



# THE INTERPLAY OF DIGITAL COMPETENCE AND DIGITAL LITERACY ON TEACHING PROFICIENCY WITH TECHNOLOGY AMONG FULL-TIME TEACHING PERSONNEL ON KAPALONG COLLEGE OF AGRICULTURE SCIENCES AND TECHNOLOGY

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## ABSTRACT

In today's educational landscape, integrating technology into teaching is essential. Despite the growing demand for digital tools to enhance student learning, educators encounter challenges related to resources access, training, and varying levels of technology proficiency. This study investigates how digital competence and digital literacy impact the teaching proficiency of full-time teaching personnel at Kapalong College of Agriculture, Sciences and Technology (KCAST). Utilizing a descriptive-correlational and regression analysis quantitative research design, data were collected from 85 full-time teachers through a survey questionnaire. Based on the results of the study, it was determined that the level of Digital Competence and Digital Literacy is very high. There is also significant relationship between the digital competence and teaching proficiency; and digital literacy and teaching proficiency. The results confirmed that the digital competence and digital literacy influence the teaching proficiency among full-time teaching personnel at KCAST. The study concludes that the respondents are very high in level of digital competence and digital literacy. This means that the respondents manifested both digital competence and digital literacy in enhancing teaching proficiency. It is recommended to provide ongoing training to strengthen and enhance teachers' digital skills, ensure access to modern technology, and encourage collaboration and regular assessments to maintain effective technology integration in teaching.

**KEYWORDS:** teaching personnel, digital competence, digital literacy, teaching proficiency, Philippines

## INTRODUCTION

In the contemporary educational landscape, the effective integration of technology within teaching practices has become increasingly crucial. As educators adapt the digital age, the demand for skillful use of digital tools to enhance student learning experiences has grown rapidly. However, the successful integration of technology into teaching is not without its challenges, which implies that educators face certain difficulties in effectively utilizing digital tools in their pedagogical methods. The challenges faced by teachers in terms of proficiency level in technology can be categorized into external and internal factors. External factors include access to resources, training, and support, while internal factors include attitudes and beliefs, resistance towards technology in the classroom, knowledge and skill (Winter et al., 2021).

In the Malaysia, educators face significant encountered challenges in attaining proficiency with technology, which limits their ability to effectively use digital tools into their teaching practices. This lack of proficiency result in less engaging lessons, reduced teaching efficiency, and missed opportunities to develop

students' 21st century skills. The lack of adequate training, accessible resources, and ongoing support makes these issues even worse, leaving many educators struggling to utilize technology to create meaningful learning experiences and address the evolving demands of modern education. By providing targeted professional development programs, along with accessible and ongoing training, teachers can enhance teaching proficiency with the use of technology (Saad & Sankaran, 2020). In the Philippines, some of the teachers from Eulogio Amang Rodriguez Institute of Science and Technology lacks adequate school facilities, which prevents them from being well equipped with basic technological skills. Teachers experience limited technology integration, frustration and burnout, professional development gaps, and inequity in learning opportunities. This issue hinders their ability to effectively use technology-driven teaching methods, which are crucial for engaging the digital native generation of students. Educators who possess strong technological literacy are better equipped to incorporate advanced technologies like videoconferencing and digital media into their teaching approaches. Addressing these issue by improving school facilities and providing targeted training for teachers will help in



effectively integrating technology into education, enriching the learning experience for students (Vaughan et al., 2015, as cited by Biases, 2021).

This study is timely given that there are significant ongoing advancements in technology and a growing need to integrate these technologies into educational practices effectively. As students increasingly belong to the digital native generation, accustomed to technology-driven environments, there is a pressing demand for educators to develop strong digital literacy and competency. By investigating the relationship between digital competence, digital literacy, and teaching proficiency, we can significantly improve teaching methods and the educational experiences of students. This research supports the development of guidelines and regulations, helping administrators align with their institution's vision and goals. It also provides a foundation for tools to evaluate the digital competency and literacy of the teaching workforce. Therefore, this study shows social relevance as it carefully examines the contribution it offers to teaching personnel, emphasizing the practical implications of the relationship between digital competence and digital literacy on teaching proficiency with technology.

Moreover, there have been study conducted entitled “Digital Competence and Digital Literacy in Higher Education Research: Systematic Review of Concept use” and “The Digital Edge: Examining the Relationship between Digital Competency and Language Learning Outcomes” but none of them dealt with an investigation particularly with digital competence and digital literacy on teaching proficiency with technology among full-time teaching personnel, just like the study that I had undertaken. Furthermore, the purpose of this research is to investigate and understand how digital competence and digital literacy, influence the proficiency of teachers when using technology in their teaching roles at Kapalong College of Agriculture, Sciences and Technology. The result of the study was expected to provide a deeper insight and understanding of the digital competence and digital literacy on teaching proficiency of full-time teaching personnel.

The findings of this study will be shared with key stakeholders, partners, and members of the institution by distributing copies of research papers, reports, or summaries, and through publication in research journals. This dissemination plan aims to ensure that the research reaches the right audience, encouraging active engagement with the findings. By sharing printed copies of the research article, the researcher seeks to highlight the value and relevance of the study, fostering collaboration and contributing to the scientific and community environment.

