



Technological proficiency and attitude towards digital teaching tools of technology and livelihood education teachers

Hernan Jan C Batisla-on¹, Aljaven Bruce C Laganhon Edd²

¹ Department of Education, Division of Negros Occidental, Manapla National High School, Philippines

² Carlos Hilado Memorial State University, Philippines

Abstract

This study aimed to determine the technological proficiency and attitude of Technology and Livelihood Education (TLE) teachers towards digital teaching tools in one of the districts in the Division of Negros Occidental for the School Year 2025-2026. To address this problem, a descriptive-correlational research design was used, utilizing a validated researcher-made questionnaire administered to 130 TLE teachers. Descriptive statistics such as mean and standard deviation, and inferential statistics such as Mann Whitney U Test and Spearman Rank Correlation Coefficient were utilized to answer the specific problems of the study. Findings of the study showed TLE teachers have high level technological proficiency and the attitude towards digital teaching tools. Likewise, it is at high level across all demographic profile such as age, sex, geographical location, years of teaching experience, and key stage. Furthermore, the level of technological proficiency differed significantly in term of age and teaching experience. Significant differences were also observed in the level of attitude of TLE teachers when grouped according to teaching experience and key stage. More importantly, a significant relationship was found between the level of technological proficiency and level of attitude of TLE teachers toward digital teaching tools, indicating that both technical skills and receptive mindset are essential factors for the effective integration of digital teaching tools in the classroom. This study recommends that similar studies exploring the same and other variables and subject areas should be conducted to further validate these findings across diverse education contexts.

Keywords: Technological proficiency, attitude, digital teaching tools

Introduction

The integration of digital tools within the classroom has become a necessity, as it prepares students for a digital world through meaningful learning experiences. For many teachers, the use of technology has become integral in the teaching and learning process since it promotes creativity, interactivity, engagement and interest towards learning (Rafiq, *et al.*, 2024; Zafeer, *et al.* 2025) [22,28]. According to Abarate and Prudente (2025) [2], digital technology tools enable teachers to facilitate communication efficiently, make lesson delivery effective, and improve creativity through the creation of engaging and visually appealing instructional materials.

However, despite the abovementioned benefits, challenges in integrating digital tools into the educational system still remain, particularly in the Philippines. In fact, it has been recorded that there are several challenges in utilizing digital tools in the teaching and learning process. These includes poor internet connectivity, lack of devices, inadequate school resources, lack of teacher training, poor digital literacy and technological adaptation of teachers (Villaseñor, 2024; Turrohmah & Suryanto, 2023) [24]. Among these, teachers' lack of training, low digital literacy and technological adaptation are the most critical issues, since the teachers have the main role in integrating these tools to enhance students' learning outcome. According to Yin and Mohamad (2023) [27], lack of training and technical difficulties is considered as main challenges encountered by teachers when trying to use digital technologies effectively. Furthermore, it is also important to note that despite the increasing integration of digital tools in education, there is an absence of research specifically addressing their application within Technology and Livelihood Education (TLE) classroom. Although various studies have explored

the impact of digital tools on general education and other subject areas, the literature reviewed made by researcher showed that there are no studies that have explore both the technological proficiency and attitude towards digital teaching tool of TLE teachers. Given that TLE is foundational for practical, career-essential skills, the lack of data is critical; integrating digital tools is not just a matter of modernizing the classroom, but a necessary step toward enhancing the learning outcomes and engagement levels vital for students' professional readiness.

In the target locale of the study, approximately 80% (28 out of 35) TLE teachers still use traditional approach in teaching. In addition, some of them rarely use digital tools in the delivery of their lessons. This is evident in the results of the 2024 Classroom Observation Tool (COT) for Proficient Teachers, where 80% of TLE teachers obtained a rating of 3 which is interpreted as "Satisfactory" in indicator No. 8 which focuses on selecting, developing, organizing, and using appropriate teaching and learning resources, including ICT, to address learning goals. This is based on the Office Performance Commitment and Review Form for School Year 2023-2024. These findings highlight the need to examine the technical proficiency and attitude of TLE teachers toward digital teaching tools. By addressing this gap, the study aims to generate data-driven and valuable insights that can inform strategies to improve teaching practices and support effective integration of technology in TLE classrooms.

Statement of the Problem

This study aims to determine the relationship between technological proficiency and TLE teachers' attitude towards digital teaching tools in one of the districts in the Division of Negros Occidental for the School Year 2025-2026.

Specifically, this study seeks to answer the following questions:

What is the level of technological proficiency of TLE teachers in terms of (i) knowledge, (ii) skills, and (iii) application when taken as a whole and when grouped according to:

- a. Age;
- b. Sex;
- c. Geographical Location;
- d. Years of Teaching Experience; and
- e. Key Stage

What is the level of attitude toward digital teaching tools of TLE teachers in terms of (i) perceived usefulness, (ii) emotional response, and (iii) adoption intention when taken as whole and when grouped according to:

- a. Age;
- b. Sex;
- c. Geographical Location;
- d. Years of Teaching Experience; and
- e. Key Stage

Is there a significant difference in the level of technological proficiency of TLE teachers when grouped according to the aforementioned variables?

Is there a significant difference in the level of attitude of TLE teachers toward digital teaching tools of the TLE teachers when grouped according to the aforementioned variables?

Is there a significant relationship between the level of technological proficiency and level of attitude toward digital teaching tools of TLE teachers?

What enhanced program may be proposed?

Hypotheses

The following hypotheses were advanced in this study:

1. There is no significant difference in the level of technological proficiency of TLE teachers when grouped according to the aforementioned variables
2. There is no significant difference in the level of attitude of TLE teachers toward digital teaching tools of the TLE teachers when grouped according to the aforementioned variables.
3. There is no significant relationship between the level of technological proficiency and level of attitude toward digital teaching tools of TLE teachers.

Methods

The study employed a descriptive-correlational research design using a cross-sectional approach. The respondents of the study were composed of TLE teachers in both elementary and secondary schools in one of the districts in the Division of Negros Occidental. To determine the actual respondents of this study, total population sampling was used.

