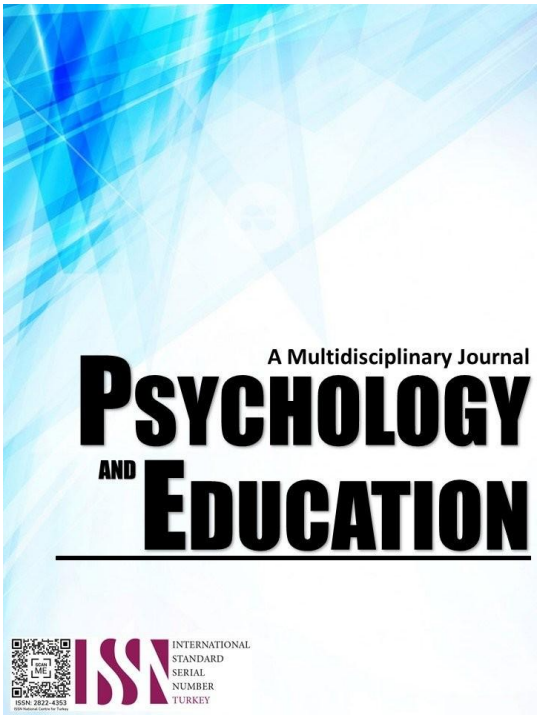
BEST PRACTICES IN DIGITAL LEARNING IMPLEMENTATION: A CASE OF TVL SHS TEACHERS



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

Volume: 45
Issue 8
Pages: 965-980
Document ID: 2025PEMJ4411
DOI: 10.70838/pemj.450805
Manuscript Accepted: 07-22-2025

Psych Educ, 2025, **45**(8): 965-980, Document ID:2025PEMJ4411, doi:10.70838/pemj.450805, ISSN 2822-4353

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Research Article

Best Practices in Digital Learning Implementation: A Case of TVL SHS Teachers

Lea S. Ayala,* Edilberto Z. Andal
For affiliations and correspondence, see the last page.

Abstract

The integration of digital learning in Technical-Vocational-Livelihood (TVL) education has become increasingly critical in modernizing instructional practices and enhancing student engagement. Despite various national initiatives, challenges persist in effectively utilizing digital tools, particularly among Senior High School (SHS) TVL teachers in Biñan City, Laguna. This study aimed to explore and identify the best practices in digital learning implementation among TVL SHS teachers, addressing the pressing need to bridge traditional hands-on technical education with emerging digital strategies. Employing a qualitative case study design, the research engaged ten purposively selected TVL SHS teachers from Biñan City. Semi-structured interviews served as the primary data collection method, supplemented by classroom observations and document reviews. Data were analyzed using thematic analysis, focusing on patterns in digital tool integration, instructional strategies, challenges faced, and student engagement impacts. Triangulation with feedback from head teachers and master teachers enhanced the study's credibility and validity. Findings revealed that TVL SHS teachers commonly used presentation tools, Learning Management Systems, and real-time assessment applications. Best practices included blending traditional and digital methods, using multimedia for complex topics, facilitating collaborative tasks through online platforms, and engaging students with project-based digital outputs. Challenges noted included inconsistent internet access, varying levels of digital literacy, and resource limitations. Nevertheless, teachers demonstrated resilience by adopting flexible and student-centered strategies. The study underscores the importance of strategic digital tool integration to enhance skill development, engagement, and learning outcomes in technical education. While significant strides were observed, infrastructural gaps and training needs persist. These findings have implications for educational policy, highlighting the necessity for targeted professional development, institutional support, and improved access to technology. Future studies should investigate the longitudinal effects of digital innovations on technical-vocational learning outcomes.

Keywords: *digital learning, Technical-Vocational-Livelihood (TVL) education, blended learning, competency-based learning, instructional strategies*

Introduction

The rapid advancement of digital learning has greatly reshaped various sectors, including education. Digital learning refers to any form of learning facilitated by technology, encompassing tools and practices that leverage technological advancements to enhance educational experiences. Fawns (2019) states that digital learning involves both the content being taught and the means of learning, emphasizing the integration of digital tools into educational practices to foster engagement and improve learning outcomes.

Over the past decade, digital learning has shifted from being just an auxiliary tool to an essential part of modern teaching methods. The COVID-19 pandemic accelerated this transition, prompting educators worldwide to shift from traditional face-to-face instruction to digital and hybrid learning setups (Kar & Bothra, 2023). While the adoption of digital learning helped maintain educational continuity, it also exposed significant challenges—especially in teachers' preparedness, access to technology, and the effectiveness of using digital platforms in classroom instruction (Pratama et al., 2023; Sheppard, 2021). These issues are even more noticeable in the Technical-Vocational-Livelihood (TVL) track, where hands-on training and real-world learning experiences are crucial for student success.

In the Philippines, the implementation of the K-12 curriculum reinforced the importance of preparing students for employment, entrepreneurship, or higher education, with the TVL track playing a critical role in equipping learners with technical skills. Recognizing the significance of quality TVL education, the Department of Education (DepEd) has launched various initiatives, including the MATATAG Curriculum, which emphasizes competency-based learning and digital integration to enhance instructional delivery. Additionally, the Philippine Development Plan (PDP) 2023-2028 underscores the importance of technological advancements in improving educational outcomes and addressing learning gaps exacerbated by the pandemic (National Economic and Development Authority [NEDA], 2023). Similarly, the United Nations Sustainable Development Goal (SDG) 4 calls for inclusive and equitable quality education, highlighting the need for digital learning innovations to ensure accessibility and engagement for all learners (United Nations, 2020).

Despite these efforts, challenges persist in digital learning implementation, particularly among TVL Senior High School (SHS) teachers in Biñan City, Laguna. Digital learning tools such as Learning Management Systems (LMS), virtual simulations, and multimedia platforms offer promising opportunities for enhanced engagement and skill development. However, the extent to which TVL teachers effectively utilize these technologies remains largely unexplored. Some studies have identified barriers such as limited

digital literacy, lack of institutional support, and inadequate infrastructure as factors hindering the seamless integration of digital learning in technical-vocational education (El Refae et al., 2021; Sari & Nayır, 2020). These challenges necessitate an in-depth investigation into best practices that can optimize digital learning strategies for TVL education.

This study aims to identify best practices in digital learning implementation by analyzing the integration of digital learning tools in TVL instruction and the strategies employed by SHS TVL teachers in Biñan City. By utilizing a case study approach, this study seeks to contribute to existing literature on digital learning implementation while providing practical recommendations for educators, policymakers, and stakeholders. The findings will not only support TVL teachers in refining their instructional methods but also inform curriculum developers and educational leaders in designing technology-driven policies that align with the evolving needs of technical-vocational education.