## RESEARCH OBJECTIVES

1. To determine the level of digital competence in terms of:
  - 1.1 professional engagement;
  - 1.2 digital resources;
  - 1.3 teaching and learning;
  - 1.4 assessment of learning;
  - 1.5 empowering learners; and

- 1.6 facilitating learner’s digital competence.
2. To determine the level of digital literacy in terms of:
  - 2.1 digital practices;
  - 2.2 finding information;
  - 2.3 using information; and
  - 2.4 creating information.
3. To determine the level of teaching proficiency in terms of:
  - 3.1 content knowledge and pedagogy;
  - 3.2 learning environment;
  - 3.3 diversity of learners;
  - 3.4 curriculum and planning;
  - 3.5 assessment and reporting;
  - 3.6 community linkages and professional engagement; and
  - 3.7 personal growth and professional development.
4. To determine the significant relationship between:
  - 4.1 digital competence and teaching proficiency; and
  - 4.2 digital literacy and teaching proficiency.
5. To determine which domain of digital competence and digital literacy significantly influences the teaching proficiency with technology among full-time teaching personnel.

## RESEARCH METHODOLOGY

### Research Design

This study utilized a quantitative research design. This indicated that the study observed the significant relationship of digital competence and digital literacy on teaching proficiency of full-time teaching personnel on KCAST. Quantitative research was concerned with collecting and analyzing data that was structured and could be represented numerically. One of the central goals was to build accurate and reliable measurements that allowed for statistical analysis, and it focused on data that could be measured. It also allowed the librarian to learn more about the demographics of a population, examine attitudes and behaviours, document trends, or explain what was known anecdotally. Measurements like frequencies (counts), percentages, proportions, and relationships provided means to quantify evidence for the variable (Geortzen, 2017).

### Research Locale

This research work was carried out at Kapalong College of Agriculture, Sciences, and Technology, Kapalong, Davao del Norte, Philippines. It was a public higher educational institution in Davao del Norte and was recognized by the Commission of Higher Education (CHED). The institution offered bachelor’s degree programs in Teacher Education, Criminology, Public Administration, Office Administration, Business Administration and Agriculture under the Universal Access to Quality Tertiary Education Act, or also known as the free tuition law, these were provided with a full tuition subsidy.



Research Participants

The respondents of this study were the full-time teaching personnel from Kapalong College of Agriculture, Sciences and Technology (KCAST). They were chosen as a respondents because the study was all about the interplay of digital competence and digital literacy on teaching proficiency with technology among full- time teaching personnel on Kapalong College of Agriculture, Sciences and Technology (KCAST), and since the study involved full-time teaching personnel, it is fit and valid to include full-time teaching personnel from KCAST.

Research Instrument

The researcher used adapted questionnaires to measure both the independent and dependent variables for the study from Yanzon et al. (2019) and Sumalinog et al. (2022). Digital Competence was assessed with 30 items, Digital Literacy with 20 items, and Teaching Proficiency with Technology that has 35 items. These questionnaires was adapted from previous studies, ensured that the content was relevant and reliable for the research.

Data Collection

In the process of data collection, the following measures were taken by the researcher to collect the data needed in this study. Seeking Permission to Conduct the Study. The researcher sought permission from the College President of KCAST, asking a letter to allow the researcher to disseminate the questionnaire inside the

faculty room to the respondents of the study which were the teaching personnel. Distribution and Retrieval of the Questionnaire. Upon the approval of the College President, the researcher personally distributed the research instruments to the respondents and conducted the study. After the respondents completely answered the test questionnaires, the researchers retrieved the test questionnaire from the respondents. Collection and Tabulation of the Data. This time, the research instruments are retrieved, checked and gathered together for the tabulation of the data gathered. The researcher found it convenient since there were – full-time teaching personnel identified coming from all Department.

Statistical Tools

The following statistical tools was used to calculate the data of this study at a 0.05 level of significance: Mean. This was used to determine the levels of digital competence, digital literacy and teaching proficiency with technology of the full-time teaching personnel. Pearson r. This was used to determine the significant relationship between digital competence, digital literacy and teaching proficiency with technology of the full-time teaching personnel on KCAST. Regression. This was employed to identify the specific area or domain within digital competence and digital literacy that has a statistically significant impact on teaching proficiency.

RESULTS AND DISCUSSIONS

Table 1.1 Status of Digital Competence

Table with 4 columns: Variables and Indicators, Mean, and Description. It lists two categories: A. Professional Engagement and B. Digital Resources, each with 5 sub-items and a category mean.



