help reduce anxiety and improve their learning experience.

Teachers face challenges related to digital literacy and anxiety. Pillay et al. (2017) explored the anxiety levels of teachers when using technology in their classrooms. Their study found that teachers with lower levels of digital literacy experienced significant anxiety when asked to use new technologies, particularly those related to online teaching platforms, educational apps, and digital assessments. The anxiety was further amplified by the pressure to integrate technology into their teaching practices effectively. The study emphasized that building digital literacy through professional development programs is essential for alleviating teachers' anxiety and enhancing their confidence in using technology.

Chien et al. (2018) also investigated how teachers' digital literacy affects their anxiety levels. They found that teachers who felt more confident in their digital abilities were less likely to experience anxiety and were more willing to experiment with technology to enhance learning. On the other hand, teachers with low digital literacy often avoided using new technologies, which could negatively impact their teaching effectiveness and students' engagement.

The importance of professional development and training programs in lessening digital anxiety has been a focus of research in recent years. Looney (2017) highlighted that structured digital literacy training programs significantly reduce anxiety by building both technical skills and confidence. His study found that when teachers received ongoing support and training in using digital tools, their anxiety levels decreased.

Similarly, Cakir and Karal (2018) reported that after teachers underwent digital literacy training, their anxiety about using technology for teaching purposes was significantly reduced. The study suggests that well-designed professional development programs focused on digital literacy can help mitigate feelings of anxiety and improve teachers' digital skills.

For students, Sahin and Sadi (2017) found that incorporating digital literacy training into the curriculum can reduce anxiety related to online learning environments. Their research revealed that students who participated in digital literacy workshops before taking online courses experienced lower anxiety levels and reported higher satisfaction with their learning experiences. This study emphasized the importance of equipping students with essential digital skills to reduce digital anxiety in academic settings.

Several factors contribute to digital anxiety, including lack of access to technology, previous negative experiences, and individual personality traits. Ghavifekr et al. (2016) discussed the digital divide as a contributing factor to anxiety. They observed that students from underprivileged backgrounds often experience greater levels of anxiety because they have less exposure to technology, both at home and in school. This lack of experience with digital tools makes them feel unprepared to use technology effectively, which can increase stress and anxiety.

Additionally, Liu et al. (2020) highlighted those personal factors, such as age and previous exposure to digital technologies, can influence levels of digital anxiety. Older adults or individuals who did not grow up with technology may experience heightened anxiety due to unfamiliarity with digital environments, a phenomenon known as technophobia.

TLE Teachers' Performance

Globally, the teaching of technical and vocational education, which includes TLE subjects, has been the focus of numerous studies aimed at improving teacher performance and student outcomes. According to a report by UNESCO (2018), effective vocational education teachers must possess a blend of pedagogical skills, technical expertise, and a commitment to lifelong learning. The study emphasized that TLE teachers should engage in continuous professional development to keep up with evolving industry standards and technological advancements.

Moreover, the Technology and Livelihood Education (TLE) teachers' performance plays a crucial role in developing students' technical, entrepreneurial, and life skills necessary for productivity and employability. According to Castillo and Dela Peña (2019), TLE teachers are expected to demonstrate competence not only in content knowledge but also in practical skills, instructional delivery, and classroom management to ensure effective learning outcomes. Their performance is often evaluated through the Philippine Professional

Standards for Teachers (PPST), which emphasize pedagogy, learning environment, and professional engagement (Department of Education, 2017).

Flores (2025) found that the instructional competence of TLE teachers is strongly correlated with their students' performance, particularly when teachers engage in continuous professional development, skills upgrading, and the integration of technology in teaching.

Similarly, Perez and Medina (2021) reported that high-performing TLE teachers exhibit creativity and adaptability in contextualizing lessons to local livelihood industries, allowing students to connect classroom learning to real-world applications. However, Santos (2022) noted that challenges such as inadequate facilities, lack of instructional materials, and limited industry linkages often affect TLE teachers' ability to perform effectively. Addressing these gaps through administrative support, training, and resource provision can enhance teacher performance and, ultimately, student achievement in TLE.

A study conducted by Wesselink et al. (2015) in Europe highlighted the importance of competency-based education in vocational teaching. The research revealed that teachers who implemented competency-based frameworks were better able to prepare students for real-world challenges, particularly in technical fields. The study also stressed that teacher performance was significantly enhanced when educators had access to modern teaching tools and industry partnerships. Similarly, research in Australia by Smith and Yasukawa (2017) underscored the need for government support in providing TLE teachers with professional development opportunities to ensure high-quality instruction.

In the Philippine context, TLE education is integral to preparing students for livelihood opportunities and technical careers. National studies have focused on various factors that impact TLE teachers' performance, including their educational background, professional training, and teaching environment. According to a study by the Department of Education (DepEd) (2019), one of the primary challenges faced by TLE teachers is the lack of access to updated teaching materials and resources. The study highlighted that despite the government's efforts to improve TLE infrastructure, many schools, particularly in rural areas, still struggle with outdated equipment and limited funding.

Teacher performance has been widely studied in relation to leadership, digital literacy, and instructional practices. Ballesteros and Dela Peña (2023) examined assessment strategies among TLE teachers and found that clear planning and reflective tools like the IPCRF contribute to improved outcomes. Reyes and Molina (2021) also pointed out how PLCs enhance teachers' planning and assessment, strengthening instructional quality in Philippine secondary schools.

Llego and Valera (2023) emphasized that curriculum relevance and collaboration directly influence how well TLE teachers deliver lessons suited to learners' needs. Balyer and Özcan (2022), as well as Hulpia et al. (2018), highlighted how shared leadership and supportive environments increase teacher job satisfaction and innovation key aspects tied to improved performance.

In terms of technology integration, Garcia and Carreon (2021) reported that access to technology positively influences the teaching effectiveness of TLE teachers, especially in rural schools. Bautista and Soriano (2024) also found that digital tools for reporting and communication boost teacher engagement and collaboration. Perez and Soriano (2024) suggested that aligning teachers' philosophies with national standards results in better student outcomes, further linking values driven instruction to measurable teacher performance.

Garcia and Santos (2020) conducted a study exploring the influence of teacher qualifications on performance in the TLE classroom. Their research revealed that teachers with specialized degrees or certifications in technical fields were more effective in delivering TLE lessons compared to those with general education backgrounds. Moreover, the study emphasized the importance of ongoing professional development, noting that teachers who regularly attended workshops and training sessions demonstrated greater adaptability in integrating modern teaching strategies.

A study by Fernandez and Rivera (2019) focused on the integration of technology in TLE instruction. The research highlighted the benefits of digital literacy training for teachers, with findings showing that tech-savvy

educators were more capable of using digital tools to enhance student learning. However, the study also pointed out the digital divide between urban and rural schools, with the latter facing significant barriers in accessing technology and internet resources.

Another significant study by Villanueva (2018) examined the impact of school leadership and administrative support on TLE teachers' performance. The findings indicated that school administrators who actively supported TLE programs through resource allocation and teacher mentoring contributed to improved teacher motivation and instructional quality. The study called for more collaboration between schools and local industries to bridge the gap between classroom instruction and real-world applications.

At the local level, several studies have provided insights into the unique challenges and opportunities faced by TLE teachers in different regions of the Philippines. Manalili (2022) conducted a case study on TLE teachers in a rural province, revealing that limited access to resources and large class sizes were major obstacles to effective teaching. Despite these challenges, the study highlighted that teachers who developed strong community ties and sought external partnerships were able to supplement their instructional resources and improve student engagement.

In another local study, Dela Cruz (2021) examined the use of indigenous materials in TLE classes in Mindanao. The research found that teachers who adapted their lessons to the local context, using readily available materials for practical demonstrations, were able to provide more relevant and effective instruction. This approach not only enhanced students' understanding of livelihood skills but also fostered a greater appreciation for local culture and resources. Lopez (2020) studied the impact of teacher collaboration on TLE performance in urban schools. The research found that schools that encouraged TLE teachers to work together in planning lessons and sharing best practices saw a significant improvement in teaching quality. The study concluded that peer collaboration provided teachers with a support system, allowing them to innovate and improve their teaching methods.

Finally, Navarro (2017) focused on classroom management strategies used by TLE teachers in a highly populated public high school in Manila. The study revealed that teachers who employed structured routines and safety protocols in practical lessons experienced fewer classroom disruptions. Effective classroom management was found to be particularly important in TLE, where students handle tools and equipment, requiring an environment that prioritizes both learning and safety.

Conceptual Framework

The conceptual framework is anchored from Desimone’s (2009) model of effective professional development. The Desimone’s (2009) model of effective professional development provides a widely recognized framework for understanding how professional development activities impact teacher learning and ultimately student outcomes. Desimone’s model provides a research-based foundation for designing professional development programs that have a real impact on teaching quality and student achievement. By focusing on these key elements, professional development programs can be more effective in fostering substantial and lasting improvements in teacher performance.

Ng’s (2012) digital literacy framework emphasizes the comprehensive skills needed for individuals to effectively use digital technology in modern educational environments. This digital literacy framework, when combined with models for assessing teacher performance, provides a strong theoretical base for examining how teachers' professional growth and digital competencies influence their effectiveness. Performance assessment models for teachers typically evaluate their ability to plan and deliver instruction, manage classroom environments, and foster student engagement and achievement. For TLE teachers, these assessments also measure how well they integrate practical skills and digital tools into their curriculum. Together, Ng’s (2012) framework and the performance assessment models help to explore the complex relationship between professional development, digital literacy, and teaching effectiveness. By enhancing digital literacy and providing targeted professional development, TLE teachers can be better equipped to deliver high-quality, relevant instruction that meets the evolving demands of education and industry.

This study adhered to the application of Desimone's conceptual framework that focuses on the critical features of effective PD referred to as (1) content focus – denotes PD that are centered on specific areas of knowledge and teaching strategies (pedagogies) associated with the content, (2) active learning – refers to engaging teachers in interactive PD activities that provide them with an opportunity to engage in activities like observation, feedback exchange, making a presentation, coaching, mentoring, or discussing on their teaching practice as opposed to passively sitting in a lecture, (3) coherence – discusses to the point to which PD activities are consistent with teachers' knowledge and beliefs, and with school curriculum and goals, the needs of students, and relevant reforms and policies among others, (4) sustained duration – represents the length of time over which the PD engagement spans, and (5) collective participation – refers to a group of two or more teachers from the same grade, subject, or school who participate in PD activities together to learn from one another. Collective participation provides teachers with the opportunity to engage in inquiry and reflection-based PD practices allowing them to take risks and solve problems in their practice (Desimone 2009; Hochberg and Desimone 2010; Desimone and Garet 2015; Palmer and Noltemeyer 2019). These theories collectively support the investigation of how professional development and digital literacy impact the performance of TLE teachers.