From a professional perspective, this study is highly relevant to my field as an educator specializing in Technology and Home Economics. As digital transformation continues to shape pedagogical landscapes, teachers must adapt and optimize digital tools to enhance instruction. Conducting this study aligns with my commitment to fostering innovation in education and ensuring that TVL students receive quality, industry-relevant training that prepares them for the demands of the modern workforce. By identifying best practices in digital learning implementation, this study aims to bridge the gap between traditional technical-vocational teaching methods and contemporary digital advancements, ultimately improving the overall quality of TVL education in the Philippines.

Through this study, the researcher aspires to contribute to the broader discourse on digital learning and its potential to revolutionize technical-vocational education. The insights gained from this study will not only benefit TVL teachers and students but also serve as a valuable resource for policymakers and educational institutions striving to enhance the effectiveness of digital learning in the post-pandemic era.

Research Questions

The primary problem addressed by this study is to identify the best practices in implementing digital learning for TVL SHS teachers. Specifically, this study sought to answer the following research questions:

1. What digital learning tools are currently used by TVL SHS teachers?
2. How do TVL SHS teachers integrate these digital learning tools into their instructional strategies and classroom activities?
3. What challenges do TVL SHS teachers encounter in implementing digital learning?
4. What are the emerging themes and patterns in digital learning implementation among TVL SHS teachers based on their experiences and perspectives?
5. Based on the findings, what best practices can be recommended for effective digital learning implementation in the TVL track?

Literature Review

Digital Learning

Bygstad et al. (2022) examined the impact of the shift in education during the COVID-19 pandemic, particularly focusing on the evolution of online learning environments. They analyzed two key aspects of digitalization—methods and subject areas—which had previously posed challenges in establishing a unified digital platform. The researchers identified three core driving factors behind the emergence of digital learning spaces: aligning education with subject matter, redefining roles between teachers and students, and breaking down institutional barriers to engage with a broader community.

De Vega and Arifin (2022) explored how teachers in North Kalimantan were adapting to digital learning (D-learning). Their study collected data to assess and improve teaching practices while evaluating effectiveness. Using a survey questionnaire, the research focused on four aspects of D-learning, based on Keane's framework. Findings revealed that 87.32% of teachers rated their technology proficiency as good to excellent, while 78.88% felt comfortable managing online learning, and 79.05% believed they could effectively deliver online education.

The global economic and social crisis triggered by the COVID-19 pandemic significantly impacted education, leading to the suspension of in-person classes in many countries. In response, live online learning was rapidly introduced, with Asia taking the lead in implementation. A study by Tang et al. (2021) explored factors such as learning motivation, readiness, and self-efficacy in digital learning during these challenging times. Interestingly, the study found no significant differences between female and male students; however, postgraduate students exhibited higher scores compared to undergraduates and secondary school students. This suggests a reduction in gender disparities, attributed to increased initiative among learners. The study recommends that teachers incorporate interactive activities and encourage student-to-student interactions to improve online learning readiness.

Additionally, remote learning strategies were quickly adopted to meet evolving educational demands (Dincher & Wagner, 2021). Within a short period, educational institutions at all levels transitioned to online teaching methodologies. The urgent shift toward web-based instruction and distance learning technologies enabled real-time engagement between teachers and students, regardless of their locations.

Popular platforms such as Zoom, Google Hangouts, Adobe Connect, and others played a crucial role in facilitating virtual classrooms (Sharma & Sarin, 2021; Rippe et al., 2021).

It is important to note that distance education has existed for over two centuries, serving as a means of bridging geographical barriers between students and teachers, a fact that became even more relevant during the pandemic. The widespread availability of multimedia content on the internet has made asynchronous video lectures a key feature of remote learning. Furthermore, improved bandwidth capabilities have facilitated online education on a global scale. Bashir et al. (2021) observed that post-pandemic, schools worldwide implemented a blend of instructional modes, integrating digital and face-to-face teaching strategies.

As the Philippines gradually transitions back to face-to-face classes, the future of digital learning remains uncertain, yet it continues to be a viable alternative—heavily dependent on internet resources. Additionally, the Commission on Higher Education (CHED) and Higher Education Institutions (HEIs) should provide support to teachers in adapting to digital education and addressing connectivity challenges. Despite its limitations, the remote learning environment has unveiled new possibilities for education, as highlighted by Hoss et al. (2022). According to Huang et al. (2021), the COVID-19 pandemic has driven the development of digital resources and teaching methods in schools.

Teachers' Experiences in Digital Learning

Genton et al. (2023) explored the experiences of sixth-grade teachers at Malapatan Central Elementary School amidst the challenges posed by the COVID-19 pandemic, focusing on how they utilized self-learning modules during this period. The study revealed that the abrupt shift brought hardships for teachers, leading to feelings of disconnect from their profession, students, and even themselves. Despite these obstacles, teachers maintained a positive outlook and remained committed to adapting to the situation.

Furthermore, the research examined factors influencing students' motivation, preparedness, and belief in their abilities, while also analyzing gender variances and differences across educational levels. The study observed no disparities between female students, but postgraduate students exhibited higher scores compared to undergraduates and secondary-level learners. The study's implications suggest that teachers should incorporate interactive activities and encourage real-time student interactions to enhance online learning experiences.

When exploring approaches to Technical Livelihood Education (TLE), teachers may find electronic modular learning particularly beneficial. Flores et al. (2021) found that TLE courses, rooted in activity theory and social constructivism, have proven effective in enhancing student achievement in online learning environments. The use of Alternative Delivery Modes (ADM), along with access to diverse courses, has significantly improved the academic performance of secondary school students. The study highlights the importance of hands-on experience, project work, and content mastery in TLE subjects.

Students perceive TLE classrooms as inviting, comfortable, and conducive to learning when teachers provide strong guidance (Villegas, 2022). Classroom management plays a critical role in maintaining student engagement and fostering a collaborative learning atmosphere. Osorio (2021) highlights that students responded positively to using messenger chatbots as assessment tools, as they provided instant feedback and boosted students' confidence during tests and quizzes.

A study by Mahyoob (2020) found that the sudden transition to online learning significantly impacted students' academic performance due to technical issues, such as internet connectivity problems and platform glitches. Research has documented learning disruptions among students (Patrinos et al., 2022; Asakawa & Ohtake, 2021). Gayares et al. (2022) recommend the implementation of learning recovery policies by schools, teachers, and education stakeholders to mitigate these setbacks.

Beinert et al. (2021) noted inconsistencies between the recommended curriculum practices and the actual teaching methods of TLE teachers. A mismatch exists between student and teacher perspectives, particularly in the emphasis on nutrition and the time allocated for student activities and assessments. A well-rounded approach to nutrition education is essential to meet curriculum standards and enhance educational outcomes.