This sampling technique is appropriate to use in this study, since the main goal of the researcher is to examine and determine the level of technological proficiency and attitude of TLE teachers toward digital teaching tools in the entire district. Based on the actual data, there are only 130 TLE teachers in Key Stage 2 and Key Stage 3 in this particular district. A total of 130 respondents guarantees adequate statistical power based on G*power Analysis. Thus, an independent samples t-test with Welch's correction was

performed, as unequal variances were assumed across group for the variables included in the study such as age, sex, geographical location, years of teaching experience, and key stage.

A researcher-made questionnaire was used in the collection of data in accordance with the focus of the study. It tends to determine the level of technological proficiency and attitude of TLE teachers toward digital teaching tools in one of the districts in the Division of Negros Occidental during the S.Y. 2025-2026.

The data gathering instrument used in this study was consisted of three (3) main parts, namely: respondents' personal profile, perceived technological proficiency scale, and attitude scale which was rated by the respondents.

Part one of the research instrument determines respondents' personal information. This includes the respondents' name, age, sex, geographical location, years of teaching experience, and key stage. Part two of the research instrument is a 5-point Likert Scale to measure the level of technological proficiency of TLE teachers toward digital teaching tools. This researcher-made questionnaire was originally composed of 45-items which is equally distributed to the three categories of technological proficiency, namely: teacher's knowledge on digital teaching tools, teacher's skills on digital teaching tools, and teacher's application of digital teaching tools. Each of the statements in this research instrument have five options for the respondents to choose. The options are as follows: strongly agree, agree, undecided, disagree, and strongly disagree. However, after the validity test, this part of the research-made questionnaire was narrowed to 44-items. Additionally, the technological proficiency of TLE teachers was interpreted using a five-point mean Likert scale: 1.00 – 1.49 (Very Low), 1.50 – 2.49 (Low), 2.50 – 3.49 (Moderate), 3.50 – 4.49 (High), and 4.50 – 5.00 (Very High).

Furthermore, Part three of the research instrument is also a 5-point Likert Scale to measure the level of attitude of TLE teachers towards digital teaching tools. This part of the researcher-made questionnaire was also originally composed of 45-items which is equally distributed to the three categories of attitude in accordance to TAM's model namely: perceived usefulness (cognitive), emotional response (affective), and adoption intentions (behavioral). Each of the statements in this research instrument have five options for the respondents to choose. The options are as follows: strongly agree, agree, undecided, disagree, and strongly disagree. However, after the validity test, this part of the research-made questionnaire was narrowed to 42-items. In addition, the attitude toward digital teaching tools of TLE teachers was also interpreted using a five-point mean Likert scale: 1.00 – 1.49 (Very Low), 1.50 – 2.49 (Low), 2.50 – 3.49 (Moderate), 3.50 – 4.49 (High), and 4.50 – 5.00 (Very High).

This research instrument undergone validity and reliability test to ensure its appropriateness and effectiveness. In the conduct of validity, the researcher used the Critical Values for Lawshe's Content Validity Ratio (CVR). While in the conduct of reliability, the research instrument was pilot tested to the thirty (30) TLE teachers in the other district. To determine the reliability coefficient, Cronbach Alpha was used.

Based on expert judgments from 11 raters on technological proficiency scale, with an item rated as essential if marked by at least one rater. Nearly all of the 45 items (44 retained) exceeded the critical CVR threshold of 0.59, indicating strong expert consensus for retaining these items in the educational or research tool. Among the 44 retained items, the content validity index (CVI) was computed as 0.81, which is well above the commonly accepted critical value of 0.59, thereby supporting the conclusion that the instrument demonstrates acceptable content validity. On the other hand, out of the original 45 items for attitude scale, 42 were retained and 3 were excluded (items 21, 29, and 37). The computed content validity index (CVI = 0.82), derived from the 42 retained items, exceeds the commonly accepted critical value of 0.59, indicating strong content validity and supporting the conclusion that the attitude scale instrument is valid for its intended use.

Furthermore, based on the reliability results, the Frequentist scale reliability statistics for technological research instrument indicate excellent internal consistency, with Cronbach's α at 0.961 and a 95% confidence interval of 0.936–0.978. Meanwhile, the Attitude scale shows exceptional internal consistency, with Cronbach's α at 0.985 and a 95% confidence interval of 0.974–0.991. This extremely high value indicates strong item coherence and suggests that the scale is highly dependable for measuring both technological and attitudes research instrument.

Results

Table 2: Level of Technological Proficiency of TLE Teachers in Terms of Knowledge

Knowledge on Digital Teaching Tools	M	SD	Int.
Age			
21-39 years old	4.28	0.52	High
40-65 years old	4.00	0.69	High
Sex			
Female	4.25	0.50	High
Male	3.98	0.76	High
Geographical Location			
Rural	4.19	0.51	High
Urban	4.13	0.74	High
Years of Teaching Experience			
15 years and below	4.02	0.43	High
16 years and above	4.26	0.69	High
Key Stage			
Key Stage 2 (Grade 4 to 6)	4.13	0.51	High
Key Stage 3 (Grade 7 to 10)	4.23	0.76	High

Table 2 summarizes the levels of knowledge on digital teaching tools among TLE teachers, grouped according to participants' profile variables. As shown in Table 3, Across all profile groups, knowledge levels remained consistently high, with lower standard deviations in younger, female, rural, and less experienced groups indicating tighter consensus in responses. Specifically, the data reveals that TLE teachers who are female, aged 21-39, stationed in rural schools, possessing 16 years of teaching experience and teaching in Key Stage 3 exhibit a higher level of knowledge towards digital teaching tools compared to their other counterparts.