|   |             |                  |
|---|-------------|------------------|
| <b>C. Teaching and Learning</b>   |             |                  |
| 1. Considering how, when, and why to use digital technologies in class.   | 4.71        | Very High        |
| 2. Monitoring my students' activities and interactions in the collaborative online environments we use.   | 4.64        | Very High        |
| 3. Working with my students in groups or teams, using digital technologies to acquire and document evidence.                                      | 4.53        | Very High        |
| 4. Using digital technologies to allow students to plan, document and monitor their own learning.   | 4.40        | Very High        |
| 5. Utilizing digital technologies for my activities and discussions.  | 4.46        | Very High        |
| <b>Category Mean</b>  | <b>4.55</b> | <b>Very High</b> |
| <b>D. Assessment of Learning</b>  |             |                  |
| 1. Using digital assessment formats to monitor student progress.  | 4.68        | Very High        |
| 2. Analyzing available data to promptly identify students needing extra support, including engagement, performance, attendance, and interactions. | 4.60        | Very High        |
| 3. Providing ongoing data on student progress and adjust teaching strategies.   | 4.64        | Very High        |
| 4. Assessing my teaching effectiveness and make adjustment based on assessment results.   | 4.66        | Very High        |
| 5. Using assessment data to refine and improve curriculum design and instructional materials.   | 4.54        | Very High        |
| <b>Category Mean</b>  | <b>4.62</b> | <b>Very High</b> |
| <b>E. Empowering Learners</b>   |             |                  |
| 1. Creating digital assignments, I address access, interoperability, and lack of digital skills.  | 4.54        | Very High        |
| 2. Using digital technologies to offer students personalize learning opportunities.   | 4.48        | Very High        |
| 3. Using digital technologies for students to actively participate in class.  | 4.54        | Very High        |
| 4. Using digital technologies to facilitate collaborative projects and knowledge sharing.   | 4.71        | Very High        |
| 5. Adapting digital tools to make learning interactive and engaging.  | 4.73        | Very High        |
| <b>Category Mean</b>  | <b>4.60</b> | <b>Very High</b> |
| <b>F. Facilitating Learner's Digital Competence</b>   |             |                  |
| 1. Teaching students how to assess the reliability of information and to identify misinformation and bias.  | 4.74        | Very High        |
| 2. Setting up assignments for digital communication and collaboration with peers or outside audiences.  | 4.64        | Very High        |
| 3. Setting up assignments, which require students to create digital content.  | 4.66        | Very High        |
| 4. Teaching students how to behave safely and responsibly online.   | 4.62        | Very High        |
| 5. Encouraging students to use digital technologies creatively to solve concrete problems.  | 4.72        | Very High        |
| <b>Category Mean</b>  | <b>4.68</b> | <b>Very High</b> |
| <b>Overall Mean</b>   | <b>4.59</b> | <b>Very High</b> |

### Status of Digital Competence

**Digital Competence.** Shown in Table 1.1 is the status of the digital competence among full-time teaching personnel on Kapalong College of Agriculture, Sciences and Technology. It obtained an overall mean score of 4.59 with a description of very high. This means that the Digital Competence is always manifested by the respondents. Digital competence as the independent of the study has six indicators namely: professional

engagement, digital resources, teaching and learning, assessment of learning, empowering learners, and facilitating learner's digital competence.

As to the status of digital competence considering its six indicators, facilitating learner's digital competence obtained the highest mean score of 4.68 described as very high which means that it is always manifested by the respondents. On the other hand,



the professional engagement obtained the lowest mean score of 4.52 described as very high which means that it is always manifested by the respondents. Furthermore, the second highest mean score of 4.62 was obtained by the indicator assessment of learning described as very high which means it is always manifested by the respondents. The third highest mean score of 4.60 was obtained by the indicator empowering learners described as very high which means that it is always manifested by the respondents. The indicator digital resources obtained a mean score of 4.57 described as very high which means that it is always manifested by the respondents. Teaching and Learning obtained a mean score of 4.55 described as very high which means that it is always manifested by the respondents. Thus, the

overall result stipulated that the digital competence of full-time teaching personnel was always manifested by the respondents. It supported the statement of Ocana et al. (2019) that educators with high digital competence personalize learning, blending human interaction and technology to create adaptive and engaging environments. Their advanced skills address diverse student needs, improving the educational outcomes. Additionally, Han et al. (2024) justified that that professional development programs focused on digital skills and collaboration significantly enhance teachers' digital competence. Ongoing training and peer sharing foster innovation, equipping educators to effectively integrate technology into modern education.

**Table 1.2**  
**Status of Digital Literacy**

| Variables and Indicators  | Mean        | Description      |
|---|-------------|------------------|
| <b>A. Understanding Digital Practices</b>   |             |                  |
| 1. Understanding different types of users I can encounter online.   | 4.68        | Very High        |
| 2. Selecting appropriate digital tools for locating, utilizing, and creating information in teaching.                     | 4.73        | Very High        |
| 3. Utilizing digital tools and websites to research and document information online.                                      | 4.79        | Very High        |
| 4. Identifying ownership of online information and ideas I come across.   | 4.65        | Very High        |
| 5. Determining which online information I can legally reuse for teaching.   | 4.61        | Very High        |
| <b>Category Mean</b>  | <b>4.69</b> | <b>Very High</b> |
| <b>B. Finding Information</b>   |             |                  |
| 1. Exploring types of information available on the internet to enhance teaching.  | 4.86        | Very High        |
| 2. Exploring what information available in online libraries to improve digital skills.                                    | 4.71        | Very High        |
| 3. Using keywords commonly used in my discipline to search for information online.  | 4.67        | Very High        |
| 4. Using digital tools to access information for improving teaching practices.  | 4.67        | Very High        |
| 5. Keeping updated information through digital tools for teaching and learning.   | 4.68        | Very High        |
| <b>Category Mean</b>  | <b>4.72</b> | <b>Very High</b> |
| <b>C. Using Information</b>   |             |                  |
| 1. Utilizing information from various media such as podcasts or videos.   | 4.38        | Very High        |
| 2. Evaluating the credibility and trustworthiness of online resources like web pages of academic journal articles.        | 4.68        | Very High        |
| 3. Citing online resources in proper format.  | 4.72        | Very High        |
| 4. Maintaining a record of important details from information found online.   | 4.74        | Very High        |
| 5. Sharing legally the files with colleagues to enhance collaboration.  | 4.68        | Very High        |
| <b>Category Mean</b>  | <b>4.64</b> | <b>Very High</b> |
| <b>D. Creating Information</b>  |             |                  |
| 1. Posting comments on blogs, forums, or web pages while following netiquette and appropriate online communication norms. | 4.38        | Very High        |
| 2. Engaging in online communication through forums, blogs, audio, videos, etc.  | 4.31        | Very High        |



|   |             |                  |
|---|-------------|------------------|
| 3. Collaborating with other professionals online to create a shared document or presentation. | 4.28        | High             |
| 4. Using media-capture devices to record and edit podcasts or videos for teaching.            | 4.19        | High             |
| 5. Using pre-recorded video lessons as a way to create and share information online.          | 4.44        | Very High        |
| <b>Category Mean</b>  | <b>4.32</b> | <b>Very High</b> |
| <b>Overall Mean</b>   | <b>4.59</b> | <b>Very High</b> |