Online Learning Environments (OLEs) facilitate learning by allowing teachers and students to interact through digital platforms. Unlike traditional lecture-based methods, OLEs promote knowledge creation through student-teacher interactions. Various e-learning resources, including e-books, instructional videos, and interactive presentations, enhance learning effectiveness and encourage knowledge sharing among students and teachers. The use of Constructivism, Web 2.0 tools, and multimedia resources in OLEs has been instrumental in fostering engaging learning experiences and improving educational outcomes.

Social Interactive Learning Environments (SILEs) integrate Information and Communication Technology (ICT) into student-centered teaching practices.

The real-world experiences of TLE teachers implementing distance learning in the Philippines highlight resilience and adaptability. Despite facing challenges due to the pandemic, many TLE educators have demonstrated a strong commitment to teaching, supported by institutional initiatives and student evaluations. Their ability to navigate obstacles, embrace digital tools, and sustain student engagement underscores the importance of continuous training and policy support in ensuring the effectiveness of digital learning implementation.

Technology Integration

Akram et al. (2022) examined how teachers in Pakistan perceive the integration of technology in their teaching practices. The findings highlight that teachers see technology as a tool that enhances teaching methods, encourages learning environments, and sustains student motivation. Despite these advantages, challenges such as internet connectivity, frequent power outages, inadequate infrastructure, lack of teaching experience, and insufficient training hinder the effective incorporation of technology. The study suggests that policymakers should establish guidelines, allocate funds, and offer professional development opportunities to help teachers leverage ICT effectively in their teaching approaches.

Strategies in Digital Learning Implementation

Abdul and Silor (2024) evaluated the teaching strategies and techniques of Technical-Vocational-Livelihood (TVL) teachers in Lanao del Sur, focusing on pedagogical training programs. The research involved ten TVL Senior High School teachers and utilized semi-structured questionnaires and interviews. Findings indicate that TVL teachers adapt their teaching methods based on resource availability, experience levels, and financial constraints. However, resource limitations hinder practical skill development and alignment with the TVL curriculum. Despite these challenges, TVL teachers remain committed to student-centered learning principles and technological integration. The study emphasizes the need for targeted pedagogical training interventions.

Saro et al. (2022) examined the perceptions and experiences of Grade 12 TVL strand students at San Luis National High School during the 2021-2022 school year, focusing on the new standard education system. Students faced academic difficulties and health risks, yet relied on their peers for support. The study suggests that students in traditional learning environments prefer face-to-face instruction, whereas those in the new standard system lean toward conventional educational methods. The research employed a qualitative research design with a phenomenological approach.

Sumbilon and Valmorida (2023) explored the effectiveness of teaching strategies in modular distance learning, analyzing parental involvement, student self-efficacy, and academic performance among TVL students. The study involved 44 teachers, 198 parents, and 198 students from four secondary schools in Bukidnon, Quezon, Bukidnon.

Findings revealed the use of diverse instructional techniques, positive communication between parents, school administrators, and teachers, and high self-confidence among students. The study also found a favorable correlation between parental engagement and student self-efficacy, identifying parental involvement as the most influential factor in TVL students' academic success.

Akintayo et al. (2024) examined the impact of educational technology on learning outcomes in higher education. The study identified patterns, themes, and gaps in existing literature, reviewing 47 studies on learning management systems, online simulations, and digital collaborative tools. Key findings suggest that the success of educational technology depends on its pedagogical use, implementation approach, and context. The study emphasizes the importance of faculty training and institutional support in maximizing technology's benefits. Future research should include longitudinal studies to assess long-term effects.

Goneda et al. (2021) utilized Kotobee software to design interactive e-learning modules for Grade 12 TVL-ICT programming students at Lagro Senior High School. The study employed quantitative, descriptive, and developmental research methods, collecting data via Google Forms during the pandemic-induced online learning setup.

Dalcon (2023) examined the experiences of TVL students in the Flexible Learning Program (FLP) through the lens of Gagné's Nine Events of Instruction. The study identified challenges in implementing systematic teaching approaches and provided evidence-based insights for curriculum development. Recommendations include professional development for educators, instructional design support, mentoring programs, student support services, and strengthening technology infrastructure.

Barrera (2022) aimed to improve the availability of instructional materials for TVL curriculum implementation. The study used a descriptive-correlational design, developing a survey questionnaire piloted in public senior high schools in Bayawan City. Findings revealed that instructional materials play a crucial role in developing learners' skills, with limited access hindering learning progression.

Bartolome (2023) investigated the preferred teaching and learning modalities in TVL cookery within Surigao del Sur Division, focusing on Senior High School cookery specialization in the CarCanMadCarLan area. The research used a descriptive survey method, analyzing data through weighted percentage mean and one-way ANOVA.

Results showed that both teachers and students preferred a blended learning approach, combining face-to-face instruction with digital methods. The study suggests that a hybrid setup facilitates easier access to learning materials and ensures timely feedback.

Domingo and Mina (2024) investigated technology integration in Philippine Senior High Schools, revealing positive attitudes among teachers toward digital learning. However, challenges such as infrastructure limitations and insufficient technological content knowledge hinder effective implementation. Findings indicate that age and rank influence teachers' perceptions of technology adoption. To improve technology integration, the study recommends investments in infrastructure, professional development initiatives, and tailored support programs.

Challenges in Digital Learning Implementation in TVL

The COVID-19 pandemic has significantly impacted the education system, presenting financial, technological, and emotional challenges for administrators, teachers, and students. A qualitative research study identified teacher complaints, staff shortages, accountability concerns, and transportation issues as major obstacles. Teachers faced difficulties in instructional delivery, student safety, internet connectivity, and assessment authenticity. Meanwhile, students struggled with parental support, inadequate resources, and adjustment to the new normal. Suggested solutions include stakeholder collaboration, strong relationships, and transformational leadership. A learning continuity plan, agreed-upon modality choices, and capacity-building programs were implemented to address these challenges (Nebrida et al., 2022).

Nebrida et al. (2022) also examined the challenges and opportunities faced by Senior High School students at St. Paul University Surigao in online learning, using a quantitative method and statistical analysis. The research focused on student profiles, online class utilization, Quipper as a learning management system, and Paulinian ReFlex stations. The study found no significant differences in the challenges and opportunities among students, except for their experience with online classes.

Mamayabay and Quilestino (2024) analyzed students' motivations and challenges in Technology and Livelihood Education (TLE) during the pandemic. The study identified four common themes: continuation of academic journey, financial constraints, access to supplementary materials, and TLE as a complex field. The study suggests that future research should investigate specific areas or dimensions of the TLE program.