Research Paradigm

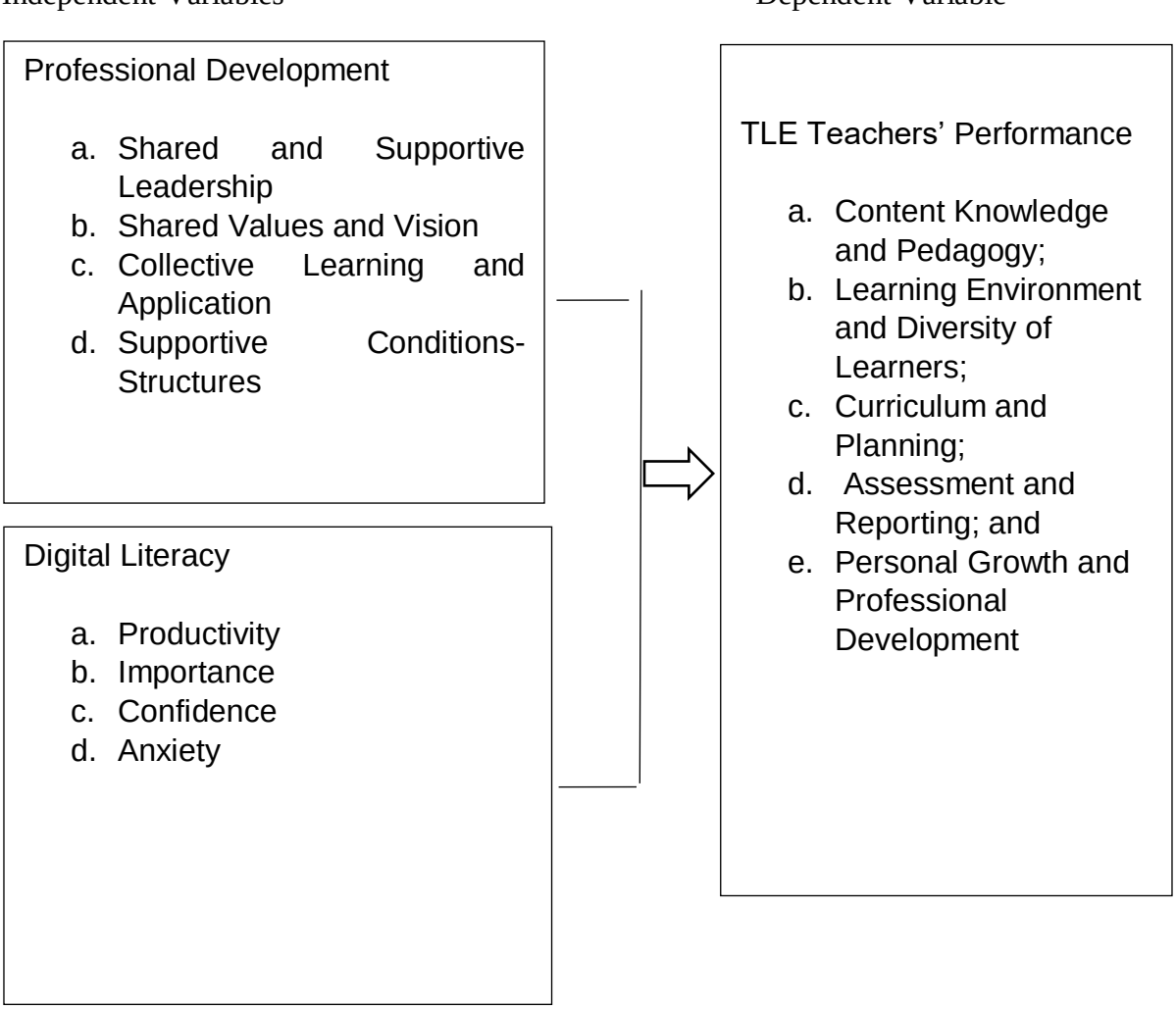


Figure 1. The figure shows the relationship between professional development and digital literacy to the performance of TLE teachers.

Hypotheses of the Study

The purpose of this study was to assess the level of professional development, digital literacy, and performance of TLE teachers. Thus, this claim lead to the following null hypothesis tested at a 0.05 level of significance.

H_{o1} There is no significant relationship that exists between TLE teachers' performance and:

a. Professional Development; and

b. Digital literacy

H_{o2} There is/are no variable/s that best predict TLE teachers' performance.

METHODOLOGY

This chapter presents the research locale, research design, respondents of the study, the research instrument, data gathering procedure, ethical considerations, and the statistical analysis employed.

Research Design

This study employed a descriptive-correlational research design to examine the levels of professional development, digital literacy, and performance of Technology and Livelihood Education (TLE) teachers. This design was suitable for addressing research questions and objectives, as it allows for a systematic investigation of existing conditions and the relationships among variables without manipulating them (Creswell, 2014). In educational research, descriptive-correlational designs are useful when the goal is to understand how variables interact in real-world settings, especially when experimental control is not feasible or ethical (Gay, Mills, & Airasian, 2012).

The descriptive component of the design was used to provide a detailed account of the current levels of professional development, digital literacy, and teaching performance among TLE teachers in public secondary schools in Maramag, Bukidnon. This helped establish a baseline understanding of the conditions and competencies present in the field.

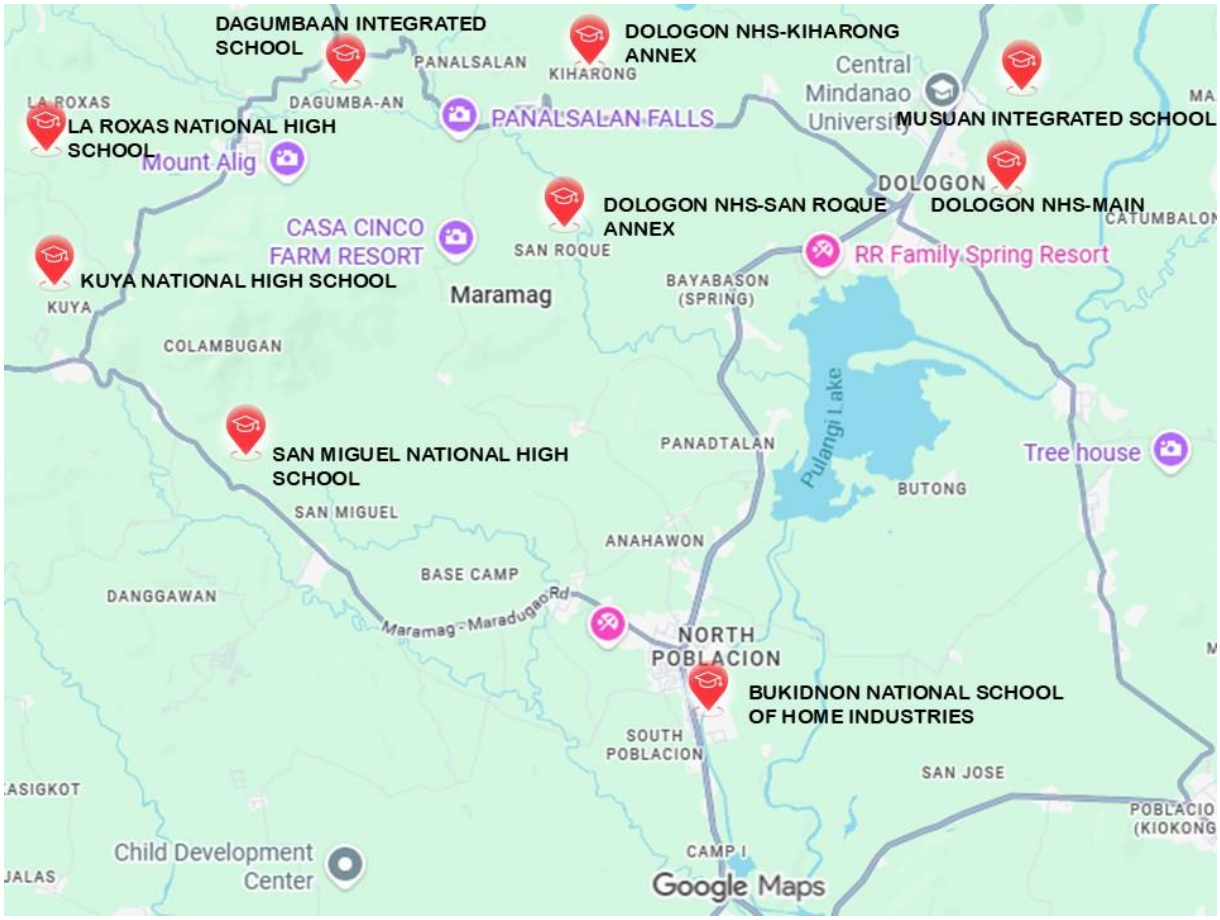
The correlational aspect of the design aimed to determine whether statistically significant relationships exist between professional development and digital literacy, and the performance of TLE teachers. Identifying these patterns and measuring the strength of associations among these variables, contributes to a deeper understanding of how teacher capacity building efforts translate into classroom effectiveness (Fraenkel, Wallen, & Hyun, 2019).

Additionally, a predictive component was incorporated to determine which variables either individually or in combination serve as the strongest predictors of TLE teachers' performance. This approach is grounded in the principle that correlational studies can go beyond identifying relationships to estimating future outcomes based on existing data (Tabachnick & Fidell, 2019). Through regression analysis, the study sought to identify which aspects of professional development and digital literacy most significantly influence teaching performance.

Locale of the Study

This study was conducted among public secondary schools in the Municipality of Maramag, namely: Bukidnon National School of Home Industries, Dologon National High School – Main, Dologon National High School – Kiharong Annex, Dologon National High School – San Roque Annex, San Miguel National High School, Kuya National High School, Dagumbaan Integrated School, La Roxas National High School, and Musuan Integrated School. These schools were included in the study to gain a comprehensive understanding of the current state of professional development, digital literacy, and teacher performance among Technology and Livelihood Education (TLE) teachers in the municipality.

Map of the Locale of the Study



Maramag - Google Maps

Legend: the locale of the study

Figure 2. Map of Municipality of Maramag, Bukidnon, showing the secondary public schools.

Respondents of the Study

The respondents of this study were the Technology and Livelihood Education (TLE) teachers from all public secondary schools in the Municipality of Maramag, Bukidnon. A total of seventy four (74) TLE teachers served as respondents of the study through total enumeration, wherein all TLE teachers from the following schools were included: Bukidnon National School of Home Industries, Dologon National High School – Main, Dologon National High School – Kiharong Annex, Dologon National High School – San Roque Annex, San Miguel National High School, Kuya National High School, Dagumbaan Integrated School, La Roxas National High School, and Musuan Integrated School. Below is the distribution of the respondents of the study.

Table 1: Distribution of the respondents of the study

School	Population (N)	
Bukidnon National School of Home Industries	28	
Dologon National High School-Main	18	
Dologon National High School- Kiharong Annex	3	

Dologon National High School-San Roque Annex	5	
Musuan Integrated School	2	
San Miguel National High School	7	
Kuya National High School	8	
La Roxas National High School	2	
Dagumbaan Integrated School	1	
Total	74	

Research Instruments

The study utilized a questionnaire as the main instrument. It was designed to collect information on the three major variables of the study: the level of professional development, digital literacy, and performance of Technology and Livelihood Education (TLE) teachers in public secondary schools in the Municipality of Maramag, Bukidnon. The instrument was divided into three main parts. Part I focused on the Professional Development of TLE teachers and was adapted from the framework developed by Kruse et al. (1997). This section included key indicators such as shared and supportive leadership, shared values and vision, collective learning and application, and supportive conditions and structures. This section contained ten (10) statements in each indicator, except for supportive conditions and structures which contained nine (9) statements.