### Status of Digital Literacy

**Digital Literacy.** Shown in Table 1.2 is the status of the digital literacy among full-time teaching personnel on Kapalong College of Agriculture, Sciences and Technology. Digital Literacy obtained an overall mean score of 4.59 with a descriptive equivalent of very high. This means that the digital literacy is always manifested by the respondents. Digital Literacy as the independent variable of the study has four indicators namely: understanding digital practices, finding information, using information, and creating information.

As to the status of digital literacy considering its four indicators, finding information obtained the highest mean score of 4.72 described as very high which means that it is always manifested by the respondents. On the other hand, creating information obtained the lowest mean score of 4.32 described as very high which means that it is always manifested by the respondents. The second highest mean score of 4.69 described as very high

obtained by the indicator understanding digital practices. It described as very high which means that it is always manifested by the respondents. The third highest mean score is 4.64 was obtained by the indicator using information described as very high. This means that it is always manifested by the respondents. In the study of Vanek (2019), digital literacy was found to extend beyond basic skills, it encompassing the creative use of technology in various contexts. This demonstrates educators' adaptability, proficiency in digital practices, and ability to enhance teaching and learning through emerging technologies. Furthermore, the study of Tomczyk (2019), found that teachers' ability to integrate technology effectively into subject teaching was emphasized, which enhanced both social and pedagogical aspects. This reflects teachers' strong digital literacy, including critical thinking, safe practices, and addressing online risks to foster effective teaching and learning.

**Table 1.3**

### Status of Teaching Proficiency with Technology

| Variables and Indicators   | Mean        | Description      |
|--|-------------|------------------|
| <b>A. Content Knowledge and Pedagogy</b>   |             |                  |
| 1. Understanding the content of the lesson every quarter/semester.                           | 4.79        | Very High        |
| 2. Applying the research-based knowledge and principles of teaching and learning.            | 4.73        | Very High        |
| 3. Integrating modern application of ICT in teaching and learning process.                   | 4.68        | Very High        |
| 4. Applying strategies which promote literacy and numeracy concepts.                         | 4.72        | Very High        |
| 5. Engaging students in critical and creative thinking for skills development.               | 4.62        | Very High        |
| <b>Category Mean</b>   | <b>4.71</b> | <b>Very High</b> |
| <b>B. Learning Environment</b>   |             |                  |
| 1. Ensuring the learner's safety and security.   | 4.78        | Very High        |
| 2. Providing fair learning environment to students.  | 4.74        | Very High        |
| 3. Initiating management of classroom structure and activities.                              | 4.79        | Very High        |
| 4. Supporting student for full participation in each class discussion.                       | 4.78        | Very High        |
| 5. Promoting purposive learning for optimal participation.                                   | 4.75        | Very High        |
| <b>Category Mean</b>   | <b>4.77</b> | <b>Very High</b> |
| <b>C. Diversity of Learners</b>  |             |                  |
| 1. Considering learner's gender, needs, strengths, interests, and experience.                | 4.86        | Very High        |
| 2. Considering the learner's linguistic, cultural, socio-economic, and religious background. | 4.84        | Very High        |
| 3. Paying more attention to the learners with disabilities, giftedness and talents.          | 4.82        | Very High        |



|   |             |                  |
|---|-------------|------------------|
| 4. Considering learners in difficult circumstances like family, personal and social issues.   | 4.85        | Very High        |
| 5. Accepting learner's personal attributes coming from indigenous group.  | 4.79        | Very High        |
| <b>Category Mean</b>  | <b>4.83</b> | <b>Very High</b> |
| <b>D. Curriculum and Planning</b>   |             |                  |
| 1. Planning and managing the teaching and learning process.   | 4.86        | Very High        |
| 2. Providing learning outcomes aligned with learning competencies.  | 4.80        | Very High        |
| 3. Providing learning programs and activities that are relevant and responsive.   | 4.72        | Very High        |
| 4. Conducting peer-tutoring or professional collaboration to enrich teaching practices.   | 4.55        | Very High        |
| 5. Using of positive and informative online resources to teaching and learning process.   | 4.69        | Very High        |
| <b>Category Mean</b>  | <b>4.72</b> | <b>Very High</b> |
| <b>E. Assessment and Reporting</b>  |             |                  |
| 1. Designing, organizing and utilizing an assessment strategies.  | 4.56        | Very High        |
| 2. Evaluating and monitoring the learner's progress and achievements.   | 4.71        | Very High        |
| 3. Providing positive and constructive feedback to improve learning.  | 4.74        | Very High        |
| 4. Attaining on the learner's needs, progress and achievements to key stakeholders.   | 4.71        | Very High        |
| 5. Using of assessment data to enhance teaching and learning practices and programs.  | 4.72        | Very High        |
| <b>Category Mean</b>  | <b>4.69</b> | <b>Very High</b> |
| <b>F. Community Linkages and Professional Engagement</b>  |             |                  |
| 1. Establishing learning environment responsive to community context.   | 4.68        | Very High        |
| 2. Engaging the learner's parents and the wider school community to an educative process.   | 4.49        | Very High        |
| 3. Applying consistently professional ethics as to be a role model to the learners.   | 4.64        | Very High        |
| 4. Abiding and applying school policies and procedures.   | 4.61        | Very High        |
| 5. Maintaining a learning environment that is responsive to community contexts.   | 4.71        | Very High        |
| <b>Category Mean</b>  | <b>4.63</b> | <b>Very High</b> |
| <b>G. Personal Growth and Professional Development</b>  |             |                  |
| 1. Standing and adopting the philosophy of teaching.  | 4.86        | Very High        |
| 2. Sustaining professional act in teaching to be treated with greater dignity.  | 4.84        | Very High        |
| 3. Promoting professional relationship and links with colleagues to help improve each teaching practice.                                      | 4.84        | Very High        |
| 4. Reflecting on a series of events that is professionally significant to integrate new skills and knowledge to improve teaching performance. | 4.76        | Very High        |
| 5. Pursuing the goals for professional growth.  | 4.84        | Very High        |
| <b>Category Mean</b>  | <b>4.83</b> | <b>Very High</b> |
| <b>Overall Mean</b>   | <b>4.74</b> | <b>Very High</b> |