The SHS TVL caregiving program was assessed using Stufflebeam's CIPP evaluation model to determine its alignment with the school's mission, government regulations, and supportive school climate. However, challenges such as inadequate facilities persist. Despite these limitations, the program positively impacts students' academic performance, TESDA assessment results, and satisfaction levels. Recommendations include infrastructure investment, professional development for instructors, enhanced technology integration, strengthened industry partnerships, and resource improvement (Metante, 2024).

Digital education is a modern innovation that aims to digitize segments of the education system. The digital revolution has increased global access to information and improved communication among academics. The higher education system must embrace ICT to ensure quality education and maintain competitiveness. This study discusses the challenges in adopting digital transformation and provides insights into the future digitalization of higher education (Alenezi et al., 2023).

Online teaching has become an integral part of education worldwide, but in developing countries, it is not fully recognized. The COVID-19 lockdowns forced governments to implement e-learning, introducing various challenges. A study of 968 English teachers revealed that most had negative perceptions of e-learning due to limited resources, lack of ICT skills, and low student engagement. To address these challenges, the research suggests integrating ICT modules, launching intensive training programs, and developing educational facilities in schools and education departments (Sofi-Karim et al., 2022).

Methodology

Research Design

This study employed a qualitative case study design to explore the best practices in digital learning implementation among Technical-Vocational-Livelihood (TVL) Senior High School (SHS) teachers in Biñan City, Laguna. According to McCombes (2023) case study approach was deemed appropriate for investigating real-life experiences, behaviors, and strategies within a specific context.

Participants

The participants for this study were ten (10) Senior High School (SHS) Technical-Vocational-Livelihood (TVL) teachers from public schools in Biñan City, Laguna. The selection criteria included teachers who were teaching in the SHS TVL track, had been using digital learning tools in their teaching for at least five academic years, were actively engaged in various professional development activities related to their area of specialization, and were willing to participate in interviews and share their experiences.

Instrument

This study utilized semi-structured interviews as the primary instruments to gather in-depth data on the best practices in digital learning implementation among TVL SHS teachers in Biñan City, Laguna. These instruments were designed to explore participants' experiences, strategies, and challenges in integrating digital learning tools into their teaching.

The semi-structured interview guide was developed based on the research objectives and relevant literature. It contained open-ended questions that allowed participants to elaborate on their digital teaching experiences, best practices, and perceptions regarding the effectiveness of digital learning strategies. The flexibility of semi-structured interviews enabled follow-up questions, ensuring a deeper exploration of emerging themes.

Following ethical guidelines for research conduct, these instruments underwent content validity to ensure their appropriateness, soundness, and relevance to the research objectives. Content validation was conducted with the assistance of subject experts and

education specialists, who carefully examined each item for relevance, clarity, conciseness, and correctness. The results served as inputs for revising the instruments. Participants were required to sign a data privacy form and provide informed consent to formalize their agreement to participate in the research.

Procedure

Several activities were undertaken to conduct the research. Before the actual data collection, the researcher secured an endorsement letter from the Office of the Schools Division Superintendent of Biñan in Laguna. Once the endorsement letter was secured, the researcher personally proceeded to the Office of the School Principal in different senior high schools in the Division of Biñan and explained the objectives and time frame of the study, along with the request letter and endorsement. Once approved, the researcher set an orientation schedule with the concerned teachers to explain the activities related to the conduct of the research. An initial confirmation of the participants was also taken to note the number of recruited teachers.

During the data collection, the researcher carefully adhered to ethical guidelines in conducting social science research and followed data privacy protocols. Participants were asked to sign forms for the disclosure of results and to agree on the boundaries of the data collection process. The researcher explained to them their rights throughout the research data collection period. Furthermore, the researcher interviewed the participants at their convenience, both in terms of time and place. Permission to record the entire session was secured to ensure strict adherence to ethical standards. The interview lasted approximately fifteen (15) to twenty-five (25) minutes, depending on the depth and breadth of the information shared by the participants. No coercion was applied at any stage of the process.

After the data collection process, the researcher analyzed the qualitative data using a case study methodology. The themes generated from the participants' responses were cross-validated through triangulation procedures. Once the data had been validated and scrutinized, the researcher shared them with the participants in follow-up sessions. Participants were allowed to raise clarifications, corrections, and suggestions during this stage to ensure the credibility and accuracy of the analyzed data, reflecting the real experiences of the TVL teachers in digital learning implementation.

Data Analysis

To address the research questions outlined in the statement of the problem, this study employed phase thematic analysis as the primary method for analyzing qualitative data collected from semi-structured interviews with TVL SHS teachers in Biñan City, Laguna. Thematic analysis was deemed appropriate as it provided a flexible yet rigorous framework for identifying, analyzing, and reporting patterns or themes within qualitative data, specifically relating to the best practices in digital learning implementation.

The analysis began with the familiarization phase, where the researcher transcribed the interviews verbatim and read and re-read the transcripts to become deeply immersed in the data. This step was crucial for gaining a comprehensive understanding of the participants' responses in their real-life contexts.

In the second phase, the initial coding process was conducted manually. Significant phrases, sentences, or paragraphs related to the research questions were systematically identified and assigned concise codes. These codes served as the foundational units for theme development.

The third phase involved searching for themes, where the generated codes were organized into potential themes and sub-themes that reflected recurring ideas, strategies, and experiences relevant to digital learning practices. The fourth phase, reviewing themes, ensured that each theme was internally coherent and distinct from others, and that the themes accurately captured the data set as a whole.

In the fifth phase, the themes were clearly defined and named, ensuring that they aligned directly with the research questions and the overall objectives of the study. The final phase involved the production of the report, where the themes were integrated into a structured narrative supported by direct quotations from participants. This narrative provided meaningful insights into the digital learning practices of TVL SHS teachers and directly addressed each research question.

Ethical Considerations

Aside from the measures mentioned above, the researcher strictly followed the ethical guidelines outlined by Creswell (2013). These guidelines ensured ethical practices throughout the study. In addition to securing signed agreements, the researcher considered the social setting and discipline before, during, and after the research process.

Before conducting the study, the researcher disclosed all necessary information to the participants regarding the objectives, processes, benefits, and potential disadvantages of their participation through a short orientation. Participants were encouraged to raise concerns, clarifications, and suggestions regarding the research activities. During data collection, efforts were made to minimize risks, and participants had the right to withdraw if they experienced discomfort. They were also allowed to propose alternative actions if any activity posed harm. After the study, the researcher properly disseminated the results for validation, ensuring anonymity to protect participants from potential risks or bias. Furthermore, they were given the right to remove any information they found insulting or disempowering before publication or public dissemination.