This trend suggests that younger TLE teachers possessed greater digital knowledge because they are digital natives who engage more naturally with modern technology. This finding was aligned to Prensky's (2001) [20] Digital Natives vs. Digital Immigrants framework that teachers aged 21–39

Level of Technological Proficiency of TLE teachers

Table 1: Level of Technological Proficiency of TLE Teachers in Terms of Knowledge, Skills, and Application

Technological proficiency	M	SD	Int.
Knowledge	4.17	0.61	High
Skills	3.93	0.69	High
Application	4.02	0.67	High
As a whole	4.04	0.63	High

Table 1 presents that TLE teachers demonstrate high technological proficiency across all three dimensions with knowledge obtained the highest mean score of $M=4.17$, $SD=0.61$, while skills recorded the lowest mean score of $M=3.93$, $SD=0.69$.

This pattern suggests that TLE teachers possess the necessary theoretical baseline to integrate technology into the teaching learning process. Specifically, it indicates that they are familiar with various digital teaching tools available for lesson delivery and student assessment. However, the lower mean score for skills suggests that executing these tools remain inconsistent among TLE teachers. Consequently, teachers require further training and professional development seminars to translate their knowledge into effective classroom practices. This finding aligns with Meehan and Callahan (2020) [19], who noted that teachers felt strongly that they need professional development to continue to teach effectively using digital teaching tools.

grew up surrounded by digital technology, allowing them to acquire technological knowledge intuitively.

Regarding sex, female TLE teachers scored higher than their male counterparts for a reason that female teachers are more resourceful and creative in thinking various ways to make teaching and learning engaging for their students. This finding overlapped on Basargekar and Singhavi's (2017) findings that female teachers have higher level of perceived proficiency in using ICT in the classroom than their male counterparts. Furthermore, the higher proficiency among rural school TLE teachers suggests that teacher in these school are more equipped with digital technologies in classroom that enables to learn better about these tools.

Additionally, TLE teachers with longer years of teaching experience demonstrated superior knowledge, indicating that the accumulated classroom experience and various seminars and training enabled them to gather lot of

information about these tools. This finding also supports the Technological Pedagogical Content Knowledge (TPACK) framework explaining that while younger teachers have high technological familiarity, teachers with 16+ years of experience excel because they have mastered content and pedagogy over time. Their long tenure allows them to understand how to meaningfully map digital tools to student learning objectives, rather than just using technology for the sake of it (Mishra & Koehler, 2012).

Lastly, Key Stage 3 TLE outperformed Key Stage 2 TLE teachers. This implies that TLE teachers in Key Stage 3 were more aware about digital teaching tool since the delivery of their lesson requires them to use various digital teaching tools to teach effectively, and as a result, they actively acquire information on diverse digital tools. The complexity of Key Stage 3 TLE curriculum was supported by DepEd Order No. 010, s. 2024, highlighting that in MATATAG Curriculum structure that in Key Stage 3 TLE was splits into highly technical specializations (e.g., Computer Systems Servicing, Technical Drafting, Electronics), while in Key Stage 2 TLE is taught as introductory EPP (Edukasyong Pantahanan at Pangkabuhayan) (Department of Education, 2024).

Table 3: Level of Technological Proficiency of TLE Teachers in Terms of Skills

Skills on Digital Teaching Tools	M	SD	Int.
Age			
21-39 years old	4.08	0.58	High
40-65 years old	3.69	0.78	High
Sex			
Female	4.00	0.62	High
Male	3.75	0.81	High
Geographical Location			
Rural	3.92	0.58	High
Urban	3.93	0.86	High
Years of Teaching Experience			
15 years and below	3.77	0.47	High
16 years and above	4.04	0.80	High
Key Stage			
Key Stage 2 (Grade 4 to 6)	3.91	0.51	High
Key Stage 3 (Grade 7 to 10)	3.95	0.95	High

Table 43 illustrates the levels of skills on digital teaching tools among TLE teachers, grouped according to participants' profile variables. As shown in Table 4, across all profile groups, skills levels remained consistently high, with lower standard deviations in younger, female, rural, less experienced groups, and key stage 2 indicating tighter consensus in responses. Specifically, the data reveals that TLE teachers who are female, aged 21-39, stationed in urban schools, possessing 16 years of teaching experience and teaching in Key Stage 3 exhibit a higher level of skills toward digital teaching tools compared to their other counterparts.

This trend suggests that younger TLE teachers demonstrate greater digital skills because they are digital natives who use technology in daily basis, allowing them to translate what they have learned from these tools to purposeful classroom practices. This finding is heavily supported by Digital Native Theory of Marc Prensky (2001), which establishes that younger generational cohorts possess an intuitive cognitive framework for mastering digital tools.

Regarding sex, female TLE teachers scored higher than their male counterparts. This outcome may be attributed to the active use of female teachers of technology inside the

classroom. This finding was supported by de la Rama (2020) [6], who reported that female teachers demonstrate technological competence than male counterparts.

Furthermore, the higher skills among urban school TLE teachers suggests that teacher in these school are skillful toward digital teaching tool compared to those who were assigned in rural schools. Urban schools typically benefit from good internet connectivity, and functional computer laboratories under the DepEd Computerization Program (DCP). This infrastructure gap directly impacts performance, as highlighted by local literature demonstrating that regular hands-on access to stable digital assets significantly increases an educator's technical execution compared to resource-constrained (Magtolol & Oropa, 2025) [17].

Additionally, TLE teachers with longer years of teaching experience demonstrated superior skills, indicating that the accumulated classroom experience and various seminars and training enabled them not only to learn various digital tool but also on how to effectively use these tools. This finding perfectly overlapped with the Technological Pedagogical Content Knowledge (TPACK) framework which emphasized that senior educators excel in technological proficiency because they have mastered the intersection of pedagogy and content, allowing them to select and use digital tools to achieve better learning outcome for students.

Lastly, Key Stage 3 TLE outperformed Key Stage 2 TLE teachers. This implies that TLE teachers in Key Stage 3 is not only equipped with knowledge about digital teaching tools, but they are also possessed practical skills on how to use these tools. Similarly, the complexity of Key Stage 3 TLE curriculum was supported by DepEd Order No. 010, s. 2024, highlighting that in MATATAG Curriculum structure that in Key Stage 3 TLE curriculum is complex that force teachers to actively use technology to support the learning demands of this subject area.