### Status of Teaching Proficiency with Technology

**Teaching Proficiency with Technology.** Shown in table 1.3 is the status of the teaching proficiency with technology among full-time teaching personnel on Kapalong College of Agriculture, Sciences, and Technology. It obtained an overall mean score of 4.74 with a description of very high. This means that the teaching proficiency with technology is always manifested by the respondents. Teaching Proficiency with Technology as the dependent variable of the study has seven indicators namely:

content knowledge and pedagogy, learning environment, diversity of learners, curriculum and planning, assessment and reporting, community linkages and professional engagement, and personal growth and professional development.

As to the status of teaching proficiency with technology considering its seven indicators, diversity of learners and personal growth and professional development obtained the highest mean score of 4.83 described as very high which means that it is always



manifested by the respondents. On the other hand, community linkages and professional engagement obtained the lowest mean score of 4.63 described as very high which means that it is always manifested by the respondents. Then, the second highest overall mean score of 4.75 was obtained by the indicator learning environment described as very high which means that it is always manifested by the respondents. Moreover, the indicator curriculum and planning obtained a mean score of 4.72 which is described as very high. This means that it is always manifested by the respondents. The indicator content knowledge and pedagogy obtained a mean score of 4.71 which is described as very high. This means that it is always manifested by the respondents. The indicator assessment and reporting obtained a mean score of 4.69

described as very high, which means that it is always manifested by the respondents. The result align with the study of Dawabsheh et al. (2020), which emphasizes that professional growth opportunities enhance teachers' job satisfaction and effectiveness. Equipped with training, educators deliver high-quality instruction, leading to improved student performance and a positive learning environment. Furthermore, it also aligns to the study of Panoy et al. (2022), which highlights the importance of a teacher's virtual presence and teaching skills in a meaningful online learning. Effective communication, organizes materials, and strong technology skills enhance academic quality and social connections, reflecting a very high level of teaching proficiency.

Table 2.1

| <b>Significant Relationship between Digital Competence and Teaching Proficiency with Technology</b> |             |                |                |                               |
|---|-------------|----------------|----------------|-------------------------------|
| <b>Variable</b>   | <b>Mean</b> | <b>R-Value</b> | <b>P-Value</b> | <b>Decision @=0.05</b>        |
| Digital Competence  | 4.59        |                |                |                               |
| Teaching Proficiency with Technology  | 4.74        | .547           | <.001          | <b>H<sub>0</sub> Rejected</b> |

**Significant Relationship between Digital Competence and Teaching Proficiency with Technology**

Presented in Table 2.1, was the level of digital competence that has a total mean score of 4.59 with the descriptive equivalent of very high. This indicates that the digital competence is always manifested as perceived by the respondents. On the other hand, the data also revealed that the level of teaching proficiency with technology among full-time teaching personnel have a total mean score of 4.74 with the descriptive equivalent of very high. This indicates that the teaching proficiency with technology is always manifested as perceived by the respondents. Further, the result of the significant relationship between Digital Competence and Teaching Proficiency with Technology with an R-value of .547.

In this study, 29.1% of teaching proficiency with technology is attributed to the influence of digital competence, while the remaining 70.1% is due to the unexplored variables. Consequently, the null hypothesis is rejected within this context. This impose that there is a positive, moderate, and significant relationship between digital competence and teaching proficiency with technology. The result is parallel to the study of Fominykh et al. (2019), which the study emphasizes that teachers with strong digital competencies enhance teaching by integrating technology into lesson plans. This promotes student autonomy, creativity, and engagement, highlighting the impact of digital competence and teaching proficiency on effectiveness.