Results and Discussion

Table 1. *Annotated Exemplars on the Digital Learning Tools Most Frequently Used in Class*

Theme	*Code*	*Description*	*Responses*
Presentation and Engagement Tools	Prezi, PowerPoint, Animoto, Canva	Tools used for creating dynamic, engaging visual presentations to aid student learning.	Teacher A: "I'd say Prezi. It was the first app aside from Microsoft PowerPoint I learned to use, and it's really helpful for making my presentations more engaging and dynamic." Teacher G: "For lesson presentations, I combine PowerPoint slides with videos from YouTube to give students a visual demonstration of welding techniques. I also use Animoto to create short instructional videos." Teacher J: "I use Canva for presentations and YouTube for instructional videos to enhance visual learning."
Learning Management Systems (LMS) and Collaboration Platforms	Google Classroom, Google Workspace, Google Meet, Jamboard, Padlet	Platforms for class management, organizing lessons, collaborative brainstorming, discussions, and assessments.	Teacher E: "Google classroom because it is like a virtual classroom where I can interact with my students." Teacher D: "I always use Google Drive as their storage since it's more accessible." Teacher H: "During the pandemic, I used Google Meet for online lectures... I posted materials and announcements on Google Classroom. I've also explored Jamboard." Teacher G: "We use Padlet where students can post their insights, share project updates, and collaborate on activities." Teacher J: "I maximize the use of Google Workspace tools (Google Meet, Classroom, and Jamboard) for organizing lessons, assessments, and collaborative activities."
Assessment and Quizzing Tools	Formative, Socrative, Quizziz, Evalbee	Apps focused on creating quizzes, real-time assessments, and monitoring student progress.	Teacher B: "I regularly use Formative, Socrative... Formative helps me assess student progress in real-time, Socrative makes quizzes and assessments interactive." Teacher C: "I use certification in their assessment using Quizziz where learning associates with the fun and excitement." Teacher F: "I used evalbee and Excel for administration of exam and finding statistical analysis for the result."
Multimedia and Video-Based Learning Tools	YouTube, Animoto	Use of videos for enhanced understanding, visual demonstrations, and student-created projects.	Teacher G: "PowerPoint slides with videos from YouTube... Animoto to create short instructional videos on welding procedures." Teacher I: "YouTube: A widely used tool for sharing videos on a variety of topics."
Specialized and Programming Tools	Java IDE (NetBeans), Kodular, Visio Tech	Tools specialized for technical skills development like programming, mobile app creation, and diagramming.	Teacher C: "I frequently use Microsoft productivity tools, Google workspace, Canva, Quizziz, and Java IDE tools like NetBeans." Teacher J: "I also use Kodular, a platform that allows students to create simple mobile applications... and Visio tech for sketches and diagrams."

Under the theme Presentation and Engagement Tools, participants shared the tools they frequently utilized to make lessons more dynamic and engaging.

Teacher A stated, "I'd say Prezi. It was the first app aside from Microsoft PowerPoint I learned to use, and it's really helpful for making my presentations more engaging and dynamic." Similarly, Teacher G mentioned, "For lesson presentations, I combine PowerPoint slides with videos from YouTube to give students a visual demonstration of welding techniques. I also use Animoto to create short instructional videos."

For the theme Learning Management Systems (LMS) and Collaboration Platforms, participants highlighted platforms used for managing lessons and fostering collaboration.

Teacher E shared, "Google classroom because it is like a virtual classroom where I can interact with my students." Teacher H recounted, "During the pandemic, I used Google Meet for online lectures... I posted materials and announcements on Google Classroom. I've also explored Jamboard."

In terms of Assessment and Quizzing Tools, participants discussed the digital apps they employed for evaluating student performance and providing feedback.

Teacher B shared, "I regularly use Formative, Socrative... Formative helps me assess student progress in real-time, Socrative makes quizzes and assessments interactive." Teacher C mentioned, "I use certification in their assessment using Quizziz where learning associates with the fun and excitement."

For the Multimedia and Video-Based Learning Tools category, teachers pointed out their use of video materials to enhance students' understanding of technical content.

Teacher G stated, "PowerPoint slides with videos from YouTube... Animoto to create short instructional videos on welding procedures." Teacher I affirmed, "YouTube: A widely used tool for sharing videos on a variety of topics."

Finally, under Specialized and Programming Tools, participants emphasized using applications that help develop technical competencies.

Teacher C stated, "I frequently use Microsoft productivity tools, Google workspace, Canva, Quizziz, and Java IDE tools like NetBeans." Meanwhile, Teacher J shared, "I also use Kodular, a platform that allows students to create simple mobile applications... and Visio tech for sketches and diagrams."

Table 2. *Annotated Exemplars of Specific Instance Where Digital Learning Significantly Enhanced Teaching or Student Learning*

Theme	*Code*	*Description*	*Responses*
Enhanced Student Engagement and Retention	Multimedia Presentations, Visual Aids	Teachers use videos, images, and animations to help students retain complex topics and stay engaged.	Teacher A: "There was this one time I used a multimedia presentation with videos and images to explain a complex topic. The students were so engaged, and I noticed they retained the information much better." Teacher J: "Before the laboratory work, pictures and videos presented in the learning presentation are seen to attract their attention to pay attention."
Real-Time Feedback and Assessment	Formative, Simulations	Tools provide immediate feedback and enhance personalized learning.	Teacher B: "I used Formative to conduct a live assessment during a hands-on troubleshooting activity. Students could immediately see their results and correct their mistakes on the spot." Teacher I: "During a virtual CSS class using interactive simulations, students could manipulate variables in real-time... this approach improved their grasp of the material."
Collaborative Learning and Peer Interaction	Google Jamboard, Padlet	Tools like Jamboard and Padlet promote interaction, brainstorming, and group work.	Teacher H: "I used Google Jamboard for a collaborative activity on electrical wiring diagrams... it helped them visualize connections and encouraged peer discussions." Teacher G: "We use Padlet for sharing reflections and group activities, especially when discussing safety protocols and best practices in welding."
Project-Based Demonstration of Skills	Animoto, Kodular	Students apply technical knowledge in creative projects, showcasing understanding and creativity.	Teacher G: "I assign students to create short welding tutorials using Animoto, which allows them to demonstrate and explain key techniques visually." Teacher J: "I use Kodular, a platform that allows students to create simple mobile applications... they can design digital troubleshooting guides or maintenance trackers."
Practical Application in Assessments	Evalbee, Excel	Use of digital tools in administering assessments and analyzing performance outcomes.	Teacher F: "I used evalbee and Excel for administration of exam and finding statistical analysis for the result... it helps a lot for me in doing sketches and diagrams and electrical plans."

Under the theme Enhanced Student Engagement and Retention, participants shared how multimedia tools helped students better focus and retain complex lessons.