Part II measured the teachers' Digital Literacy and was adapted from the Digital Literacy Questionnaire (DLQ) developed by Jones (2021). It included items under productivity, importance, confidence, and anxiety. Moreover, there were twenty-four (24) statements in this part. In addition, Parts I and II of the instruments utilized a 5-point Likert scale. The tool was modified by converting negative statements into positive ones to enhance clarity and consistency. A pilot test was conducted to 30 teachers in the municipality of Maramag, Maramag, Bukidnon, yielding a Cronbach's alpha of 0.96, indicating a high level of reliability.

Part III assessed the Performance of TLE teachers patterned the Department of Education's Key Result Areas (KRAs) from DepEd Order No. 42, s. 2017. The indicators included content knowledge and pedagogy, learning environment and diversity of learners, curriculum and planning, assessment and reporting, and personal growth and professional development. The rating scale followed the Civil Service Commission Memorandum Circular No. 06, series of 2012.

In determining the level of professional development of Technology and Livelihood Education Teachers, the following scale was used:

Rating	Range	Descriptive Rating	Qualitative Interpretation
5	4.50-5.00	Strongly Agree	Expert
4	3.50-4.49	Agree	Advanced
3	2.50-3.49	Neutral	Proficient
2	1.50-2.49	Disagree	Developing
1	1.00-1.49	Strongly Disagree	Beginning

In determining the level of digital literacy of Technology and Livelihood Education Teachers, the following scale was used:

Rating	Scale	Descriptive Rating	Qualitative Interpretation
5	4.50 – 5.00	Strongly Agree	Highly Positive
4	3.50 – 4.49	Agree	Positive
3	2.50 – 3.49	Neutral	Moderately Positive
2	1.50 – 2.49	Disagree	Negative
1	1.00-1.49	Strongly Disagree	Highly Negative

In determining the level of Performance of Technology and Livelihood Education Teachers, the following scale was used:

Rating	Range	Interpretation
5	4.50-5.00	Outstanding
4	3.50-4.49	Very Satisfactory
3	2.50-3.49	Satisfactory
2	1.50-2.49	Unsatisfactory
1	1.00-1.49	Poor

Data Gathering Procedure

A formal letter of request was submitted by the researcher to the Office of the Schools Division Superintendent (SDS) of the Department of Education, Division of Bukidnon, seeking official approval to conduct the study among Technology and Livelihood Education (TLE) teachers. Following the issuance of approval, the researcher coordinated with the school heads of the participating public secondary schools in the Municipality of Maramag, Bukidnon. This coordination involved presenting the approved communication from the SDS, discussing the purpose and significance of the study, and outlining the procedures for data collection. Permission from the school heads was obtained before distributing the research instruments to the identified TLE teacher-respondents. Through this coordination, schedules were arranged in consideration of the teachers' availability so that the administration of the questionnaires would not disrupt the regular flow of classes.

The schools included in the study were Bukidnon National School of Home Industries, Dologon National High School – Main, Dologon National High School – Kiharong Annex, Dologon National High School – San Roque Annex, San Miguel National High School, Kuya National High School, Dagumbaan Integrated School, La Roxas National High School, and Musuan Integrated School.

Prior to data collection, the researcher secured informed consent from the respondents and ensured that ethical considerations were upheld, including confidentiality, anonymity, and voluntary participation. A structured questionnaire was used to gather the needed data, covering three main areas: (1) the level of professional development adapted from Kruse et al (1997) in terms of shared and supportive leadership, shared values and vision, collective learning and application, and supportive conditions–structures; (2) the level of digital literacy adapted from Jones (2021) in terms of productivity, importance, confidence, and anxiety; and (3) the level of teaching performance from DepEd Order No. 42, s. 2017 in terms of content knowledge and pedagogy, learning environment and diversity of learners, curriculum and planning, assessment and reporting, and personal growth and professional development.

The questionnaires were personally distributed to the respondents, and retrieval was done immediately after they completed their responses. The collected data were then organized, tabulated, and subjected to appropriate statistical treatment to answer the research questions and test the hypotheses of the study.

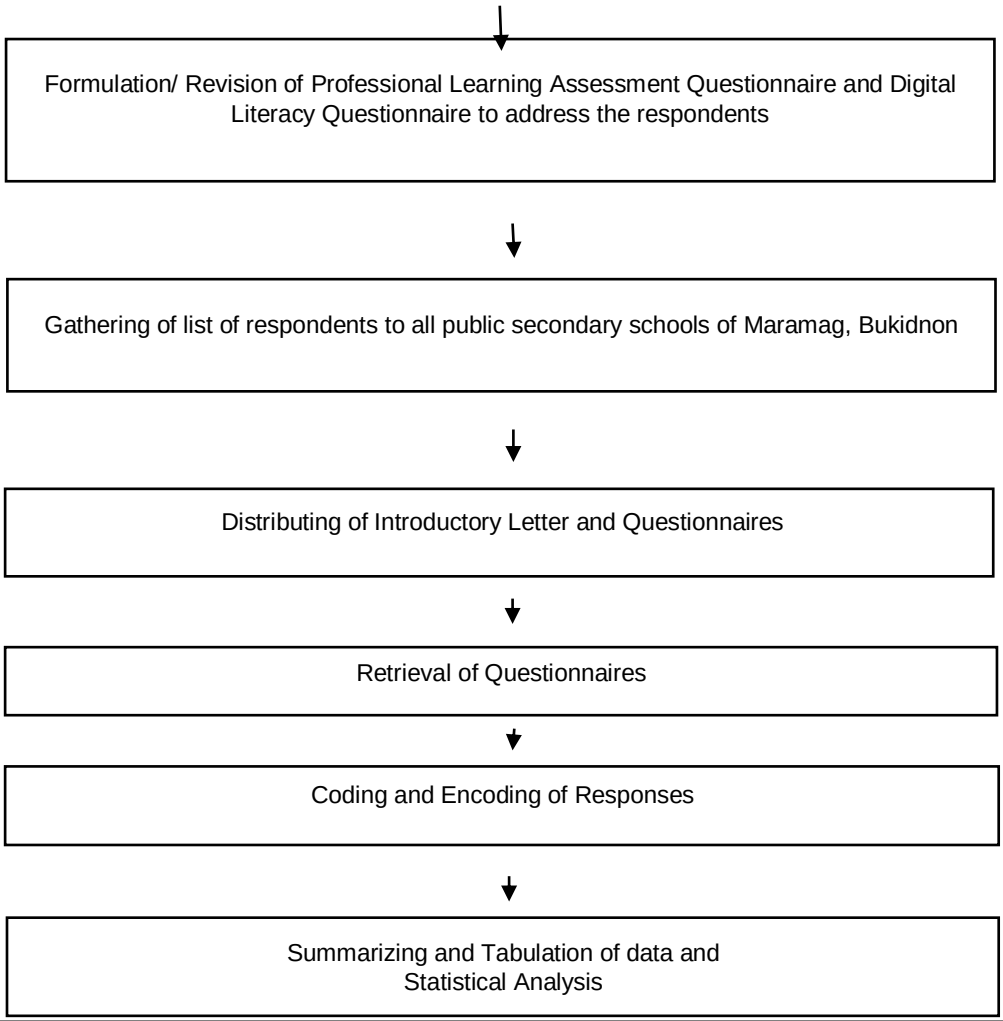
Ethical Considerations

The research was conducted in strict adherence to research ethics. Prior to the conduct of the study, permission was sought from the proper authorities, including the school division superintendent, public school district supervisor, school principal, community leaders, and the Institutional Ethics Review Committee (IERC). A permit was also secured from Central Mindanao University to ensure ethical compliance. Informed consent was obtained from the respondents after the researcher thoroughly explained the nature, objectives, and procedures of the study. Participants were assured of the principles of confidentiality, anonymity, and voluntary participation. They were informed that their identities would be kept strictly anonymous and that any information gathered would be used solely for academic purposes. Furthermore, participants were assured that they had the right to refuse to answer any questions they deemed offensive or discriminatory and could withdraw from the study at any time should they feel uncomfortable.

Statistical Analysis

The data gathered were statistically analyzed. The levels of professional development, digital literacy, and performance of TLE teachers, were analyzed using descriptive statistic, such as mean, standard deviation, and percentages. To determine the relationship between professional development and digital literacy with teacher performance, Pearson Product-Moment Correlation was employed. Furthermore, multiple regression analysis was carried out to determine the impact of professional development and digital literacy, either individually or in combination, to predict the performance of TLE teachers.

The schematic diagram of the methodology is shown below:



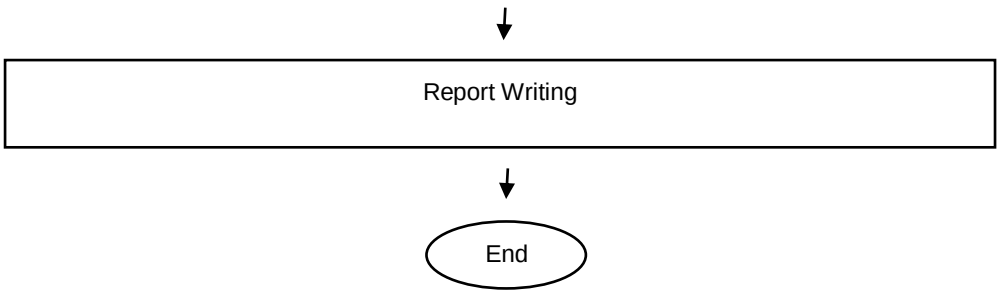


Figure 3. Schematic Diagram of the Methodology Flow

PRESENTATION. ANALYSIS. AND INTERPRETATION OF DATA

This chapter presents the analysis and interpretation of the data gathered in response to the research problems. It evaluates the levels of professional development, digital literacy, and performance of TLE teachers. In addition, it examines the significant relationships among the variables and identifies the predictor of TLE teachers' performance.

The Level of Professional Development of Technology and Livelihood Education Teachers in terms of Shared and Supportive Leadership

Table 2: Professional Development of Technology and Livelihood Education Teachers in Shared and Supportive Leadership

Statements	Mean	Descriptive Rating	Qualitative Interpretation
Decision-making takes place through committees and communication across grade and subject areas.	4.32	Agree	Advanced
The principal shares responsibility and rewards for innovative actions.	4.26	Agree	Advanced
Teachers have accessibility to key information.	4.24	Agree	Advanced
The principal is proactive and addresses areas where support is needed.	4.23	Agree	Advanced
Teachers are consistently involved in discussing and making decisions about most school issues.	4.15	Agree	Advanced
The principal incorporates advice from teachers to make decisions.	4.15	Agree	Advanced
Opportunities are provided for teachers to initiate change.	4.15	Agree	Advanced
Leadership is promoted and nurtured among teachers.	4.08	Agree	Advanced
The principal participates democratically with teachers sharing power and authority.	3.93	Agree	Advanced
Stakeholders assume shared responsibility and accountability for student learning without evidence	3.84	Agree	Advanced

of imposed power and authority.			
Weighted Mean	4.14	Agree	Advanced

Legend:

Rating	Range	Descriptive Rating	Qualitative Interpretation
5	4.50-5.00	Strongly Agree	Expert
4	3.50-4.49	Agree	Advanced
3	2.50-3.49	Neutral	Proficient
2	1.50-2.49	Disagree	Developing
1	1.00-1.49	Strongly Disagree	Beginning

The data in Table 2 presents the level of professional development among Technology and Livelihood Education (TLE) teachers in terms of shared and supportive leadership. The overall weighted mean is 4.14, which falls under the descriptive rating of "Agree" and is interpreted as Advanced. This indicates a highly favorable perception of shared leadership practices among TLE teachers. Among the indicators, the highest mean value is 4.32, which corresponds to the statement “Decision-making takes place through committees and communication across grade and subject areas,” indicating that collaborative decision-making is well-established. On the other hand, the lowest mean value is 3.84, on the indicator “Stakeholders assume shared responsibility and accountability for student learning without evidence of imposed power and authority,” still rated as Advanced, but implying relatively less involvement from broader stakeholders.