Table 4: Level of Technological Proficiency of TLE Teachers in Terms of Application

Application of Digital Teaching Tools	M	SD	Int
Age			
21-39 years old	4.13	0.57	High
40-65 years old	3.86	0.78	High
Sex			
Female	4.08	0.59	High
Male	3.87	0.81	High
Geographical Location			
Rural	4.05	0.57	High
Urban	3.97	0.81	High
Years of Teaching Experience			
15 years and below	3.88	0.48	High
16 years and above	4.11	0.76	High
Key Stage			
Key Stage 2 (Grade 4 to 6)	4.01	0.52	High
Key Stage 3 (Grade 7 to 10)	4.04	0.90	High

Table 4 outlines the levels of application of digital teaching tools among TLE teachers, grouped according to participants' profile variables. As shown in Table 5, across all profile groups, application levels remained consistently high, with lower standard deviations in younger, female, rural, and less experienced, and key stage 2 groups indicating tighter consensus in responses. Specifically, the data reveals that TLE teachers who are female, aged 21-39,

stationed in rural schools, possessing 16 years of teaching experience and teaching in Key Stage 3 exhibit a higher level of application towards digital teaching tools compared to their other counterparts.

This pattern suggests that younger TLE teachers have higher application level of digital teaching because they know how to use these tools to maximize their teaching practices and improve students' engagement. This was supported by Srivastava (2024) [21], who emphasized that younger teachers who have grown up with technology are generally more comfortable integrating technology into their teaching methods, such as using digital whiteboards, online assessments, and educational apps.

Regarding sex, female TLE teachers scored higher than their male counterparts. This outcome reflects the ability of female teachers to translate theory of using technology inside the classroom into actual practice. This was supported by Mahmood, *et al.* (2025) [16], who reported that female teachers were more likely to view ICT as a tool for fostering student engagement, interaction and dynamic learning environments.

Furthermore, the higher skills among rural school TLE teachers suggests that teacher in these school are more equipped with digital teaching tools that allows them to practically use technology as part of their daily teaching routine.

Additionally, TLE teachers with longer years of teaching experience demonstrated superior skills, indicating that the accumulated classroom experience and various seminars and training enabled them to integrate digital teaching tool proficiently as part of their teaching practice. This was supported by Abantas-Emji *et al.* (2025) [1], who reported that teachers with more years of experience are generally more competent in using technology. This could be due to accumulated exposure to various digital tools over time or continuous professional development in educational technology.

Lastly, Key Stage 3 TLE outperformed Key Stage 2 TLE teachers. This implies that TLE teachers in Key Stage 3 practically these digital teaching tool in the delivery of their lessons.

Level of Attitude of TLE teachers toward Digital Teaching Tools

Table 5: Level of Attitude towards Digital Teaching Tools of TLE Teachers in Terms of Usefulness, Emotional Response, and Adoption Intention

Attitude Towards Digital Teaching Tools	M	SD	Int
Perceived Usefulness	4.28	0.65	High
Emotional Response	4.23	0.66	High
Intention Adoption	4.15	0.76	High
As a whole	4.22	0.67	High

Table 5 presents that TLE teachers demonstrate high attitude toward digital teaching tools across all three dimensions with perceived usefulness obtained the highest mean score of M=4.28, SD=0.65, while intention adoption recorded the lowest mean score of M=4.15, SD=0.67.

This pattern suggests that TLE teachers have positive attitudes towards digital teaching tools, indicating a strong belief in the utility of technology in the teaching-learning process. They also display positive emotions and a proactive outlook toward using technology for effective delivery of

TLE lessons. Consequently, TLE teachers demonstrate confidence in implementing technology within classroom settings. In line with this, Steven Kolber (2021) asserts that being confident of their own technological skills are important to empower teachers to experiment with digital tools, and use these tools in their classrooms. Similarly, Mayantao and Tantiado (2024) [18] reported that teachers have positive attitude in using digital tools in teaching, which makes their work more effectively and organized.

Table 6: Level of Attitude towards Digital Teaching Tools of TLE Teachers in Terms of Perceived Usefulness

Perceived Usefulness of Digital Teaching Tools	M	SD	Int.
Age			
21-39 years old	4.36	0.58	High
40-65 years old	4.16	0.74	High
Sex			
Female	4.36	0.56	High
Male	4.11	0.81	High
Geographical Location			
Rural	4.30	0.65	High
Urban	4.25	0.66	High
Years of Teaching Experience			
15 years and below	4.09	0.54	High
16 years and above	4.41	0.69	High
Key Stage			
Key Stage 2 (Grade 4 to 6)	4.22	0.64	High
Key Stage 3 (Grade 7 to 10)	4.40	0.66	High

Table 6 outlines the levels of attitude towards digital teaching tools of TLE teachers, grouped according to participants' profile variables. As shown in Table 7, across all profile groups, perceived usefulness levels remained consistently high, with lower standard deviations in younger, female, rural, and less experienced, and key stage 2 groups indicating tighter consensus in responses. Specifically, the data reveals that TLE teachers who are female, aged 21-39, stationed in rural schools, possessing 16 years of teaching experience and teaching in Key Stage 3 exhibit a higher level of perceived usefulness towards digital teaching tools compared to their other counterparts.

This trend suggests that younger TLE teachers have higher perceived usefulness level of digital teaching tools because they know the importance of these tool in enhancing students' engagement and providing meaningful learning experience. This finding was compatible with a study that examined attitudes to use of computers in teaching adults (Lee *et al.*, 2019) [14] and found that these attitudes tend to be more positive to the younger the participant.

Regarding sex, female TLE teachers scored higher than their male counterparts. This outcome reflects female teachers have better perception about the impact of using technology in the delivery of lesson. This finding was supported by Guillén-Gámez & Rodríguez-Fernández (2022) [11], who revealed that female teachers have a more positive attitude towards the educational use of ICT than male teachers.

Furthermore, the higher perception of the usefulness of digital teaching tools among rural school TLE teachers suggests that teacher in these school have seen the impact of these tool in the learning progress and engagement of their students, which enables them to think how useful these tools in the teaching and learning process. This was supported by Mayantao and Tantiado's (2024) [18], who indicated that the use of digital teaching tools in teaching engage pupils more effectively and facilitate learning experiences.