Teacher A narrated, "There was this one time I used a multimedia presentation with videos and images to explain a complex topic. The students were so engaged, and I noticed they retained the information much better." Similarly, Teacher J mentioned, "Before the laboratory work, pictures and videos presented in the learning presentation are seen to attract their attention to pay attention."

The theme Real-Time Feedback and Assessment highlights the teachers' use of digital platforms that provide immediate feedback, facilitating instant correction and deeper learning.

Teacher B shared, "I used Formative to conduct a live assessment during a hands-on troubleshooting activity. Students could

immediately see their results and correct their mistakes on the spot." Teacher I also pointed out, "During a virtual CSS class using interactive simulations, students could manipulate variables in real-time... this approach improved their grasp of the material."

In the theme Collaborative Learning and Peer Interaction, participants emphasized the role of digital tools in promoting peer discussions and group work.

Teacher H reflected, "I used Google Jamboard for a collaborative activity on electrical wiring diagrams... it helped them visualize connections and encouraged peer discussions." Meanwhile, Teacher G recounted, "We use Padlet for sharing reflections and group activities, especially when discussing safety protocols and best practices in welding."

The theme Project-Based Demonstration of Skills illustrated how digital tools enabled students to creatively apply technical knowledge.

Teacher G explained, "I assign students to create short welding tutorials using Animoto, which allows them to demonstrate and explain key techniques visually." Teacher J added, "I use Kodular, a platform that allows students to create simple mobile applications... they can design digital troubleshooting guides or maintenance trackers."

Finally, under Practical Application in Assessments, the integration of digital tools helped streamline evaluation processes.

Teacher F stated, "I used evalbee and Excel for administration of exam and finding statistical analysis for the result... it helps a lot for me in doing sketches and diagrams and electrical plans."

Table 3. *Annotated Exemplars of the Strategies Employed to Integrated Digital Tools in Lesson Plans and Activities*

Theme	*Code*	*Description*	*Responses*
Blended Learning Approach	Combining Digital and Traditional Methods	Teachers balance the use of digital resources with hands-on activities and face-to-face interactions to enhance learning.	Teacher B: "I incorporate blended learning by combining digital quizzes in Socrative, video-based learning via Animoto, and live assessments using Formative." Teacher H: "Teaching strategies are used for blended learning especially for quizzes." Teacher C: "I balance digital learning with hands-on activity and face-to-face interaction to avoid overreliance on technology."
Inquiry-Based and Simulation Learning	Inquiry Tasks, Digital Simulations	Inquiry and simulations help students develop critical thinking and problem-solving skills.	Teacher F: "Inquiry-based learning and simulation approach." Teacher I: "Identify Learning Objectives, Select Appropriate Tools, Incorporate Blended Learning, Provide Training and Support."
Use of Interactive and Collaborative Platforms	Google Jamboard, Padlet, Group Activities	Encouraging collaboration through shared digital platforms for brainstorming and group work.	Teacher H: "Use of Jamboard for collaborative activities like brainstorming safety procedures and troubleshooting steps." Teacher G: "We use Padlet for sharing reflections and group activities." Teacher J: "For cooperative learning, I encourage students to engage in Jamboard discussions and collaborate on Kodular-based projects."
Project-Based Learning Integration	Student-Created Projects, Digital Tasks	Assignments involve creating digital outputs like apps, videos, diagrams to demonstrate skills.	Teacher G: "Assign students to create short welding tutorials using Animoto." Teacher J: "Students design digital troubleshooting guides or maintenance trackers using Kodular."
Digital Resource Management and Asynchronous Learning	Use of LMS, Offline Access	Organizing learning materials and activities using platforms like Google Classroom and enabling offline access to resources.	Teacher D: "I integrated digital tools in making their final outputs. I ask my students to upload their work in Google Drive." Teacher E: "Inquiry-based learning through Google Classroom." Teacher J: "Use Google Classroom for asynchronous activities where students review videos, complete quizzes, and submit reports."

Under the theme Blended Learning Approach, several teachers described the use of both digital tools and traditional methods to support student learning.

Teacher B stated, "I incorporate blended learning by combining digital quizzes in Socrative, video-based learning via Animoto, and

live assessments using Formative." Teacher H added, "Teaching strategies are used for blended learning especially for quizzes."

For the theme Inquiry-Based and Simulation Learning, the integration of digital simulations and inquiry-focused tasks was highlighted.

Teacher F summarized the strategy as, "Inquiry-based learning and simulation approach." Teacher I explained the process more systematically, saying, "Identify Learning Objectives, Select Appropriate Tools, Incorporate Blended Learning, Provide Training and Support."

The theme Use of Interactive and Collaborative Platforms was illustrated through the incorporation of digital platforms that support cooperative activities.

Teacher H shared, "Use of Jamboard for collaborative activities like brainstorming safety procedures and troubleshooting steps." Teacher G added, "We use Padlet for sharing reflections and group activities."

Under the theme Project-Based Learning Integration, digital tools were used to create meaningful and performance-based tasks.

Teacher G recounted, "Assign students to create short welding tutorials using Animoto." Teacher J described a similar initiative: "Students design digital troubleshooting guides or maintenance trackers using Kodular."

The final theme, Digital Resource Management and Asynchronous Learning, emphasized strategies for organizing class materials, managing outputs, and enabling access beyond synchronous sessions.

Teacher D stated, "I integrated digital tools in making their final outputs. I ask my students to upload their work in Google Drive." Teacher E explained, "Inquiry-based learning through Google Classroom."

Table 4. *Annotated Exemplars of the Challenges Encountered in Implementing Digital Learning*

Theme	*Code*	*Description*	*Responses*
Limited Internet Connectivity	Poor Signal, Unstable Connection	Teachers and students alike face disruptions due to weak or unavailable internet access during classes.	Teacher B: "One major challenge is limited internet connectivity in the classroom... I pre-download resources and use offline versions of some applications." Teacher E: "One challenge that I found difficult is having the Internet access. I told my students to find a place with free Internet access." Teacher H: "One of the biggest challenges is the lack of internet access and devices for many students."
Lack of Devices and Resources	No Gadgets, Inadequate Facilities	Students and teachers lack sufficient access to digital tools like laptops, tablets, and multimedia equipment.	Teacher G: "The challenge is that not all students have their own gadgets. Mostly we use computers from school." Teacher J: "Lacking of the necessary software, units, and connectivity... I rather resort to traditional teaching and learning process." Teacher D: "The only problem we have in digital tools is that it's availability to access by the students at home... I let them access it in school."
Digital Literacy Gaps	Low Tech Skills, Limited Familiarity	Some students and teachers are not familiar with using digital tools, impacting learning and performance.	Teacher B: "Another issue is student familiarity with digital platforms, so I dedicate time for tech orientation sessions." Teacher J: "As simple as using a word processor... are a total stranger to them. It affects the quality of their works, their work performance, and lowers their self-esteem."
Overreliance and Misuse of Technology	Tech Dependency, Distraction	Excessive dependence on digital tools can reduce student critical thinking and focus.	Teacher C: "Students overly dependent on the tools and less focused on critical thinking... I addressed it through a balance of digital and hands-on activities."
Outdated or Inaccessible Software/Tools	Non-Updated Apps, Lack of Industry Tools	Limited access to updated and relevant industry-standard software impacts instruction.	Teacher F: "Updated digital learning app applied in industry, mostly technology, digital tools are necessary."