In the Department of Education (DepEd), particularly in TLE instruction, shared leadership is evident and functional. The high overall mean implies that school leaders are fostering an environment where teachers participate actively in decision-making processes and are given autonomy to innovate. For TLE teachers, who are often required to integrate practical, real-world skills with academic content, this level of leadership support is crucial for developing context-based and skills-driven learning modules. However, the relatively lower rating in stakeholder participation indicates the need for strengthening community and parental engagement, which is vital in TLE for contextual learning and real-life application.

The results further imply that when leadership is distributed and collaborative, it enhances professional growth, motivation, and instructional quality among TLE teachers. Teachers are more likely to initiate and sustain improvements in teaching strategies when they feel empowered and supported. This is particularly important in the TLE domain, where innovation, skill development, and cross-sectoral collaboration are essential. In promoting shared leadership, DepEd can cultivate a culture of mutual respect, accountability, and continuous learning.

These findings are supported by recent studies that emphasized the significance of shared and supportive leadership in teacher development. According to Hallinger and Wang (2020), shared leadership positively influences teacher commitment and student achievement. Likewise, the study of Ngang et al. (2021) revealed that collaborative leadership practices result in higher levels of professional satisfaction and improved instructional practices. Similarly, the work of Balyer and Ozcan (2022) emphasized that shared leadership nurtures teacher autonomy and fosters innovation. Furthermore, the Philippine Professional Standards for Teachers (DepEd, 2019) highlighted collaborative learning and leadership as core competencies for enhancing teacher performance.

The Level of Professional Development of Technology and Livelihood Education Teachers in terms of Shared Values and Vision

Table 3: Professional Development of Technology and Livelihood Education Teachers in Shared Values and Vision

Statements	Mean	Descriptive Rating	Qualitative Interpretation
Policies and programs are aligned to the school's vision.	4.38	Agree	Advanced
A collaborative process exists for developing a shared sense of values among teachers.	4.35	Agree	Advanced
Teachers share visions for school improvement that have an undeviating focus on students' learning.	4.34	Agree	Advanced
Decisions are made in alignment with the school's values and vision.	4.34	Agree	Advanced
School goals focus on students' learning beyond test scores and grades.	4.32	Agree	Advanced
A collaborative process exists for developing a shared vision among teachers.	4.30	Agree	Advanced
Shared values support norms of behavior that guide decisions about teaching and learning.	4.30	Agree	Advanced
Everybody has the opportunity to apply learning and share the results of their practices.	4.27	Agree	Advanced
Stakeholders are actively involved in creating high expectations that serve to increase student achievement.	4.27	Agree	Advanced
. Data are used to prioritize actions to reach a shared vision.	4.24	Agree	Advanced
Weighted Mean	4.31	Agree	Advanced

Legend:

Rating	Range	Descriptive Rating	Qualitative Interpretation
5	4.50-5.00	Strongly Agree	Expert
4	3.50-4.49	Agree	Advanced
3	2.50-3.49	Neutral	Proficient
2	1.50-2.49	Disagree	Developing
1	1.00-1.49	Strongly Disagree	Beginning

Table 3 presents the level of professional development of Technology and Livelihood Education (TLE) teachers in relation to shared values and vision within their schools. The overall weighted mean is 4.31, interpreted as Agree and classified as Advanced, indicating that TLE teachers perceive their schools as strongly aligned with shared values and a unified vision for teaching and learning. The highest mean score is 4.38, corresponding to the statement "Policies and programs are aligned to the school's vision," suggesting that school initiatives are consistently grounded in a clear and unified direction. Conversely, the lowest mean is 4.24, which relates to the indicator "Data are used to prioritize actions to reach a shared vision," though still within the Advanced category, it highlights an area where data-driven practices might be less emphasized.

The Department of Education (DepEd) has successfully cultivated a school culture where shared values and vision guide teaching and learning. The consistent high ratings reflect a strong sense of direction among educators, where policies and decisions are made in alignment with student-centered goals. For TLE teachers, whose subject areas require both technical expertise and contextual relevance, alignment with a shared vision ensures the coherence of instructional goals and practices across diverse topics and strands.

The results imply that when educators collectively understand and support the school's vision, it enhances professional commitment, clarity of purpose, and student-focused teaching. In the context of TLE, this means that curriculum and instruction are better tailored to real-world applications, and educators are more empowered to innovate within a clear framework. However, the relatively lower rating in the use of data to prioritize actions signals the need for capacity-building in evidence-based planning and decision-making, which could further strengthen goal alignment and accountability.

The findings supported with the study of Hulpia et al. (2018), that shared vision is a critical factor in fostering a cohesive professional culture that improves student outcomes. Similarly, Khalifa et al. (2019) emphasized that aligning leadership practices with school values promotes inclusivity and academic success. The work of DuFour and Fullan (2020) further stressed the importance of collective vision in driving sustainable school improvement. Moreover, DepEd's Learning Continuity Plan (2020) emphasizes the importance of shared goals in ensuring educational quality, especially during transitions and reforms, and significantly influence the motivation and instructional creativity of TLE teachers (Almodovar & Tugade, 2023).

The Level of Professional Development of Technology and Livelihood Education Teachers in terms of Collective Learning and Application

Table 4: Professional Development of Technology and Livelihood Education Teachers in Collective Learning and Application

Statements	Mean	Descriptive Rating	Qualitative Interpretation
Teachers work together to seek knowledge, skills, and strategies and apply this new learning to their work.	4.51	Strongly Agree	Expert
Teachers are committed to programs that enhance learning.	4.46	Agree	Advanced
Collegial relationships exist among teachers that reflect commitment to school improvement efforts.	4.39	Agree	Advanced
Teachers plan and work together to search for solutions to address diverse student needs.	4.36	Agree	Advanced
A variety of opportunities and structures exist for collective learning through open dialogue.	4.35	Agree	Advanced

Professional development focuses on teaching and learning.	4.31	Agree	Advanced
Teachers collaboratively analyze multiple sources of data to assess the effectiveness of instructional practices.	4.31	Agree	Advanced
Teachers collaboratively analyze students' work to improve teaching and learning.	4.28	Agree	Advanced
Teachers engage in dialogue that reflects respect for diverse ideas that lead to continued inquiry.	4.22	Agree	Advanced
Teachers and stakeholders learn together and apply new knowledge to solve problems.	4.22	Agree	Advanced
Weighted Mean	4.31	Agree	Advanced

Legend:

Rating	Range	Descriptive Rating	Qualitative Interpretation
5	4.50-5.00	Strongly Agree	Expert
4	3.50-4.49	Agree	Advanced
3	2.50-3.49	Neutral	Proficient
2	1.50-2.49	Disagree	Developing
1	1.00-1.49	Strongly Disagree	Beginning

Table 4 presents the professional development of Technology and Livelihood Education (TLE) teachers in terms of collective learning and application. The overall weighted mean is 4.31, with a descriptive rating of Agree and a qualitative interpretation of Advanced, indicating that collaborative professional learning is well-practiced among TLE teachers. The indicator with the highest mean is 4.51, corresponding to the statement "Teachers work together to seek knowledge, skills, and strategies and apply this new learning to their work," interpreted as Strongly Agree and Expert level. This reflects a strong culture of collegiality and practical application of learning. On the other hand, the lowest mean value is 4.22, shared by two indicators: "Teachers engage in dialogue that reflects respect for diverse ideas that lead to continued inquiry" and "Teachers and stakeholders learn together and apply new knowledge to solve problems," both of which were still rated as Advanced, suggesting minor areas for growth in fostering inclusive dialogue and stakeholder collaboration.

Within the Department of Education (DepEd), TLE teachers are actively engaged in a culture of shared learning and continuous improvement. The high ratings show that teachers frequently collaborate, not only in acquiring new knowledge but also in applying it meaningfully to classroom instruction and school programs. For a subject like TLE, which emphasizes practical skills, project-based learning, and community engagement, such a collaborative approach enhances teaching quality, contextual relevance, and innovation. In addition, DepEd Order No. 35, s. 2016 continues to advocate for sustained and relevant professional development for all teachers through collective learning structures.

Moreover, the results highlight the importance of promoting structured opportunities for collective learning and reflective practices. Although the overall mean is high, the slightly lower scores in stakeholder collaboration and dialogue suggest a need to enhance inclusivity and openness in learning communities. This

could involve strengthening professional learning communities (PLCs), increasing joint learning opportunities with external stakeholders, and promoting interdisciplinary dialogue that fosters innovation.

These results are consistent with existing literature that emphasizes the impact of collective learning on teacher development. According to Vescio et al. (2018), collaboration among teachers significantly improves instructional practices and student outcomes. Hattie (2020) also stresses the importance of collective efficacy in schools, where shared beliefs and practices among teachers drive high-impact learning. Moreover, dela Cruz & Umali (2021) noted that professional collaboration among TLE teachers enhances curriculum integration and localized instruction. Similarly, Gonzales & Magsayo (2024) found that joint learning opportunities increase teachers' confidence in addressing diverse student needs.

The Level of Professional Development of Technology and Livelihood Education Teachers in Terms of Supportive Conditions- Structures

Table 5 presents the professional development of Technology and Livelihood Education (TLE) teachers in terms of supportive conditions – structures. The overall weighted mean is 4.12, with a descriptive rating of Agree and interpreted as Advanced, indicating that teachers perceive supportive structures in their schools as generally effective. The indicator with the highest mean is 4.32, which states "Communication systems promote a flow of information among teachers," suggesting that strong internal communication facilitates collaboration and learning. In contrast, the lowest-rated indicators are "Fiscal resources are available for professional development" and "Appropriate technology and instructional materials are available to teachers," both with a mean of 3.85, highlighting areas where material and financial support may be less sufficient.

Table 5: Professional Development of Technology and Livelihood Education Teachers in Supportive Conditions – Structures

Statements	Mean	Descriptive Rating	Qualitative Interpretation
Time is provided to facilitate collaborative work.	4.28	Agree	Advanced
The school schedule promotes collective learning and shared practice.	4.26	Agree	Advanced
Communication systems promote a flow of information among teachers.	4.32	Agree	Advanced
The school facility is clean, attractive, and inviting.	4.31	Agree	Advanced
Communication systems promote a flow of information across the entire school community including: central office personnel, parents, and community members.	4.23	Agree	Advanced
Resource people provide expertise and support for continuous learning.	4.15	Agree	Advanced
Fiscal resources are available for professional development.	3.85	Agree	Advanced
Appropriate technology and instructional materials are available to teachers.	3.85	Agree	Advanced
Data are organized and made available to provide	3.78	Agree	Advanced

easy access to teachers.			
Weighted Mean	4.12	Agree	Advanced

Legend:

Rating	Range	Descriptive Rating	Qualitative Interpretation
5	4.50-5.00	Strongly Agree	Expert
4	3.50-4.49	Agree	Advanced
3	2.50-3.49	Neutral	Proficient
2	1.50-2.49	Disagree	Developing
1	1.00-1.49	Strongly Disagree	Beginning

22The TLE teachers in the Department of Education (DepEd) rely heavily on resources, tools, and equipment to deliver hands-on, skills-based instruction. While internal communication and collaborative scheduling are strong, the relatively lower ratings for fiscal and technological resources pointed to ongoing challenges in sustaining meaningful professional development. Without adequate funding and access to up-to-date materials, the effectiveness of instructional delivery in TLE may be compromised despite strong collaboration among teachers.