Additionally, TLE teachers with longer years of teaching experience demonstrated also higher level of perceived usefulness about digital teaching tools, indicating that the experience of TLE teachers' overtime reveals the positive view about the use of these tool in the delivery of lessons. This finding was supported by Hamad, *et al.* (2024) ^[12], who claimed that teachers with less or more teaching experience to have a positive attitude towards integrating technology in their pedagogical practices.

Lastly, Key Stage 3 TLE outperformed Key Stage 2 TLE teachers. This implies that TLE teachers in Key Stage 3 practically use these digital teaching tool in the delivery of their lessons.

Table 7: Level of Attitude towards Digital Teaching Tools of TLE teachers in Terms of Emotional Response

Emotional Response on Digital Teaching Tools	M	SD	Int.
Age			
21-39 years old	4.28	0.60	High
40-65 years old	4.14	0.73	High
Sex			
Female	4.30	0.57	High
Male	4.05	0.80	High
Geographical Location			
Rural	4.26	0.65	High
Urban	4.18	0.67	High
Years of Teaching Experience			
15 years and below	4.06	0.54	High
16 years and above	4.34	0.71	High
Key Stage			
Key Stage 2 (Grade 4 to 6)	4.18	0.64	High
Key Stage 3 (Grade 7 to 10)	4.34	0.69	High

Table 7 shows that TLE teachers also hold a high level of positive emotional response toward digital teaching tools across all profile groups. As shown in Table 8, across all profile groups, emotional response levels remained consistently high, with lower standard deviations in younger, female, rural, and less experienced, and key stage 2 groups indicating tighter consensus in responses. Specifically, the data reveals that TLE teachers who are female, aged 21-39, stationed in rural schools, possessing 16 years of teaching experience and teaching in Key Stage 3 exhibit a higher level of emotional response towards digital teaching tools compared to their other counterparts.

This pattern suggests that younger TLE teachers have higher emotional response level of digital teaching tools because they have positive emotions towards digital teaching tool that enables them to feel confident and comfortable in using these tools in their teaching approach. This was supported by Villacorte (2024) ^[25], who claimed that young teachers tend to have more favorable attitudes toward technology integration. Young teachers perceived technology as highly useful, especially in facilitating tasks and increasing productivity, though some are less convinced of its impact on instructional effectiveness.

Regarding sex, female TLE teachers scored higher than their male counterparts. This outcome reflects female teachers have experienced better emotions towards digital teaching tools that allow them to easily embrace these tools in the teaching and learning process. In contrast, Elfatih and Ait Hammou's (2019) study reported that male teachers were more eager to use ICT in the classroom than female teachers.

Furthermore, the higher positive emotions towards digital teaching tools among rural school TLE teachers suggests that teacher in these school have experienced the positive effect of these tool in the learning progress and engagement of their students, which enables them to be confident and comfortable in using these tools. In Liaqat, *et al.* (2024) ^[15] it was emphasized that wherever the school is located, teachers have almost the same attitude towards technology use in the classroom settings.

Additionally, TLE teachers with longer years of teaching experience demonstrated also higher level of emotional response about digital teaching tools, indicating that the experience of TLE teachers for many years developed to positive emotional response in using these tools in the classroom settings. This finding aligns with the Technology Acceptance Model (TAM), which establishes that an individual's affective attitude and perceived usefulness directly dictate their behavioral intent to adopt technology. Furthermore, a phenomenological study on seasoned TLE teachers by Ayson *et al.* (2024) ^[4] noted that senior vocational educators frequently view digital transitions as leveraging opportunities, exhibiting strong adaptive pedagogical ownership and positive emotional investment to bridge digital gaps.

Lastly, Key Stage 3 TLE outperformed Key Stage 2 TLE teachers. This implies that TLE teachers in Key Stage 3 practically accepted digital teaching tool as part of their approach in teaching the subject area.

Table 8: Level of Attitude towards Digital Teaching Tools of TLE Teachers in Terms of Intention Adoption

Intention Adoption of Digital Teaching Tools	M	SD	Int.
Age			
21-39 years old	4.24	0.70	High
40-65 years old	4.02	0.83	High
Sex			
Female	4.26	0.68	High
Male	3.92	0.87	High
Geographical Location			
Rural	4.15	0.77	High
Urban	4.16	0.75	High
Years of Teaching Experience			
15 years and below	3.96	0.68	High
16 years and above	4.29	0.79	High
Key Stage			
Key Stage 2 (Grade 4 to 6)	4.04	0.75	High
Key Stage 3 (Grade 7 to 10)	4.38	0.73	High

Table 8 reveals that TLE teachers generally show a high level of intention to adopt digital teaching tools across all profile groups. As shown in Table 9, across all profile groups, intention adoption levels remained consistently high, with lower standard deviations in younger, female, urban, and less experienced, and Key Stage 3 groups indicating tighter consensus in responses. Specifically, the data reveals that TLE teachers who are female, aged 21-39, stationed in urban schools, possessing 16 years of teaching experience and teaching in Key Stage 2 exhibit a higher level of intention adoption towards digital teaching tools compared to their other counterparts.

This trend suggests that younger TLE teachers have higher intention adoption level of digital teaching tools because they find it easy to use and integrate to their daily routine in teaching. This was supported by Fahmiyah (2023), who reported that young teachers tend not to feel difficulties

using technology than older teachers which enables them to easily accept technology in the delivery of their lessons. Regarding sex, female TLE teachers scored higher than their male counterparts. This outcome reflects female teachers find the integration of technology as an integral component of the teaching and learning process, recognizing its capacity to improve students' performance and engagement. This result was aligned to Alnahdi and Schwab's (2023), who indicated that female teachers held more positive attitudes toward teaching and were rated more positively in terms of practices by their students.