Under the theme Limited Internet Connectivity, participants described the difficulties caused by unstable or weak internet access, which disrupted both instruction and student participation.

Teacher B explained, "One major challenge is limited internet connectivity in the classroom... I pre-download resources and use offline versions of some applications."

Teacher E shared, "One challenge that I found difficult is having the Internet access. I told my students to find a place with free Internet access."

In the theme Lack of Devices and Resources, teachers highlighted the insufficient availability of essential tools such as gadgets, software, and computer units.

Teacher G shared, "The challenge is that not all students have their own gadgets. Mostly we use computers from school." Teacher J stated, "Lacking of the necessary software, units, and connectivity... I rather resort to traditional teaching and learning process."

The theme Digital Literacy Gaps revealed how both students and some instructors struggled with the use of basic digital tools and platforms.

Teacher B noted, "Another issue is student familiarity with digital platforms, so I dedicate time for tech orientation sessions." Teacher J further emphasized, "As simple as using a word processor... are a total stranger to them. It affects the quality of their works, their work performance, and lowers their self-esteem."

The theme Overreliance and Misuse of Technology focused on the impact of excessive dependence on digital tools, which can reduce student engagement in critical thinking.

Teacher C explained, "Students overly dependent on the tools and less focused on critical thinking... I addressed it through a balance of digital and hands-on activities."

Lastly, under the theme Outdated or Inaccessible Software/Tools, the challenge of aligning school technology with current industry standards was highlighted.

Teacher F shared, "Updated digital learning app applied in industry, mostly technology, digital tools are necessary."

Table 5. Meaningful Integration of Digital Tools

Participants	*Responses*	*Subordinate Themes*	*Superordinate Theme*
Teacher A	There was this one time I used a multimedia presentation with videos and images to explain a complex topic. The students were so engaged, and I noticed they retained the information much better. It was rewarding to see how much they enjoyed and understood the lesson.	Multimedia Instruction	Integration of Digital Tools
Teacher B	One memorable instance was when I used Formative to conduct a live assessment during a hands-on troubleshooting activity. Instead of waiting for manual feedback, students could immediately see their results and correct their mistakes on the spot. This made the learning process more dynamic and helped them retain concepts better.	Real-Time Feedback	
Teacher C	One notable instance where digital learning tools enhance the teaching and learning of student could be using a Java programming project. I used combination of Google workspace and Java IDE tools like wetbeans to manage workflow of their task.	Collaborative Tech Integration	
Teacher G	Specifically transferring of data like offline quizzes, that automatically check and record the scores.	Project-Based Learning with Tech	
Teacher J	It is through my observation that I got to observe that TVL Learners are not just spatial learners, they are also visual learners and less with auditory. During our lecture sessions, before the laboratory work, pictures and videos presented in the learning presentation are seen to attract their attention to pay attention. When I'm still conducting my action research in using a reward system, they heavily rely on the presentation to be able to actualize their learnings.	Visual Learning Enhancement	

The Multimedia Instruction theme emphasized how the thoughtful use of video and image content created an engaging and effective learning environment.

For the Real-Time Feedback theme, Teacher B described an experience using a digital assessment. The integration of instant assessment tools allowed students to reflect and improve immediately, supporting deeper learning outcomes.

Under Collaborative Tech Integration, demonstrated a structured, task-oriented use of digital environments to manage collaborative programming outputs.

The theme Project-Based Learning with Technology illustrated how automation and digital tools could streamline project-based assessments while reinforcing accountability and performance tracking.

Finally, under Visual Learning Enhancement, it emphasized how visual content supported both motivation and comprehension, especially when paired with reinforcement strategies.

Table 6. Barriers to Digital Learning Access

Participants	*Responses*	*Subordinate Themes*	*Superordinate Theme*
Teacher B	One major challenge is limited internet connectivity in the classroom, which affects access to online tools. To address this, I pre-download resources and use offline versions of some applications when possible.	Connectivity Limitations	Barriers to Digital Learning Access
Teacher D	The only problem we have in digital tools is that it's availability to access by the students at home. In order for a dentist their works, I let them access it in school.	Home-Based Access Limitation	
Teacher G	The challenge is that not all students have their own gadgets. Mostly we use computers from school.	Device Scarcity	
Teacher H	One of the biggest challenges is the lack of internet access and devices for many students. Since Electrical Installation and Maintenance (EIM) is hands-on, digital learning tools cannot fully replace physical training.	Digital Divide	
Teacher J	Lacking of the necessary software, units, and connectivity. I rather resort to the traditional teaching and learning process, board and chalk work, powerpoint presentations, and actual demonstration. But actual demonstration isn't always feasible as well due to lacking of necessary tools and equipment.	Infrastructure Deficiency	

Under the Connectivity Limitations theme, it emphasized the proactive adaptation required to mitigate unreliable internet service.

The Home-Based Access Limitation theme highlighted the challenges students encounter when attempting to engage with digital tasks outside the structured school environment, necessitating alternative school-based access arrangements.

In the theme Device Scarcity, reliance on limited school-provided devices creates challenges in ensuring consistent access to digital resources.

The Digital Divide theme highlighted not only access issues but also the limits of digital tools in replicating the practical components crucial to TVL programs.

Finally, Infrastructure Deficiency underscored the compounded impact of lacking both digital and physical instructional resources, making consistent skill acquisition challenging.

Table 7. Student Engagement and Motivation

Participants	*Responses*	*Subordinate Themes*	*Superordinate Theme*
Teacher A	There was this one time I used a multimedia presentation with videos and images to explain a complex topic. The students were so engaged, and I noticed they retained the information much better. It was rewarding to see how much they enjoyed and understood the lesson.	Enhanced Retention	Student Engagement and Motivation
Teacher E	It enhances engagement and stimulates attention and curiosity of the learner.	Stimulated Curiosity	
Teacher G	Digital tools greatly enhance student engagement, especially for this generation where technology is already a part of their daily lives. When we integrate multimedia, interactive quizzes, and collaborative digital platforms, students become more interested and motivated in learning. It also helps them understand complex topics faster, as they can revisit instructional videos and digital materials anytime.	Motivation through Multimedia	
Teacher I	Digital tools can increase student engagement, motivation, and academic performance. Students can use digital platforms to collaborate with peers, explore creativity, and engage in higher-order thinking.	Cognitive Engagement	
Teacher H	Digital learning tools introduce students to new technology and make learning more interactive and engaging. Many students enjoy using Google Classroom for quizzes and assignments because it allows them to work at their own pace.	Flexible Learning Engagement	

Under the Enhanced Retention theme, the response demonstrated how interactive visual resources promoted better retention and comprehension.