Table 2.2

| <b>Significant Relationship between Digital Literacy and Teaching Proficiency with Technology</b> |             |                |                |                               |
|---|-------------|----------------|----------------|-------------------------------|
| <b>Variable</b>   | <b>Mean</b> | <b>R-Value</b> | <b>P-Value</b> | <b>Decision @=0.05</b>        |
| Digital Literacy  | 4.59        |                |                |                               |
| Teaching Proficiency with Technology  | 4.74        | .550           | <.001          | <b>H<sub>0</sub> Rejected</b> |

**Significant Relationship between Digital Literacy and Teaching Proficiency with Technology**

Presented in Table 2.2 was the level of digital literacy of full-time teaching personnel that has a total mean score of 4.59 with the descriptive equivalent of very high. This indicates that the digital literacy is always manifested as perceived by the respondents. On the other hand, the data also revealed that the level of teaching proficiency with technology of full-time teaching personnel have a total mean score of 4.74 with the descriptive equivalent of very high. This indicates that the teaching proficiency with technology is always manifested as perceived by the respondents. Further, the

result of the significant relationship between digital literacy and teaching proficiency with technology with an R-value of .550. In this study, 30.25% of teaching proficiency with technology is attributed to the influence of digital literacy, while the remaining 69.75% is due to unexplored variables. Consequently, the null hypothesis is rejected within this context. This impose that there is a positive, moderate, and significant relationship between digital literacy and teaching proficiency with technology. The result aligns with the study of Bolden (2019), highlights the importance of digital literacy for both teachers and students, fostering flexibility and openness to new technologies. It



emphasizes that ongoing professional development and digital literacy enhance innovative teaching methods, addressing diverse student needs and improving educational practices.

Table 2.3

**Domain/s of Digital Competence that Predict Teaching Proficiency with Technology**

| Independent Variables                     | Unstandardized Coefficients |            | Standardized Coefficients<br>Beta | P-Value | Decision @=0.05               |
|---|-----------------------------|------------|-----------------------------------|---------|-------------------------------|
|   | Beta                        | Std. Error |                                   |         |                               |
| (Constant)                                | 4.739                       | 0.018      |                                   |         |                               |
| Professional Engagement                   | 0.034                       | 0.051      | 0.066                             | .510    | <b>H<sub>0</sub> Accepted</b> |
| Digital Resources                         | 0.141                       | 0.057      | 0.236                             | .016    | <b>H<sub>0</sub> Rejected</b> |
| Teaching and Learning                     | 0.019                       | 0.047      | 0.044                             | .678    | <b>H<sub>0</sub> Accepted</b> |
| Assessment of Learning                    | 0.249                       | 0.050      | 0.0482                            | <.001   | <b>H<sub>0</sub> Rejected</b> |
| Empowering Learners                       | 0.020                       | 0.050      | 0.039                             | .692    | <b>H<sub>0</sub> Accepted</b> |
| Facilitating Learner's Digital Competence | 0.009                       | 0.054      | 0.017                             | .863    | <b>H<sub>0</sub> Accepted</b> |

**Dependent Variable:**  
Teaching Proficiency with Technology

**Note:** R= 0.665, R<sup>2</sup>=0.443, F-ratio= 10.322 P-value= <.001

**Domain/s of Digital Competence that Predict Teaching Proficiency with Technology**

Presented in Table 2.3, was the domain of digital competence that predict teaching proficiency with technology. The results showed that only the domain of the independent variable digital competence to be statistically significant predictor of the level digital competence. The study also examined various domains of digital competence to determine their influence on teaching proficiency with technology. Among these, digital resources and assessment of learning emerged as significant predictors. For digital resources, a beta value of 0.141 indicates that an increase in digital resources is associated with a 0.141 increase in teaching proficiency with technology, with a p-value of 0.016 (below the 0.05 threshold), signifying a statistically significant influence.

Similarly, for assessment of learning, a beta value of 0.249 indicates that an increase in assessment of learning is associated with a 0.249 increase in teaching proficiency with technology, with a p-value of <0.001 (also below the 0.05 threshold), confirming its statistical significance. In contrast, the domains of professional engagement, teaching and learning, empowering learners, and facilitating learners' digital competence were not significant predictors of teaching proficiency with technology. Their respective p-values were 0.510, 0.678, and 0.863, all above the 0.05 threshold. The overall model explained 44.3% of the variance in teaching proficiency with technology, as indicated by an R<sup>2</sup> of 0.443, with an F-ratio of 10.322 and a p-value of less than 0.001.

Table 2.4

**Domain/s of Digital Literacy that Predict Teaching Proficiency with Technology**

| Independent Variables | Unstandardized Coefficients |            | Standardized Coefficients<br>Beta | P-Value | Decision @=0.05               |
|-----------------------|-----------------------------|------------|-----------------------------------|---------|-------------------------------|
|                       | Beta                        | Std. Error |                                   |         |                               |
| (Constant)            | 4.739                       | 0.018      |                                   |         |                               |
| Digital Practices     | 0.074                       | 0.323      | .101                              | .821    | <b>H<sub>0</sub> Accepted</b> |
| Finding Information   | 1.522                       | 0.411      | 2.023                             | <0.01   | <b>H<sub>0</sub> Rejected</b> |
| Using Information     | -1.105                      | 0.415      | -1.490                            | .009    | <b>H<sub>0</sub> Rejected</b> |
| Creating Information  | -0.091                      | 0.408      | -0.223                            | .824    | <b>H<sub>0</sub> Accepted</b> |