Furthermore, the higher intention adoption towards digital teaching tools among urban school TLE teachers suggests that teacher in these schools is open to the opportunity to integrate these tools into their actual classroom practices. This attitude of teachers from urban schools are evident since they faced fewer infrastructure barriers unlike with those who are assigned in rural areas. This finding is congruent to the report of UNESCO (2023) that digital divide still exists between urban and rural areas. The report also emphasized that the lack of infrastructure, particularly in rural and remote areas, further poses a significant challenge in providing reliable internet access to all Filipinos (Espinosa, *et al.*, 2023) [9].

Additionally, TLE teachers with longer years of teaching experience demonstrated also higher level of intention adoption about digital teaching tools, indicating that TLE teachers' teaching experience enable them to have positive attitude towards adapting technology in their teaching approach. Interestingly, this finding contradicts to the various studies, indicating that teachers with fewer years of service perceived the importance of ICT as positive to a larger extent compared to their more experienced colleagues (Kollia, *et al.*, 2020; Villacorte, 2024) [25]. However, there are some studies reported that teachers with fewer and longer years of service have the same level of attitude towards integrating technology in their pedagogical practices (Semerci & Aydin, 2018; Hamad, *et al.*, 2024) [22, 12].

Lastly, Key Stage 3 TLE outperformed Key Stage 2 TLE teachers. This implies that TLE teachers in Key Stage 3 considers digital teaching tool as part of their approach in teaching the subject area, since it greatly helps them deliver their lessons effectively through various supplementary materials online.

Comparison on the Level of Technological Proficiency of TLE teachers

Table 9: Comparison on the Level of Technological Proficiency of TLE teachers when grouped According to the Participants profile

Variables	M	U	P
Age			
21-39 years old	4.16	2472.50*	0.035
40-65 years old	3.85		
Sex			
Female	4.11	2118.50	0.109
Male	3.87		
Geographical Location			
Rural	4.05	2008.00	0.977
Urban	4.01		
Years of Teaching Experience			
15 years and below	3.89	1356.50*	0.001
16 years and above	4.14		
Key Stage			
Key Stage 2 (Grade 4 to 6)	4.02	1656.50	0.211
Key Stage 3 (Grade 7 to 10)	4.07		

Note: $p < 0.05^*$

Table 9 presents a comparison of TLE teachers' level of technological proficiency across different profile groups, using mean scores (M), Mann-Whitney U values, and their corresponding p-values to determine whether differences are statistically significant.

For age, teachers aged 21–39 years obtained a higher mean technological proficiency ($M = 4.16$) compared with those aged 40–65 years ($M = 3.85$), with $U = 2472.50$ and $p = 0.035$, indicating a significant difference; this suggests that younger teachers are more technologically proficient than older ones. This result is similar to the findings of a study indicating that younger teachers tend to be more eager to integrate technology into their teaching (Esteban, *et al.*, 2023) [8].

In contrast, there are some studies reveal that older teachers are more competent in ICT compared to younger teachers because they are more experienced and gained a lot of training with educational technology (Wanjiru *et al.*, 2022; and Abantas-Emji *et al.*, 2025) [26, 1]. However, other studies claim that teacher, regardless of their age, are competent in using technology (Erdin & Uzun, 2022; and Cortez, 2025) [7, 5].

Female teachers had $M = 4.11$ and male teachers had $M = 3.87$, with $U = 2118.50$ and $p = 0.109$, which is not statistically significant, implying no meaningful difference in technological proficiency between male and female TLE teachers. These findings align with Erdin and Uzun's (2022) [7], who found out that male and female teachers are equally competent in using technology, and sex is not a factor affecting technology competence. Conversely, recent literatures from Gómez-Trigueros & De Aldecoa, (2021) [10], Kusuma, (2023) [13] and Kalinga & Ndibalema, (2023) continues to highlight a persistent digital gender gap, suggesting that female teachers have lack of technological proficiency compared to male teachers.

Regarding geographical location, rural teachers scored $M = 4.05$ and urban teachers $M = 4.01$, with $U = 2008.00$ and $p = 0.977$, indicating that the difference is not significant and that teachers from rural and urban areas have similar levels of technological proficiency.

For years of teaching experience, teachers with 15 years and below had $M = 3.89$, while those with 16 years and above obtained $M = 4.14$, with $U = 1356.50$ and $p = 0.001$, showing a significant difference; this suggests that more experienced teachers are relatively more proficient in using technology than their less-experienced peers. Similarly, Basargekar and Singhavi (2017) also revealed that teachers with less experience tend to be more eager to use technology in the classroom.

Finally, for key stage, teachers in Key Stage 2 (Grades 4–6) had $M = 4.02$ and those in Key Stage 3 (Grades 7–10) had $M = 4.07$, with $U = 1656.50$ and $p = 0.211$, which is not significant, indicating that technological proficiency is fairly similar across the two key stages.

The result of this table reveals that the technological proficiency of TLE teachers differ significantly based on age and years of teaching experience. This significant finding has something to do with the number of participants of this study. Based on the data, majority of the participants were younger and have served longer years of teaching experience. It is therefore concluded that young teachers who have rendered longer years of teaching experience have better technological proficiency, indicating that the early teaching career of teacher honed them to become proficient

towards digital teaching tools. This finding was supported by Esteban, *et al.* (2023) [8], who reported that young teachers demonstrate proficiency in the application and utilization of technology, specifically they are proficient in teaching with technology.