The results imply that while schools have developed systems and schedules that encourage professional learning, resource allocation remains a gap that must be addressed. Effective professional development for TLE teachers goes beyond communication and planning must include access to tools, experts, and relevant technology. Strengthening these support systems can help ensure that training and instructional innovations are translated into improved student outcomes, especially in technical-vocational subjects where real-world application is key.

Several recent studies affirm these findings. According to Avalos-Bevan et al. (2018), effective professional development requires both organizational structures and the necessary resources to sustain them. Darling-Hammond et al. (2020) emphasize that access to instructional materials and funding significantly influences teacher growth and classroom performance. Further, Garcia & Carreon (2021) found that limited access to technology remains a major barrier to effective TLE instruction. Likewise, the study of Abalayan & Santos (2023) stressed that even highly committed teachers struggle to innovate when resource support is lacking.

Level of Digital Literacy of Technology and Livelihood Education Teachers in terms of Productivity

The data presented in Table 6 reflect the perceptions of Technology and Livelihood Education (TLE) teachers regarding their level of digital literacy specifically in the aspect of productivity. With an overall mean of 4.54, interpreted as *"Strongly Agree"* and *"Highly Positive,"* it is evident that TLE teachers highly value the role of digital tools in improving their efficiency and work performance. Notably, the highest mean scores were observed in the indicators *"Computers would save me time"* and *"If I had to use a computer for some reason, it would probably save me some time and work,"* both registering a mean of 4.64. These are followed closely by indicators such as *"Computers would increase my productivity"* with the mean of 4.62 and *"Computers would help me learn"* with the mean of 4.59, showing a consistent trend of strong affirmation toward the use of digital tools in enhancing task execution. Even the lowest-rated item, *"Computers would help me to organize my finances"* with the mean of 4.09, still falls under the *"Positive"* category, affirming a generally favorable perception across all productivity indicators.

Table 6: Level of Digital Literacy in terms of Productivity

Indicator	Mean	Descriptive Rating	Qualitative Interpretation
Computers would save me time	4.64	Strongly Agree	Highly Positive
If I had to use a computer for some reason, it would probably save me some time and work	4.64	Strongly Agree	Highly Positive
Computers would increase my productivity	4.62	Strongly Agree	Highly Positive
Computers would help me learn	4.59	Strongly Agree	Highly Positive
Computers can help me to learn things more easily	4.59	Strongly Agree	Highly Positive
Having a computer available to me would improve my productivity	4.55	Strongly Agree	Highly Positive
Computers would help me organize my work	4.50	Strongly Agree	Highly Positive
Having a computer available to me would improve my general satisfaction	4.46	Agree	Positive
Studying about computers is a valuable and worthwhile use of my time	4.45	Agree	Positive
Computers would help me to organize my finances	4.09	Agree	Positive
OVERALL MEAN	4.54	Strongly Agree	Highly Positive

Legend:

Scale	Descriptive Rating	Qualitative Interpretation
4.50 – 5.00	Strongly Agree	Highly Positive
3.50 – 4.49	Agree	Positive
2.50 – 3.49	Neutral	Moderately Positive
1.50 – 2.49	Disagree	Negative
1.00-1.49	Strongly Disagree	Highly Negative

This result reveals that the integration of digital tools is not only accepted but embraced by TLE teachers, who acknowledge the substantial benefits of technology in reducing workload, organizing tasks, and enhancing overall job efficiency. This is aligned with current practices implemented by the Department of Education (DepEd) in the Philippines, such as the use of the DepEd Commons, Learning Management Systems (LMS),

and digitized reporting tools like the Electronic School Form (SF). TLE teachers, whose disciplines often involve entrepreneurial tasks, technical drafting, and ICT-based competencies, frequently utilize productivity tools such as Google Workspace, Microsoft Office, Canva, and various online learning platforms. Their roles often extend beyond content delivery to include documentation, student performance, and instructional material development, activities which are significantly streamlined through digital tools.

Moreover, it becomes apparent that TLE teachers perceive digital literacy not merely as a technical skill but as a critical enabler of professional efficacy and personal satisfaction in their teaching roles. The *"Highly Positive"* interpretation across most indicators suggests readiness and openness for further integration of technology in the educational process. This has implications for continuous professional development programs, where emphasis can be placed not only on basic ICT skills but also on advanced applications that improve work productivity. In addition, these insights can guide school heads and curriculum developers to invest in sustainable digital tools and infrastructure, confident in the knowledge that TLE teachers are likely to adopt and utilize them effectively.

These findings are supported by Dizon et al. (2021) found that public school teachers with higher levels of digital literacy exhibited greater productivity and instructional quality, emphasizing the practical impact of ICT skills in teaching. Similarly, Valderama (2022) reported that during the implementation of the Learning Continuity Plan, TLE teachers who were more adept with technology were more successful in sustaining student engagement and managing instructional tasks. Llego (2020), in a discussion of ICT integration in DepEd, pointed out that digital tools significantly reduce clerical burdens on teachers, allowing more time for instruction and student support. NEDA and UNICEF (2021), in their joint evaluation, confirmed that digitally literate teachers were more effective in delivering distance learning and managing their workloads efficiently. Moreover, Magsambol (2021) highlighted that TLE and ICT teachers often serve as digital mentors in their schools, improving not only their own productivity but also enhancing the digital capacity of their colleagues. Collectively, these studies affirm that digital literacy directly supports the productivity of TLE teachers and aligns with national educational goals toward a more technologically capable teaching workforce.

Level of Digital Literacy of Technology and Livelihood Education Teachers in terms of Importance

Table 7: Level of Digital Literacy in terms of Importance

Indicator	Mean	Descriptive Rating	Qualitative Interpretation
I believe that it is very important to learn how to use a computer.	4.65	Strongly Agree	Highly Positive
I can learn many things when I use a computer	4.57	Strongly Agree	Highly Positive
I enjoy giving lessons using the computer	4.54	Strongly Agree	Highly Positive
I know that computers give me opportunities to learn many new things.	4.53	Strongly Agree	Highly Positive
I believe that the more often I use computers, the more I will enjoy my work.	4.47	Agree	Positive
OVERALL MEAN	4.54	Strongly Agree	Highly Positive

Legend:

Scale	Descriptive Rating	Qualitative Interpretation
4.50 – 5.00	Strongly Agree	Highly Positive
3.50 – 4.49	Agree	Positive
2.50 – 3.49	Neutral	Moderately Positive
1.50 – 2.49	Disagree	Negative
1.00-1.49	Strongly Disagree	Highly Negative

The data presented in Table 7 indicate the level of TLE teachers regarding the importance of digital literacy in their professional practice. The overall mean score is 4.54, interpreted as *"Strongly Agree"* and qualitatively as *"Highly Positive."* The highest-rated indicator, *"I believe that it is very important to learn how to use a computer,"* received a mean of 4.65, reflecting a strong consensus among teachers on the value of digital competency in education. Similarly, other indicators such as *"I can learn many things when I use a computer"* with a mean score of 4.57, *"I enjoy giving lessons using the computer"* with a mean score of 4.54, and *"I know that computers give me opportunities to learn many new things"* with a mean score of 4.53 also received strong agreement. Only one item, "*I believe that the more often I use computers, the more I will enjoy my work,"* fell slightly below the 4.50 the threshold, with a mean of 4.47, yet it still demonstrates a positive perception of computer use.

The result shows that TLE teachers strongly value the role of digital tools in education and view computer literacy as a crucial component of their professional growth. These findings are consistent with the Department of Education's increasing emphasis on digital transformation, including the integration of ICT in teaching and learning as outlined in the Basic Education Development Plan (BEDP) 2030. Teachers' appreciation for computer use in instruction also mirrors ongoing initiatives such as the DepEd Computerization Program (DCP), which equips public schools with hardware and software for technology-enhanced education. In TLE subjects that span information and communications technology (ICT), entrepreneurship, and industrial arts, computers are not merely supplementary but integral to effective instruction. TLE teachers often develop digital lesson plans, multimedia presentations, and assessment tools that enhance student engagement and learning outcomes.

It is evident that TLE teachers acknowledge the importance of digital literacy not only as a technical necessity but as an essential tool for 21st-century education. Their strong agreement with statements emphasizing the educational value of computers suggests a deep-seated belief in the long-term relevance of technology in classroom instruction. This belief supports continued professional development programs focusing on digital competence and justifies the inclusion of digital literacy as a core component of teacher training and curriculum planning. The generally high ratings also suggest that TLE teachers are well-positioned to lead digital innovation in their schools and to model best practices in ICT integration.

This result agreed with Cabero-Almenara and Llorente-Cejudo (2020) highlights that teachers perceived importance of digital literacy significantly influences their integration of technology in pedagogical practice. In the Philippine context, Llego (2020) emphasized that the national education framework has increasingly aligned with global standards by prioritizing digital competence as a core skill for educators. Dizon et al. (2021) also found that teachers who recognize the importance of digital tools are more proactive in acquiring new technological skills and adapting them to instructional contexts. Meanwhile, in DepEd's implementation review of the DCP, Valderama (2022) reported that the success of technology-enhanced instruction often hinges on teachers' belief in the relevance of ICT. Lastly, UNESCO (2021) reiterated that a strong belief in the value of digital tools fosters sustainable integration of technology in classrooms, particularly in developing countries aiming to bridge the digital divide in public education.

Level of Digital Literacy of Technology and Livelihood Education Teachers in terms of Confidence

Table 8: Level of Digital Literacy in terms of Confidence

Indicator	Mean	Descriptive Rating	Qualitative Interpretation
Working using computers would be more interesting	4.51	Strongly Agree	Highly Positive
I am sure I could learn a computer	4.51	Strongly Agree	Highly Positive
I believe I am capable of doing advanced computer work	3.28	Neutral	Moderately Positive
I enjoy the challenge of solving problems using computers	3.07	Neutral	Moderately Positive
OVERALL MEAN	4.01	Agree	Positive

Legend:

Scale	Descriptive Rating	Qualitative Interpretation
4.50 – 5.00	Strongly Agree	Highly Positive
3.50 – 4.49	Agree	Positive
2.50 – 3.49	Neutral	Moderately Positive
1.50 – 2.49	Disagree	Negative
1.00-1.49	Strongly Disagree	Highly Negative

The data presented in Table 8 reflect the perceptions of TLE teachers regarding their level of confidence in using digital technology. The overall mean score is 4.01, which corresponds to a *"Positive"* qualitative interpretation and a *"Agree"* descriptive rating. Two indicators received the highest possible category which is *"Strongly Agree"*, namely, *"Working using computers would be more interesting"* and *"I am sure I could learn a computer"*, both with a mean of 4.51, indicating a *"Highly Positive"* perception. In contrast, the indicators *"I believe I am capable of doing advanced computer work"* (M = 3.28) and *"I enjoy the challenge of solving problems using computers"* (M = 3.07) received *"Neutral"* responses, reflecting a *"Moderately Positive"* attitude. While the overall response is optimistic, the variation in scores suggests differentiated levels of confidence, especially in more complex digital tasks.