**Dependent Variable:**  
Teaching Proficiency with Technology

**Note:** R=0.632, R<sup>2</sup>=0.399 F-ratio=13.285 P-value=<.001



### Domain/s of Digital Literacy that Predict Teaching Proficiency with Technology

Presented in Table 2.4, was the domain of digital literacy that predict teaching proficiency with technology. The results showed that only the domain of the independent variable digital literacy to be statistically significant predictor of the level digital literacy. The study also examined various domains of digital literacy to determine their influence on teaching proficiency with technology. Among these, finding information and using information emerged as significant predictors. For finding information, a beta value of 1.522 indicates that an increase in finding information is associated with a 1.522 increase in teaching proficiency with technology, with a p-value of  $<.001$  (below the 0.05 threshold), signifying a statistically significant influence. Similarly, for using information, a beta value of -1.105 indicates that an increase in using information is associated with a -1.105 increase in teaching proficiency with technology, with a p-value of 0.009 (also below the 0.05 threshold), confirming its statistical significance. In contrast, the domains of digital practices and creating information were not significant predictors of teaching proficiency with technology. Their respective p-values were 0.821, and 0.824, all above the 0.05 threshold. The overall model explained 39.9% of the variance in teaching proficiency with technology, as indicated by an  $R^2$  of 0.399, with an F-ratio of 13.285 and a p-value of less than 0.001.

### CONCLUSION

The study concludes that full-time teaching personnel possess an exceptional level of digital competence, digital literacy, and teaching proficiency with technology. These attributes are evident in their ability to professionally engage with educational practices, effectively utilize digital resources, and implement innovative teaching and learning strategies. Additionally, their assessment methods reflect a thoughtful integration of technology, aimed at empowering learners and enhancing their digital competence in meaningful ways. The findings underscore the preparedness of these educators to seamlessly integrate technology into their instructional practices, demonstrating adaptability and a commitment to fostering dynamic, equitable, and engaging learning environments. This high level of proficiency enables them to address diverse student needs, promote creativity, and encourage active participation, ensuring effective and meaningful learning experiences. Moreover, the study establishes a strong, interdependent relationship among digital competence, digital literacy, and teaching proficiency. These elements collectively contribute to advancing educational outcomes by enabling teachers to adopt innovative practices, improve instructional quality, and inspire a culture of lifelong learning. Thus, the findings reaffirm the critical role of technological readiness in modern teaching and its significant impact on educational effectiveness.

### RECOMMENDATION

Based on the previously mentioned findings from the study, the following recommendations were formulated. Among the digital

competence, digital literacy, and teaching proficiency with technology. For teaching personnel, it is highly recommend to continue strengthening their digital integration within teaching practices, while enhancing their ability to create, use, and manage information effectively. It is crucial to maintain a focus on professional development, ensuring that teachers stay updated with the latest educational technologies. Teachers should also prioritize meeting diverse needs of learners by adapting their curriculum and teaching methods accordingly. This will foster an inclusive learning environment that will support both student and teacher growth, ensuring ongoing success in the teaching and learning process.

For school administration, it is essential to support teaching personnel by providing ongoing professional development opportunities focused on digital integration and effective use of technology in the classroom. Administrators should encourage and facilitate the creation of an inclusive learning environment that addresses the diverse needs of students. Ensuring that teachers have access to resources that enhance their ability not merely to teaching but also to create and use information effectively will further strengthen teaching practices. This will offer continuous support for personalized professional growth and help teachers maintain high proficiency and improve overall student learning outcomes.

Lastly, for the benefit of future researchers, a recommendation is made to consider employing regression approach when delving into intricate interplay between digital competence, digital literacy, and teaching proficiency with technology. Although the present study centered quantitative research involving 85 full-time teaching personnel, the utilization of a regression approach holds promise for multiple reasons.

### REFERENCES

1. Abiddin, N. Z., Ibrahim, I., & Aziz, S. A. A. (2022). *Advocating digital literacy: community-based strategies and approaches*. *Academic Journal of Interdisciplinary Studies*, 11(1), 198-211. <https://doi.org/10.36941/ajis-2022-0018>
2. Admiraal, W., Kruijer, J., Lockhorst, D., Schenke, W., Sligte, H., Smit, B., Tigelaar, D., & Wit, W. (2016). *Affordance of teacher professional learning in secondary schools*. *Taylor & Francis Online*, 38(3), 281-298. <https://doi.org/10.1080/0158037X.2015.1114469>
3. Andersson, A. L., Lundin, M., & Williams, P. (2022). *Teachers professional digital competence: an overview of conceptualisations in literature*. *Taylor & Francis Online*, 9(1). <https://doi.org/10.1080/2331186X.2022.2063224>
4. Australian Institute for Teaching and School Leadership. (2017). *Domains in Teaching*. <https://www.aitsl.edu.au/standards/understand-the-teacher-standards/domains-of-teaching>
5. Bixler, N. (2021). *How to use digital education resources effectively*. [https://hapara.com/blog/how-to-use-digital-education-resources-effectively/?fbclid=IwAR3GDJEsmh\\_JU1FoK7BMTQ5rUjpfJz1XyW0zxr5dBmVWVu1-mnzp3Y8j8](https://hapara.com/blog/how-to-use-digital-education-resources-effectively/?fbclid=IwAR3GDJEsmh_JU1FoK7BMTQ5rUjpfJz1XyW0zxr5dBmVWVu1-mnzp3Y8j8)