The Stimulated Curiosity pointed that the use of digital learning tools was seen to spark learners' interest and create a more dynamic classroom atmosphere.

Under the Motivation through Multimedia theme, it highlighted how the accessibility of digital content reinforces motivation and aids in learning complex subjects.

The theme Cognitive Engagement emphasized that digital tools were described as enhancing not just basic engagement but also

promoting creativity, collaboration, and critical thinking.

Finally, Flexible Learning Engagement stressed that flexibility was shown to contribute significantly to student enjoyment and motivation, as learners were able to control their pacing and revisit materials when needed.

Table 8. Pedagogical Adaptability and Strategy

Participants	*Responses*	*Subordinate Themes*	*Superordinate Theme*
Teacher B	I incorporate blended learning by combining digital quizzes in Socrative, video-based learning via Animoto, and live assessments using Formative. For practical activities, I use step-by-step video demonstrations so students can review processes at their own pace.	Flexible Instructional Design	Pedagogical Adaptability and Strategy
Teacher C	I addressed it through a balance, digital learning with hands-on activity and face-to-face interaction.	Balanced Modality	
Teacher F	Inquiry-based learning and simulation approach.	Interactive Learning Design	
Teacher I	To integrate digital tools into lesson plans and activities, I employ the following strategies: Identify Learning Objectives, Select Appropriate Tools, Incorporate Blended Learning, Provide Training and Support.	Integrated Pedagogical Planning	
Teacher J	I use a combination of individual and cooperative learning strategies to maximize digital tools: For individual learning, I use Google Classroom for asynchronous activities, where students review videos, complete quizzes, and submit reports. For cooperative learning, I encourage students to use their mobile devices to research, engage in Jamboard discussions, and collaborate on Kodular-based projects. This fosters teamwork and problem-solving skills, both of which are crucial in the TVL track.	Strategy Diversification	

Under the Flexible Instructional Design theme, the instructor demonstrated an intentional structuring of digital content to accommodate varied student learning speeds and reinforce mastery through repeated review.

For the Balanced Modality theme, the approach ensured that technology-enhanced instruction did not replace essential tactile and interpersonal learning experiences, which are critical in TVL education.

The Interactive Learning Design theme engaged students actively through exploration and simulated practice, enabling them to develop critical thinking and problem-solving skills in controlled digital environments.

Under the theme Integrated Pedagogical Planning, the systematic method reflected intentional and goal-oriented planning to ensure digital tools were meaningfully embedded into instruction rather than used superficially.

Finally, the Strategy Diversification theme fosters teamwork and problem-solving skills, both of which are crucial in the TVL track." This approach demonstrated the thoughtful use of differentiated strategies to cater to both independent and collaborative learning needs.

Table 9. Growth, Flexibility, and Professional Development

Participants	*Responses*	*Subordinate Themes*	*Superordinate Theme*
Teacher A	Some of them are inspired and wanted to be as professional as I am in regards with Technical Drafting. They also were inspired to be an Architect someday. But there were also some of them who are having a hard time with my subject but of course I make sure that I will give all I might to help them.	Influence on Student Aspirations	Growth, Flexibility, and Professional Development
Teacher B	Teaching TLE is challenging at the same time fun. I was able to learn new things and contribute to my personal development.	Teacher Growth	
Teacher C	Teaching TLE has made me more adaptable and hands-on training approach. It has helped me focus on practical learning.	Professional Adaptability	
Teacher D	Never stop learning... Better to build a good relationship with co-teachers and ask question to your Department Head.	Lifelong Learning	
Teacher F	Teaching various subjects, particularly TLE enables me as a teacher to exert extra effort in learning and loving the subject more and even helps me discover other skills beyond my specialization.	Skill Expansion	

Under the Influence on Student Aspirations theme, it illustrated how a teacher's commitment and expertise can shape students' career dreams and foster perseverance despite academic challenges.

The Teacher Growth theme demonstrated how facing instructional challenges can also catalyze continuous self-improvement.

For the Professional Adaptability theme, the experience of teaching technical subjects enhanced flexibility in instructional strategies and a stronger orientation toward skill-based education.

Under the Lifelong Learning theme, it emphasized the value of ongoing professional development through collaboration, mentorship, and continuous inquiry.

Finally, the Skill Expansion theme highlighted how teaching outside one's original specialization could open pathways for new competencies and a broader professional identity.

The results of the study revealed that TVL Senior High School teachers in Biñan City effectively integrated various digital tools, such as Prezi, Canva, Google Classroom, Jamboard, Formative, and Kodular, into their teaching practices. These tools enhanced lesson delivery, student engagement, and assessment. Teachers reported that multimedia presentations and interactive platforms helped students better understand and retain technical concepts. Real-time feedback, collaborative activities, and project-based learning were also key strategies that improved classroom participation and learning outcomes.

Despite the benefits, several challenges emerged, including poor internet connectivity, a lack of student devices, limited digital literacy, and outdated software. Teachers addressed these issues by adopting blended learning approaches, providing offline access, and offering tech support. They also showed strong adaptability, balancing digital tools with traditional methods to meet learners' needs. Overall, the integration of digital tools not only enhanced instruction but also supported teacher growth and student motivation in the TVL setting.

Conclusion

Based on the findings, the study concludes that the effective integration of digital learning tools by TVL Senior High School teachers in Biñan City significantly enhanced instructional delivery, student engagement, and skill development. Tools such as Google Classroom, Formative, Animoto, and Kodular were not only instrumental in improving teaching strategies but also in fostering collaboration, real-time feedback, and project-based learning. However, challenges such as limited internet access, insufficient devices, and digital literacy gaps highlighted the need for continuous support and resource allocation. Despite these barriers, teachers demonstrated adaptability and a strong commitment to student-centered instruction, indicating that with proper training and infrastructure, digital learning can play a transformative role in TVL education.

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Affiliations and Corresponding Information

Lea S. Ayala, MAEd
Laguna State Polytechnic University
San Pablo City Campus – Philippines

Edilberto Z. Andal, EdD
Laguna State Polytechnic University
San Pablo City Campus – Philippines