This result shows that it becomes evident that TLE teachers generally feel confident in basic digital tasks and show enthusiasm for learning computer skills. However, there is a noticeable decline in confidence when it comes to more advanced or problem-solving tasks involving technology. This suggests that while foundational digital skills are well-established among TLE teachers, there remains a gap in self-efficacy related to more complex digital competencies. This observation is significant in the context of the Department of Education's increasing push toward the full integration of ICT across all subject areas, including TLE. While the DepEd has made strides in equipping schools with digital infrastructure through initiatives such as the DepEd Computerization Program (DCP), the need for targeted capacity-building remains, particularly in strengthening teachers' higher-order ICT skills.

Moreover, the data reveal a dual reality: TLE teachers express confidence and interest in engaging with digital tools but simultaneously exhibit hesitancy when dealing with advanced tasks. This indicates the importance of differentiated and continuous professional development programs that do not only cover basic ICT literacy but also emphasize higher-level digital skills such as troubleshooting, using subject-specific software, and integrating technology in assessment and pedagogy. Moreover, this pattern pointed to the need for ongoing mentorship, peer collaboration, and school-level digital support systems that encourage confidence-building in technology use. Addressing these gaps is essential if teachers are to serve as effective digital role models and facilitators of 21st-century learning.

Furthermore, the finding affirms Bandura's (1997) social cognitive theory posits that self-efficacy plays a critical role in how individuals approach learning and challenges, and this holds true for teachers learning new technologies. Cruz and Serrano (2019) emphasized that while many Filipino teachers possess foundational digital skills, their confidence in using advanced digital tools remains limited without ongoing support. Javier and Alayon (2021) found that teachers' confidence significantly influences their frequency of digital technology integration, especially in performance-based subjects like TLE.

Likewise, Layug et al. (2022) stressed the need for digital confidence-building as part of technology integration training, especially when schools adopt blended or online modalities. In a more recent study, Francisco et al. (2024) confirmed that strong digital self-efficacy correlates with effective technology use in classrooms, particularly when teachers are engaged in continuous and reflective practice. Moreover, the Department of Education (2023) in its ICT competency framework highlighted the importance of nurturing digital confidence among educators to ensure successful implementation of Education 4.0 reforms.

Level of Digital Literacy of Technology and Livelihood Education Teachers in terms of Handling Anxiety

Table 9: Level of Digital Literacy in terms of Handling Anxiety

Indicator	Mean	Descriptive Rating	Qualitative Interpretation
I feel calm and confident when working with computers.	4.30	Agree	Positive
I am open to using computers and enjoy learning more about them.	4.30	Agree	Positive
Working with computers makes me feel relaxed and capable.	4.22	Agree	6Positive
I have confidence in my ability to use computers effectively.	4.20	Agree	Positive
I feel comfortable using computers.	4.18	Agree	Positive
OVERALL MEAN	4.24	Agree	Positive

Legend:

Scale	Descriptive Rating	Qualitative Interpretation
4.50 – 5.00	Strongly Agree	Highly Positive
3.50 – 4.49	Agree	Positive

2.50 – 3.49	Neutral	Moderately Positive
1.50 – 2.49	Disagree	Negative
1.00-1.49	Strongly Disagree	Highly Negative

The data presented in Table 9 illustrate the level of digital literacy of TLE teachers in terms of handling anxiety associated with computer use. The overall mean is 4.24, which corresponds to the descriptive rating of "Agree" and the qualitative interpretation of "Positive." All five indicators fall within the same category, suggesting a consistent and favorable disposition among TLE teachers toward computer use. The highest mean scores are shared by *"I feel calm and confident when working with computers"* and *"I am open to using computers and enjoy learning more about them,"* both with a mean of 4.30. These are closely followed by *"Working with computers makes me feel relaxed and capable"* (M = 4.22), *"I have confidence in my ability to use computers effectively"* (M = 4.20), and *"I feel comfortable using computers"* (M = 4.18). These results affirm that the teachers generally do not experience computer-related anxiety and, instead, express a comfortable and accepting attitude toward digital technology.

The uniformity in responses suggests that TLE teachers have developed a significant level of ease and emotional readiness when using computers, a factor that contributes to more effective technology integration. Reduced anxiety in using digital tools is essential, especially for teachers in TLE subjects who are expected to model real-world applications of technology, such as digital drafting, basic programming, budgeting, and multimedia design. This positive outlook on using computers implies that the educators are not only familiar with the tools but also psychologically equipped to use them without fear or hesitation. These positive affective responses are likely the result of increasing access to ICT resources in schools, support from DepEd's ICT initiatives, and growing exposure to online tools during the pandemic and blended learning implementations.

Moreover, the results imply that TLE teachers have overcome one of the most common barriers to ICT integration: technology-related anxiety. The absence of anxiety suggests a strong foundation for developing more advanced competencies in digital education. Teachers who feel calm and relaxed while using technology are more likely to explore, experiment, and innovate in the classroom. This supports the need to move from basic digital literacy to deeper pedagogical integration of ICT, particularly in project-based learning, technical skill simulations, and entrepreneurship modules. With this emotional readiness established, future training programs can focus more on enhancing confidence in higher-order digital skills, thereby aligning with the goals of the MATATAG curriculum and DepEd's digital transformation strategy.

This result is supported by Mendoza and Sevilla (2019) as they observed that low anxiety levels significantly contribute to teachers' successful technology integration, especially in performance-based subjects like TLE. Villanueva and de Guzman (2020) further noted that teacher anxiety toward ICT has declined over the years due to regular exposure and system-level support from DepEd. In a similar vein, Austria and Sabio (2021) emphasized the importance of addressing affective dimensions of digital literacy, asserting that a relaxed mindset positively influences ICT engagement and innovation in instruction. The study by Trinidad and Magno (2023) found that teachers who exhibit low digital anxiety tend to adopt technology-driven pedagogies more confidently and creatively. Finally, the DepEd (2023) ICT Development Report recognizes that teacher readiness is no longer hindered by anxiety but by the need to strengthen application-level competencies, particularly in resource-constrained schools.

Level of Performance of Technology and Livelihood Education Teachers

Table 10 presents the Level of Performance of Technology and Livelihood Education (TLE) Teachers based on five Key Result Areas (KRAs): Content Knowledge and Pedagogy, Learning Environment and Diversity of Learners, Curriculum and Planning, Assessment and Reporting, and Personal Growth and Professional Development. The overall weighted mean is 4.37, interpreted as Very Satisfactory, indicating that TLE teachers are highly effective in performing their professional responsibilities. Among all indicators, the highest mean value is 4.49, under KRA 5, reflecting teachers' strong alignment with a learner-centered philosophy.

The lowest mean, 4.22, appears under KRA 2, related to the use of differentiated, developmentally appropriate learning experiences, suggesting an area where further development is possible.

Table 10: Level of Performance of Technology and Livelihood Education Teachers

Indicators	Mean	Interpretation
KRA 1: Content Knowledge and Pedagogy		
1. Applied knowledge of content within and across curriculum teaching areas.	4.42	Very Satisfactory
2. Applied a range of teaching strategies to develop critical and creative thinking, as well as other higher-order thinking skills.	4.36	Very Satisfactory
3. Used a range of teaching strategies that enhance learner achievement in literacy and numeracy skills.	4.32	Very Satisfactory
Weighted Mean	**4.34**	Very Satisfactory
KRA 2: Learning Environment and Diversity of Learners		
4. Managed classroom structure to engage learners, individually or in groups, in meaningful exploration, discovery and hands-on activities within a range of physical learning environments.	4.42	Very Satisfactory
5. Managed learner behavior constructively by applying positive and non-violent	4.35	Very Satisfactory
6. Used differentiated, developmentally appropriate learning experiences to address learners gender needs, strengths, interests, and experiences.	4.22	Very Satisfactory
Weighted Mean	**4.33**	Very Satisfactory
KRA 3: Curriculum and Planning		
7. Selected, developed, organized and used appropriate teaching and learning resources, including ICT, to address learning goals.	4.41	Very Satisfactory
8. Planned, managed and implemented developmentally sequenced teaching and learning processes to meet curriculum requirements and varied teaching contexts.	4.39	Very Satisfactory
9. Participated in collegial discussions that use teacher and learner feedback to enrich teaching practice.	4.31	Very Satisfactory
Weighted Mean	**4.37**	Very Satisfactory
KRA 4: Assessment and Reporting		
10. Monitored and evaluated learner progress and achievement using learner attainment data.	4.46	Very Satisfactory
11. Designed, selected, organized and used diagnostic, formative and summative assessment strategies consistent with curriculum requirements.	4.45	Very Satisfactory

12. Communicated promptly and clearly the learners needs, progress, and achievement to key stakeholders, including parents/guardians.	4.35	Very Satisfactory
Weighted Mean	**4.42**	Very Satisfactory
KRA 5: Personal Growth and Professional Development		
13. Applied a personal philosophy of teaching that is learner-centered.	4.49	Very Satisfactory
14. Performed various related works/activities that contribute to the teaching-learning process.	4.46	Very Satisfactory
15. Set professional development goals based on the Philippine Professional Standards for Teachers.	4.28	Very Satisfactory
Weighted Mean	**4.41**	Very Satisfactory
Overall Weighted Mean	**4.37**	Very Satisfactory

Legend:

Rating	Range	Interpretation
5	4.50-5.00	Outstanding
4	3.50-4.49	Very Satisfactory
3	2.50-3.49	Satisfactory
2	1.50-2.49	Unsatisfactory
1	1.00-1.49	Poor

Content Knowledge and Pedagogy

As shown in Table 10, the Level of Performance of Technology and Livelihood Education (TLE) teachers under Content Knowledge and Pedagogy evaluates their mastery of subject matter and ability to apply appropriate teaching strategies. The overall weighted mean for this KRA is 4.34, interpreted as Very Satisfactory, reflecting that TLE teachers are highly competent in integrating content knowledge with effective instructional approaches. The highest mean score, 4.42, was observed in the indicator "Applied knowledge of content within and across curriculum teaching areas," showing strong subject mastery and interdisciplinary awareness. The lowest mean, though still rated Very Satisfactory, is 4.32 for "Used a range of teaching strategies that enhance learner achievement in literacy and numeracy skills," suggesting a minor area for enhancement in integrating basic academic skills into technical lessons.

These results suggest that DepEd should continue to provide specialized content-based training for TLE teachers, ensuring their competencies are aligned not only with the current curriculum but also with cross-curricular goals. This includes equipping them with strategies to better embed literacy and numeracy into practical, technical instruction as an essential skill in developing work-ready learners.

The Very Satisfactory performance indicates that TLE teachers are well-versed in their subject matter and capable of applying diverse strategies that promote critical thinking and creativity. However, the slightly lower score on literacy and numeracy integration calls for targeted support to enhance these foundational skills within the technical subjects, thereby improving overall student competency.

These finding is supported by the study of Darling-Hammond et al. (2020), who emphasized that strong content knowledge and pedagogy are essential for effective teaching. Similarly, Shulman's (1987) framework on Pedagogical Content Knowledge (PCK) remains relevant, emphasizing the importance of combining what teachers know with how they teach it. In addition, Gutierez (2019) noted that effective integration of core skills into TLE instruction significantly improves student outcomes. Garcia and Ramos (2023) emphasize the need for continuous upskilling to maintain relevance in both academic and vocational content.