Comparison on the Attitude of TLE teachers towards Digital Teaching Tools

Table 10: Comparison on the Attitude of TLE Teachers Towards Digital Teaching Tools when Grouped According to the Participants Profile

Variables	M	U	p
Age			
21-39 years old	4.30	2231.50	0.344
40-65 years old	4.11		
Sex			
Female	4.31	2178.00	0.056
Male	4.03		
Geographical Location			
Rural	4.24	2156.00	0.501
Urban	4.20		
Years of Teaching Experience			
15 years and below	4.04	1422.50*	0.003
16 years and above	4.35		
Key Stage			
Key Stage 2 (Grade 4 to 6)	4.14	1513.00*	0.050
Key Stage 3 (Grade 7 to 10)	4.37		

Note: $p < 0.05^*$

Table 10 compares the attitude of TLE teachers toward digital teaching tools across different participant profiles. For age, teachers aged 21–39 years reported a higher mean attitude ($M = 4.30$) compared with those aged 40–65 years ($M = 4.11$), with $U = 2231.50$ and $p = 0.344$, indicating that the difference is not statistically significant; this suggests that attitude toward digital tools is generally consistent across age groups. This result is also similar to Hamad, *et al.* (2024) [12] study indicating that teachers in the age group of 35 years old and below and 36 years old and above have the same positive attitude towards integrating technology on their teaching and learning process. In terms of sex, female teachers had $M = 4.31$ and male teachers had $M = 4.03$, with $U = 2178.00$ and $p = 0.056$, which is also not significant, implying no substantial difference in attitude between male and female TLE teachers. Similarly, that both male and female teachers had positive attitudes toward technology integration (Masegenya & Mwila, 2023; and Liaqat, *et al.*, 2024) [15]. Regarding geographical location, rural teachers scored $M = 4.24$ and urban teachers $M = 4.20$, with $U = 2156.00$ and $p = 0.501$, again showing that the difference is not significant, meaning that teachers from rural and urban areas have similarly positive attitudes toward digital teaching tools. Liaqat, *et al.* (2024) [15] also reported that there was no significant difference between rural and urban teachers' attitude towards technology at school level (perceived ease of use, perceived usefulness and teaching tools).

However, for years of teaching experience, teachers with 15 years and below obtained $M = 4.04$, while those with 16 years and above had $M = 4.35$, with $U = 1422.50$ and $p = 0.003$, indicating a significant difference; this suggests that more experienced teachers hold a more positive attitude toward digital teaching tools than their less-experienced counterparts. In contrary, some studies have reported that

teachers with fewer years of teaching experience hold more positive attitude towards technology than those teachers with longer years of teaching experience (Kollia *et al.*, 2020; and Villacorte, 2024) [25]. On the other hand, there are some studies have reported that the attitude teachers toward ICT use in education has no significant differences in terms of teaching experience (Semerci & Aydin, 2018; and Hamad, *et al.*, 2024). Finally, for key stage, teachers in Key Stage 2 (Grades 4–6) had $M = 4.14$ and those in Key Stage 3 (Grades 7–10) obtained $M = 4.37$, with $U = 1513.00$ and $p = 0.050$, which is considered significant at the conventional $\alpha = 0.05$ level; this implies that teachers at Key Stage 3 exhibit a significantly more favorable attitude toward digital teaching tools than those at Key Stage 2.

The findings reveals that the attitude of TLE teachers differ significantly based on years of teaching experience and key stage. This simply suggest that teachers with longer years of teaching experience and those in Key Stage 3 are more proficient in using digital teaching tools than their less experienced or Key Stage 2 counterparts. These results indicate that more experienced teachers likely recognize the usefulness of technology in teaching and are more willing to adapt their methods. Similarly, Key Stage 3 teachers may have developed higher proficiency to meet the more technical demands of the secondary-level TLE curriculum. This adaptability is explained by their advanced Pedagogical Content Knowledge (PCK) because teachers who was able to rendered longer years in teaching have mastered instructional delivery, they can effectively integrate technology to enhance student learning (Mishra & Koehler, 2012). Correspondingly, the higher proficiency observed among Key Stage 3 teachers highlights the role of Technological Content Knowledge (TCK) in secondary instruction. Because the Junior High School TLE curriculum requires highly technical and specialized vocational competencies, as a result, instructors are structurally compelled to master diverse digital teaching tools to meet the technical demands of their specific instructional tracks.

Relationship Between the Level of Technological Proficiency and Level of Attitude towards Digital Teaching Tools of TLE teachers

Table 11: Spearman Rank Correlation Result Between the Level of Technological Proficiency and Level of Attitude towards Digital Teaching Tools of TLE teachers

Variables	R	Df	P
Technological proficiency * Attitude Towards Digital Teaching Tools	0.826**	128	<.001

Note: $p < 0.05^{**}$

Table 11 presents the relationship between the level of technological proficiency and the level of attitude of TLE teachers toward digital teaching tools. The Pearson correlation coefficient (r) is 0.826, with degrees of freedom (df) = 128 and $p < 0.001$, indicating a very strong, positive, and statistically significant relationship between these two variables. This means that as TLE teachers' technological proficiency increases, their attitude toward digital teaching tools also tends to increase, and the association is highly significant at the 0.001 level.

This finding was supported by the study of Janes and Klančar (2022). The study also found out that the knowledge and skills related to digital tools, as well as the

attitude to these tools are considered as predominant factors in the utilization of digital tools. In other words, having enough knowledge and skills towards digital tools enables the pre-service teachers to have a positive attitude towards it.

Another study with similar findings, revealed that revealed that TPACK partially mediated the relationship between ICT competence and attitude toward digital teaching materials, highlighting the significance of teachers' beliefs about the effective use of technology in the classroom in determining their attitudes toward those materials (Wang & Zhao, 2021).

Findings

These are the following findings in accordance to the specific objectives of this study:

1. The TLE teachers have a high level of technological proficiency of TLE teachers towards digital teaching tools. It was also found out that the knowledge obtained the highest mean score among all areas of technological proficiency. Considering the demographic profile of TLE teacher, results revealed that their technological proficiency were at high level across all demographic profile. However, this study also indicates that TLE teachers who are younger, female, with longer years of teaching experience, and in Key Stage 3 have better knowledge, skills and application towards digital teaching tools compared to their counterparts. Specifically, while TLE teachers in rural school demonstrate better knowledge and application towards digital teaching tools, TLE teachers in urban school exhibit better skills about it.
2. The TLE teachers have a high level of attitude towards digital teaching tools. It was also found out that the perceived usefulness obtained the highest mean score among all areas of attitude towards digital teaching tools. Considering the demographic profile of TLE teacher, results revealed that their attitude towards digital teaching tools were at high level across all demographic profile. However, this study also indicates that TLE teachers who are younger, female, with longer years of teaching experience, and in Key Stage 3 have better perceived usefulness, emotional response, and intention adoption towards digital teaching tools compared to their counterparts. Specifically, while TLE teachers in rural school demonstrate better perceived usefulness and emotional response towards digital teaching tools, TLE teachers in urban school exhibit better intention adoption about it.
3. There is a significant difference in the level of technological proficiency of TLE teachers based on their age and years of teaching experience. On the other hand, no significant difference between the level of technological proficiency of TLE teachers based on their sex, geographical location, and key stage.
4. There is a significant difference in the level of attitude of TLE teachers based on their years of teaching experience and key stage. On the other hand, no significant difference between the level of attitude towards digital teaching tools of TLE teachers based on their age, sex, and geographical location was observed.
5. There is a significant relationship between the level of technological proficiency and level of attitude of TLE teachers toward digital teaching tools.