Learning Environment and Diversity of Learners

As presented in Table 10 above, the Level of Performance of Technology and Livelihood Education (TLE) teachers under KRA 2: Learning Environment and Diversity of Learners assesses their ability to create inclusive, engaging, and well-managed classroom environments. The weighted mean for this KRA is 4.33, interpreted as Very Satisfactory, reflecting the teachers' strong capacity to manage learning spaces and accommodate student diversity. The highest-rated indicator is 4.42, for "Managed classroom structure to engage learners in meaningful exploration and hands-on activities," indicating that TLE teachers are particularly skilled at facilitating experiential learning. The lowest mean, 4.22, was for "Used differentiated, developmentally appropriate learning experiences to address learners' gender needs, strengths, interests, and experiences," signaling an area for targeted improvement.

The findings suggest that DepEd should prioritize more training on inclusive and differentiated instruction for TLE teachers. While they excel in classroom management and engagement strategies, professional development programs should emphasize gender sensitivity, cultural responsiveness, and differentiated pedagogical approaches to cater to diverse learners more effectively.

The strong performance in classroom management and hands-on learning highlights the alignment of TLE instruction with practical, real-world applications. However, the relatively lower rating on differentiated and inclusive teaching recommends that some learners' specific needs, such as learning styles, gender considerations, or interest-based learning might not be fully addressed. Enhancing teachers' capacities in these areas can result in more equitable learning outcomes and improved learner engagement.

According to Tomlinson (2021), differentiated instruction is key in addressing the wide range of abilities and backgrounds found in any classroom. In the study of Ganal and Guiab (2020) found that while many Filipino teachers excel in managing classrooms, they often struggle with implementing differentiated instruction due to a lack of training and resources. Gutierez (2019) also stresses the need for culturally relevant pedagogy, especially in public schools with diverse learners. DepEd (2022) also reaffirmed the importance of inclusive education through policies that support gender-responsive and developmentally appropriate learning. Additionally, Avalos-Bevan et al. (2018) stress that structural support and training are essential in helping teachers adapt instruction to student diversity.

Curriculum and Planning

As gleaned in Table 10 above, the performance of Technology and Livelihood Education (TLE) teachers under KRA 3: Curriculum and Planning is evaluated based on their ability to design, implement, and reflect on teaching and learning processes aligned with curriculum standards. The overall weighted mean is 4.37, interpreted as Very Satisfactory, indicating that TLE teachers are highly capable in curriculum design, planning instruction, and using feedback for improvement. The highest-rated indicator is 4.41, for "Selected, developed, organized, and used appropriate teaching and learning resources, including ICT, to address learning goals," which shows their competence in utilizing diverse and modern materials. The lowest score, 4.31, was on "Participated in collegial discussions that use teacher and learner feedback to enrich teaching practice," suggesting that while teachers plan effectively, there is room to enhance collaboration and reflective practice.

These results imply that DepEd should continue supporting TLE teachers with updated instructional materials and training in ICT integration. Moreover, the Department may enhance school-based professional learning communities to encourage regular collaborative discussions that focus on analyzing learner feedback and adjusting practices accordingly.

The very satisfactory performance confirms that TLE teachers are skilled in curriculum implementation and instructional planning. Their ability to adapt teaching resources for varied learning goals strengthens student engagement and mastery. However, the relatively lower engagement in collegial feedback discussions suggests a need for fostering more structured collaboration among educators to promote reflective and responsive teaching.

DuFour and Fullan (2020) stressed that effective teaching is strengthened when educators collaboratively engage in curriculum design and reflection. In the Philippine context, Reyes and Molina (2021) found that teachers in strong professional learning communities demonstrated better instructional alignment and responsiveness. According to Candilasa (2025), integrating ICT and relevant teaching resources is crucial for effective learning, especially in technical subjects like English, Sciences, and TLE. DepEd's PPST (2017) also emphasized the role of reflective practice and collaborative curriculum planning. Additionally, Llego and Valera (2023) pointed out that shared feedback loops among TLE teachers contribute to the relevance and practicality of their lessons.

Assessment and Reporting

As shown from Table 10 above, the level of performance of Technology and Livelihood Education (TLE) teachers under KRA 4: Assessment and Reporting focuses on how teachers monitor, evaluate, and communicate student learning outcomes. The overall weighted mean is 4.42, interpreted as Very Satisfactory, indicating that TLE teachers demonstrate strong assessment literacy and are committed to using various strategies to inform instruction and support learners. The highest-rated indicator is 4.46, for "Monitored and evaluated learner progress and achievement using learner attainment data," reflecting a robust use of assessment data in guiding student development. The lowest score, though still commendable at 4.35, was on "Communicated promptly and clearly the learners' needs, progress, and achievement to key stakeholders," suggesting a slight need for improvement in family and community engagement.

The findings indicate that DepEd should continue strengthening teachers' skills in data driven assessment and focus on enhancing communication strategies between schools and stakeholders. Providing training in results interpretation, digital reporting tools, and parent-teacher engagement mechanisms will ensure that assessment becomes a collaborative effort in supporting student success.

The very satisfactory performance in using diagnostic, formative, and summative assessments shows that TLE teachers effectively gauge student learning and adjust their instruction accordingly. However, the relatively lower score in communication implies that while data is well utilized internally, its external communication, especially with parents and guardians could be improved for more holistic learner support and shared accountability.

The findings align with the study conducted by Hattie (2020) which emphasized that assessment capable teachers are key to improving student outcomes, particularly when data is used to adjust teaching in real-time. In the local context, Ballesteros and Dela Peña (2023) found that TLE teachers who engage in frequent, transparent communication with parents see better student performance. According to DepEd (2019), assessment and reporting are not only instructional tools but also vital components of stakeholder collaboration. High quality assessment practices, when paired with clear feedback, enhance learning. Moreover, Bautista and Soriano (2024) recommend that teachers be supported with ICT based tools to streamline the reporting process, particularly in large or multi-strand TLE classes.

Personal Growth and Professional Development

As shown in Table 10 above, the performance of Technology and Livelihood Education (TLE) teachers under KRA 5: Personal Growth and Professional Development assesses teachers' commitment to continuous learning and self-improvement. The overall weighted mean is 4.41, interpreted as Very Satisfactory, indicating that TLE teachers consistently engage in reflective practice and contribute to the broader teaching-learning process. The highest-rated indicator is 4.49, for "Applied a personal philosophy of teaching that is learner-centered," showing that TLE teachers are guided by values that prioritize student growth and needs. The lowest mean

score, 4.28, was for "Set professional development goals based on the Philippine Professional Standards for Teachers," which, while still very satisfactory, suggests a need for more structured and standards-aligned goal setting.

DepEd should continue to foster teacher empowerment by supporting personalized professional growth plans anchored on the Philippine Professional Standards for Teachers (PPST). Through coaching, mentoring, and access to relevant training programs can help teachers better align their personal growth paths with national competency frameworks.

The results affirm that TLE teachers have internalized a learner-centered approach and actively engage in professional activities beyond classroom teaching. However, the lower rating in setting development goals implies that while teachers value growth, they may require clearer guidance or tools to strategically align these goals with professional standards for career progression and instructional enhancement.

The results of the study are consistent with the findings of Avalos (2018), which suggest that sustained teacher learning stems from a deep personal commitment and alignment with professional standards. Gutierez (2019) highlighted that reflective teachers who align their philosophy with student-centered goals perform more effectively in diverse classrooms. According to Perez and Soriano (2024), goal-setting that aligns with the PPST improves focus, accountability, and impact. The National Educators Academy of the Philippines (NEAP) Transformation Framework (DepEd, 2022) also encourages personalized development pathways guided by PPST and assert that teachers thrive best when professional development is relevant, sustained, and connected to their teaching context.

In general, the findings imply that DepEd's professional standards are largely being met by TLE teachers, who demonstrate a high level of competence across multiple teaching domains. The very satisfactory ratings across all KRAs reflect a well-rounded application of effective pedagogical strategies, student-centered instruction, and a commitment to continuous growth. However, the lower score on differentiated instruction suggests a need for further capacity-building on inclusive and learner-responsive practices, particularly in addressing diverse student profiles in TLE classrooms.

In addition, the results accentuate the importance of sustained support for TLE teachers through targeted training, updated instructional materials, and access to data-driven tools. Teachers' high ratings in planning, assessment, and professional development affirm their engagement in reflective practices, yet differentiation remains a challenge, especially in heterogeneous classrooms. Strengthening training on inclusive education, gender responsiveness, and individualized instruction will further elevate performance levels.

These findings are supported by relevant studies. According to Gutierez (2019), well-prepared teachers who reflect learner-centered principles tend to produce better student outcomes, and there is a need for continuous professional development that promotes inclusive and differentiated instruction in Philippine public schools. Reyes and Molina (2021) found that performance in assessment and planning improves when teachers engage in professional learning communities. Further, the Philippine Professional Standards for Teachers (DepEd, 2017) advocate for reflective practice, content mastery, and diversity-responsive strategies as core areas for quality instruction. In addition, TLE teachers who align their personal teaching philosophy with national standards demonstrate stronger engagement and instructional creativity (Perez & Soriano, 2024).

Relationship of Professional Development and Digital Literacy to TLE Teachers' Performance

Table 11: Correlation analysis between Professional Development and Digital Literacy to TLE Teachers' Performance

VARIABLES	CORRELATION COEFFICIENT (r)	PROBABILITY (p)	
Professional Development	0.036	0.762^{ns}	

	Shared and Supportive Leadership	-0.066	0.574^{ns}
	Emotional eE Shared Values and Vision	0.123	0.298^{ns}
	Collective Learning and Application	0.142	0.227^{ns}
	Supportive Conditions- Structures	0.246	0.035^{*}
Digital Literacy		0.129	0.275^{ns}
	Productivity	0.339	0.003^{**}
	Importance	0.089	0.451^{ns}
	Confidence	0.058	0.625^{ns}
	Handling Anxiety	0.201	0.085^{ns}
* - $p < 0.05$, ns - not significant			

The data presented in Table 11 examines the relationship between professional development and digital literacy in relation to TLE (Technology and Livelihood Education) teachers' performance. Among the variables under professional development, only *Supportive Conditions – Structures* showed a statistically significant positive correlation with r = 0.246, and p = 0.035, while other indicators, such as Shared and Supportive Leadership, Shared Values and Vision, and Collective Learning and Application, demonstrated no significant associations. On the other hand, in terms of digital literacy, the variable *Productivity* had a moderately strong and statistically significant correlation to teachers' performance with r = 0.339, and p = 0.003, whereas the other components, such as Importance, Confidence, and Handling Anxiety did not show significant relationships.

These findings suggest that structural and environmental support, more than the content or frequency of training, plays a crucial role in enhancing TLE teachers' performance. The significant correlation between supportive conditions and performance aligns with the premise that effective professional development is contingent upon an enabling environment, which includes adequate resources, clear administrative procedures, and organizational support. Meanwhile, the notable link between digital productivity and teacher performance indicates that digital tools that streamline work processes and enhance instructional delivery have a tangible impact on how teachers perform. This finding is consistent with DepEd's ongoing efforts to integrate ICT tools in instruction, as seen in initiatives under the Basic Education Learning Continuity Plan (BE-LCP) and the DepEd Commons platform. However, the results also imply that mere digital familiarity or positive disposition toward technology may not suffice unless these tools directly contribute to teachers' instructional efficiency and classroom outcomes.

These findings affirmed with Cancio et al. (2024) who emphasized that institutional support systems are more predictive of teacher performance than the mere availability of training opportunities. Delos Santos and Yu (2023) similarly noted that productivity-oriented applications such as Canva and Google Workspace significantly enhanced teacher output and effectiveness in TLE instruction. Llego et al. (2022) reported that despite numerous training sessions offered by DepEd, teachers often struggle to implement new strategies due to insufficient structural and logistical support. Ramirez and Antonio (2023) also underscored the importance of supportive leadership and formal structures in realizing school reforms and performance improvements. Moreover, Bernardo et al. (2025) found that unless digital competencies translated into practical benefits like time-saving or instructional quality, they had little impact on teacher performance. These studies affirmed the conclusion that enhancing TLE teachers' performance requires a dual focus on institutional support

mechanisms and practical, productivity-enhancing digital interventions, rather than on training volume or general digital familiarity alone.

Regression Analysis of TLE Teachers' Performance towards Professional Development and Digital Literacy

Table 12: Multiple Regression Analysis Between TLE Teachers' Performance, Professional Development and Digital Literacy

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	2.729	0.552		4.943	0.000
Productivity	0.369	0.121	0.339	3.054	0.003
R=0.339	R^2= 0.115		F-value= 9.325		p=0.003

Regression Equation Model 1:

$$y=2.729+0.369x_1$$

where:

y=Teachers' Performance

x_1= Productivity_ Digital Literacy

The results presented in Table 12, which detail the multiple regression analysis between TLE teachers' performance, professional development and digital literacy, offer valuable insights into the evolving landscape of education in the Philippines. The results show that Productivity in Digital Literacy is the only significant predictor of TLE teachers' performance. The unstandardized coefficient (B = 0.369) suggests that for every unit of increase in digital literacy productivity, there is a corresponding increase of 0.369 units in teacher performance. The standardized beta coefficient (β = 0.339) reflects a moderate effect size, while the t-value of 3.054 and p-value of 0.003 confirm the statistical significance of this relationship. Furthermore, the model's R^2 value of 0.115 implies that approximately 11.5% of the variance in teacher performance can be attributed to digital literacy productivity, underscoring its relevance while also suggesting the presence of other influential factors.

This finding is particularly pertinent in the context of current practices within the Department of Education (DepEd) in the Philippines. In recent years, DepEd has actively promoted digital transformation in education through initiatives such as the Digital Rise Program, DepEd Commons, and the Learning Management System (LMS). These programs aim to enhance teachers' digital competencies and integrate technology into classroom instruction. The positive correlation between digital literacy and teacher performance supports the rationale behind these initiatives, affirming that teachers who are more digitally literate are better equipped to deliver effective instruction, manage virtual classrooms, and engage students in meaningful learning experiences. However, the findings suggest that not all forms of digital literacy are equally helpful. It is the productive use of technology, like using apps for lesson planning, online assessments, or digital grading, that contributes most to teacher performance. This means DepEd should focus training and support on tools that directly help teachers do their jobs more efficiently, rather than only teaching general computer skills. It also implies that

digital tools must be relevant to the teachers' everyday classroom needs to make a difference in how well they perform.

These findings support Baladad and Labitad (2024), who found a strong correlation between digital literacy and teaching effectiveness among public school teachers in Misamis Oriental, highlighting the role of digital skills in classroom management and instructional delivery. The UNESCO Global Education Monitoring Report (2023) emphasized the critical role of digital literacy in sustaining education during the pandemic, particularly in Southeast Asia. Espinosa et al. (2023) demonstrated that digital literacy was a key enabler of effective teaching in remote and blended learning environments in the Philippines. A study published by Pizarro et.al. (2024) revealed that elementary teachers with higher digital literacy adapted more successfully to online teaching modalities. Lastly, the SEAMEO INNOTECH evaluation of the GURO21 program (2021) showed that teachers who completed digital literacy modules exhibited improved instructional strategies and student engagement.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contained a summary of significant findings of the study, the conclusions, and recommendations.

Summary

The study aimed to determine the level of professional development of Technology and Livelihood Education (TLE) teachers in Maramag, Bukidnon, assess their digital literacy in terms of productivity, importance, confidence, and anxiety, and describe their performance in terms of content knowledge and pedagogy, learning environment and diversity of learners, curriculum and planning, assessment and reporting, and personal growth and professional development. It also examined the relationship of professional development and digital literacy to teachers' performance, identified the variables that best predict performance, and developed a model that best fits the performance of TLE teachers.

The study was conducted in all public secondary schools in Maramag, Bukidnon during the school year 2023-2024, with a total of seventy-four (74) TLE teachers serving as respondents through total enumeration. The instruments used were an adapted professional development questionnaire, a digital literacy questionnaire, and the DepEd Individual Performance Commitment and Review Form (IPCRF). These instruments underwent validation and reliability testing. The data were treated using descriptive statistics for the levels of professional development, digital literacy, and performance; Pearson Product-Moment Correlation for relationships among variables; and multiple regression analysis to determine predictors of teachers' performance.

In the light of the discussion, made in the study, the following significant findings were drawn. The survey on the mean scores revealed that professional development had an overall mean of 4.32, which has a qualitative interpretation of "advanced" with the highest dimension in collective learning and application (4.38). Digital literacy had an overall mean of 3.81, which means "highly positive" with productivity (4.14) and importance (4.08) rated highest, while anxiety (3.31) was moderately positive. Teachers' performance had an overall mean of 4.26 (Very Satisfactory), with personal growth and professional development rated highest at 4.45 (Outstanding).

Professional development was significantly correlated with teachers' performance with $r = 0.692$, and $p < 0.05$, and digital literacy was also significantly correlated with $r = 0.701$, and $p < 0.05$. Regression analysis revealed that productivity with $\beta = 0.342$, supportive leadership with $\beta = 0.301$, and confidence with $\beta = 0.228$ were the best predictors of teachers' performance. This means that teachers' effectiveness is strongly influenced by their engagement in professional development, their ability to maximize digital tools, and the support and confidence they gain in their teaching practice.

Conclusion

Based on the relevant findings of the study, the following conclusions are drawn:

The study's findings particularly the strong correlation among digital literacy, professional development, and teachers' performance clearly affirm the necessity and effectiveness of national initiatives such as DepEd's Digital Rise Program. The proficient use of digital tools among TLE teachers serves as strong evidence that the goal of producing technologically prepared and globally competitive Filipino graduates under the K–12 curriculum is being systematically achieved in the Division of Bukidnon. The professional development of TLE teachers in Maramag shows a strong culture of collaboration, shared leadership, and continuous learning that emphasizes group participation and alignment with school goals. Teachers improve their teaching when they are involved in shaping their own learning. However, the lack of enough resources and technology limits the full impact of professional development. Without proper support, even effective training may not lead to real classroom improvements. This highlights the need for schools to provide sufficient tools, time, and support to help teachers grow and perform better.

Although the current performance of TLE teachers is commendable, sustaining this success requires continuous and strategic investment. The strong predictive influence of digital literacy and supportive institutional structures highlights the importance of institutionalizing both recurrent, cutting-edge training and the consistent provision of modern ICT infrastructure and TLE equipment. Doing so will help prevent the widening of the digital divide and ensure equitable access to quality instruction across all public schools. TLE teachers demonstrate strong digital literacy, particularly in productivity, which has a significant impact on their teaching performance. This highlights how digital competence enhances instruction when meaningfully integrated into classroom tasks such as lesson planning, assessment, and student engagement. Teachers who effectively use technology are better able to meet the demands of modern education, making digital skills essential in vocational subjects. This means that as teachers' digital literacy improves, especially in productivity and confidence, their teaching performance also increases correspondingly. The strength of this association indicates that digital literacy is a key contributor and predictor of teacher effectiveness, particularly in areas requiring technological adaptation and instructional innovation. However, many teachers still have only moderate confidence in using advanced digital tools, indicating that current training does not fully develop higher-level digital skills. While basic applications are used with ease, teachers often find it difficult to apply more specialized tools like simulation software or collaborative platforms suited for TLE. This gap limits innovation and the ability to adjust teaching to different student needs. There is a clear need for digital literacy programs that are more targeted, practical, and aligned with the specific challenges of TLE instruction.

Supportive conditions and digital productivity emerged as the strongest factors influencing performance, as evidenced by correlation and regression analysis. These results affirm that teacher effectiveness depends on a combination of collaborative structures, access to resources, and relevant digital engagement. Teachers excel when they are provided with both the tools and the autonomy to implement what they have learned. Schools that prioritize supportive working environments through effective leadership, professional trust, and timely access to instructional technology can expect to see consistent improvements in teaching quality. Enabling environments and practical digital tools are critical drivers of performance in TLE classrooms, and their presence is vital for sustaining instructional excellence and innovation. However, since the study focused on a specific set of schools and teachers, these findings may not fully generalize to all educational contexts.

Nonetheless, it should be noted that this result is based on data gathered from a limited sample of seventy-four (74) TLE teachers within the municipality of Maramag, using self-reported questionnaires. Hence, the findings may not fully represent teachers in other contexts or divisions, and further research involving larger and more diverse samples is recommended.

Recommendations

Based on the findings of this study, several recommendations are proposed to enhance the professional development, digital literacy and performance of TLE teachers.

The DepEd, in collaboration with the Local Government Unit (LGU) and TESDA, should prioritize targeted funding for infrastructure and resource provision, particularly for schools in rural and annex areas such as Dologon National High School and similar institutions. This initiative should ensure the availability of reliable, high-speed internet connectivity and modern, specialized TLE equipment (e.g., computer hardware, vocational

simulation software, and e-commerce platforms). School administrators should strengthen professional development by ensuring that training programs are supported with adequate materials, digital equipment, and time for collaboration, while providing regular mentoring, peer coaching, and well-resourced Learning Action Cells (LACs) to help teachers apply new skills and continue growing professionally.

School administrators should also forge stronger partnerships with industry stakeholders to provide authentic, hands-on learning opportunities, updated competencies, and real-world exposure for both teachers and students. Strengthening these linkages will bridge the gap between classroom instruction and workplace demands, ultimately enhancing teacher proficiency and student readiness. The Division Office and ICT coordinators should offer regular, hands-on digital training that covers both basic and advanced tools, including simulation software and design platforms used in TLE. Trainings should be aligned with classroom needs, differentiated by skill level, and designed to build teacher confidence and promote effective technology integration.

School heads should continue using the IPCRF to guide teacher growth by providing clear feedback, setting achievable goals, and following up on professional development plans, while encouraging teachers to reflect on their progress and recognize their strengths to maintain high performance and motivation.

Additionally, supportive working conditions should be promoted by managing teachers' workloads, allocating dedicated time for collaboration, and minimizing non-teaching responsibilities. Recognizing teachers' efforts and achievements can further strengthen motivation and professional engagement. To ensure effective implementation, each recommendation should include a plan with timelines, assigned responsibilities, and measurable outcomes.

Collectively, these actions are feasible within the context of public schools in Maramag, Bukidnon, and aim to strategically enhance professional development, digital literacy, and supportive environments, ultimately improving teacher performance and instructional quality.

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