Conclusions

Based on the findings of the study, the following conclusions were formulated:

1. TLE teachers possess high technological proficiency towards digital teaching tools across all demographic profiles, demonstrating the necessary knowledge, skills, and ability to apply technology in the teaching-learning process. Specifically, younger TLE teachers are considered digital natives who engage more naturally with modern technology. This situation gives them the opportunity to possessed greater digital knowledge and skills that enables them to translate what they have learned from these tools to purposeful classroom practices. Furthermore, female teachers are more resourceful and creative in thinking various ways to make teaching and learning engaging for their students. They are also active in using technology inside the classroom, which helped them to better understand and use various digital teaching tools in the teaching and learning process. Moreover, TLE teachers with longer years of teaching experience demonstrated superior knowledge, skills and ability to apply technology was rooted from their accumulated classroom experience and various seminars and training that enabled them to gather lot of information about these tools. Lastly, TLE teachers in Key Stage 3 were more aware and skillful about digital teaching tool since the delivery of their lesson requires them to use various digital teaching tools to teach effectively, and as a result, they actively acquire necessary information and skills on diverse digital tools. Interestingly, TLE teachers in rural schools are more equipped with digital technologies in classroom that enables to learn better about these tools and practically use technology as part of their daily teaching routine, while TLE teachers in urban schools were good at using it but lacks of digital teaching tools and digital technologies to deepen their understanding about it and apply these tools in the delivery of their lessons.
2. TLE teachers maintain consistently positive attitudes toward digital teaching tools regardless of their demographic profile. They recognized and perceived the usefulness of these tools in improving lesson delivery, assessing students' performance, and utilizing resources online, that enables them to have the confidence and intention to adopt this type of teaching method. Specifically, younger TLE teachers know the importance of digital teaching tool in enhancing students' engagement and providing meaningful learning experience. They also feel confident and comfortable towards using these tools, enabling them to easily use these tools in their teaching practice. Furthermore, female TLE teachers have better perception about the impact of using technology in the delivery of lesson. The use of technology in teaching were easily embraced by the female teachers, since they believed that the integration of technology is an integral component of the teaching and learning process, recognizing its capacity to improves students' performance and engagement. Moreover, TLE teachers with longer years of teaching experienced viewed the use of

digital teaching tools in the delivery of lessons positively, indicating that they find it useful and easily integrate in their teaching routines. Lastly, TLE teachers in Key Stage 3 practically use these digital teaching tool in the delivery of their lessons, since they find it essential and integral to easily deliver complex lessons in TLE at this level. Interestingly, TLE teachers in rural schools have positive view and emotion towards using digital teaching tools in the teaching and learning process, while TLE teachers in urban schools showed interest in using these tools for the better delivery of the subject matter's complex lessons.

3. Technological proficiency of TLE teachers differs significantly based on age and years of teaching experience. This significant finding has something to do with the number of participants of this study. Based on the data, majority of the participants were younger and have served longer years of teaching experience. It is therefore concluded that young teachers who have rendered longer years of teaching experience have better technological proficiency, indicating that the early teaching career of teacher honed them to become proficient towards digital teaching tools.
4. Conversely, the attitude of TLE teachers differ significantly based on years of teaching experience and key stage. This suggest that teachers with longer years of teaching experience and those in Key Stage 3 are more proficient in using digital teaching tools than their less experienced or Key Stage 2 counterparts. These results indicate that more experienced teachers likely recognize the usefulness of technology in teaching and are more willing to adapt their methods. Similarly, Key Stage 3 teachers may have developed positive attitude towards using digital teaching tools to meet the more technological demands of the secondary-level TLE curriculum.
5. A strong association exists between TLE teachers' technological proficiency and positive attitude towards digital teaching tools in one of the districts in the Division of Negros Occidental. This implies that both technological proficiency and receptive mindset are essential factors for the effective integration of digital teaching tools in the classroom. This significant finding revealed that the TLE teachers in this district possessed technological proficiency and positive attitude towards digital teaching tools and the researcher focused only in this district, since it is where he assigned and wanted to advocate the use of these tools through data-driven evidence derived from this study.

Recommendation

Based from the findings of the study and the conclusions generated, the researchers recommend that

that technology-related trainings or workshops for TLE teachers must be implemented to boost the mastery of teachers of using various digital teaching tools for classroom settings. TLE Coordinators should include ICT integration topics in the conduct of LAC sessions or INSET to emphasize the importance of these tool in enhancing pedagogy and students' engagement, as well. Through this, teachers will be more knowledgeable about the various digital teaching tools that they can utilized in the classroom. Likewise, school heads should be supportive to any initiatives of teachers to integrate technology as part of their teaching practices. They are also expected to be the prime movers of embracing technology in the teaching and learning process, since it was found out that digital teaching tools encourage learning and create positive learning experiences to students. Likewise, another recommendation of this study focuses on having a facility of the school that can encourage teachers to be motivated on using digital teaching tool as part of their instructional practices. This facility includes a classroom with installed Televisions, and providing teaching with the access of Internet and Laptop from ICT, which can be included by the principal or school head to the school's Annual Procurement Plan.

It is also recommended that similar topic across another specialization should be conducted to see the overall picture of the technological proficiency and attitude of teachers toward digital teaching tools.

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