6. Bolden, F. (2019). *Technology in classroom: what is digital literacy? K-12 Resources by Teachers, for Teachers*. <https://www.teachhub.com/technology-in-the-classroom/2019/10/technology-in-the-classroom-what-is-digital-literacy/>
7. Cabellos, B., Echeverria, M. P. P., & Pozo, J. I. (2023). *The use of digital resources in teaching during the pandemic: what type of learning have they promoted?* *Educ. Sci.*, 13(1). <https://doi.org/10.3390/educsci13010058>
8. Caena, F. & Redecker, C. (2019). *Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu)*. *Wiley Online Library*, 54(3). 311-491. DOI: 10.1111/ejed.12345
9. Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches (4th ed.)*. Thousand Oaks, CA: Sage.
10. Dawabsheh, M., Mustanir, A., & Jermstiparsert, K. (2020). *School facilities as a potential predictor of engineering education quality: mediating role of teaching proficiency and professional development*. *The Mattingley Publishing Co., Inc*, 82. 3511-3521.
11. Demissie, E. B., Labiso, T. O., Thou, & M. W. (2022). *Teachers' digital competences and technology integration in education: insights from secondary schools in wolaita zone, Ethiopia*. *Science Direct*, 6(1), 1-9. <https://doi.org/10.1016/j.ssaho.2022.100355>
12. Erwin, K. (2020). *The relationship between digital literacy skills instruction and increased skills proficiency*. *Scholar Works Walden University*. <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=10997&context=dissertations>
13. European Council. (2018). *Digital literacy for children: exploring definitions and frameworks*. <https://www.unicef.org/globalinsight/media/1271/file/%20UNICEF-Global-Insight-digital-literacy-scoping-paper-2020.pdf>
14. Fominykh, M., Didkovsky, M., Economides, A., Giordano, A., Ioanova, K., Kakoulli-Constantinou, E., Khuzina, M., Menis, E., Nicolaou, A., Parmaxi, A., Perifanou, M., Shikhova, E., Soule, M. V., Talmo, T., Windstein, E., & Zhukova, D. (2019). *Digital competences in language education: teachers' perspectives, employers' expectations, and policy reflections*. *ResearchGate*, 2-56. <http://dx.doi.org/10.13140/RG.2.2.24392.65285>
15. Galang, A. D. (2021). *Teachers' critical reflections on the new normal Philippine education issues: inputs on curriculum and instruction development*. *International Journal of Social Learning*, 1(3), 236-249. <https://doi.org/10.47134/ijsl.v1i3.43>
16. Garzon, J. A. & Garzon, J. R. (2023). *Teachers' digital literacy and self-efficacy in blended learning*. *International Journal of Multidisciplinary Educational Research and Innovation*, 1(4), 162-174. <https://doi.org/10.17613/cmjv-1386>
17. Glockner, S. (2022). *What is reporting? definition and examples*. *Portal System*. <https://www.portalsystems.de/en/wiki/reporting/>
18. Gross, J. M. S., Haines, S. J., Hill, C., Francis, G. L., Banning, M. B., & Turnball A. P. (2015). *Strong school-community partnerships in inclusive schools are "part of the fabric of the school...we count on them"*. *School Community Journal*, 25(2), 9-34. <https://files.eric.ed.gov/fulltext/EJ1085646.pdf>
19. Haleem, A., Javaid, M., Qadri, M. A., Suman, R. (2022). *Understanding the role of digital technologies in education: a review*. *Science Direct*, 3. 275-285. <https://doi.org/10.1016/j.susoc.2022.05.004>
20. Holmstrom, T. & Siljebo, J. (2013) *Developing digital competence or exploring teaching with digital technologies? An organizational study of municipalities' development of upper secondary school students' digital competence*.
21. Kim, H. J., Hong, A. J., & Song, H. D. (2019). *The roles of academic engagement and digital readiness in students' achievements in university e-learning environments*. *Int J Educ Technol High Educ*, 16(21). <https://doi.org/10.1186/s41239-019-0152-3>
22. Lemoine, P. A. & Richardson, M. D. (2020). *Planning for Higher Education Institutions: Chaos and the COVID-19 Pandemic*. *ERIC*, 27(3). 43-57. <https://eric.ed.gov/?id=EJ1279907>
23. Lucas, M. (2019). *Facilitating students' digital competence: did they do it?* *Springerlink*. 11722, 3-4. [https://doi.org/10.1007/978-3-030-29736-7\\_1](https://doi.org/10.1007/978-3-030-29736-7_1)
24. Mishra, P. & Koehler, M. J. (2006). *Technological pedagogical content knowledge: A framework for teacher knowledge*. *Teachers College Record*, 108(6), 1017-1054. <https://journals.sagepub.com/doi/pdf/10.1111/j.1467-9620.2006.00684.x>
25. Mittha, C. (2021). *Strategies for teaching diverse learners*. *Adobe Blog*. <https://blog.adobe.com/en/publish/2021/07/12/strategies-for-teaching-diverse-learners>
26. Munna, A. S., & Kalam, M. A. (2021) *Teaching and learning process to enhance teaching effectiveness: a literature review*. *International Journal of Humanities and Innovation (IJHI)*, 4(1) 1-4. <https://files.eric.ed.gov/fulltext/ED610428.pdf>
27. Nguyen, T. D., Shih, M. H., Srivastava, D., Tirthapura, S. (2021). *Stratified random sampling from streaming and stored data*. *ResearchGate*, 39(4), 1-46. <https://link.springer.com/article/10.1007/s10619-020-07315-w>
28. Nicholas, M. (2015). *Student knowledge: curriculum, assessment and reporting*. *The Journal of Educational Inquiry*, 14(3), 1-16. <https://ojs.unisa.edu.au/index.php/EDEQ/article/view/954>
29. Ocaña-Fernández, Y., Valenzuela-Fernández, L., y Garro-Aburto, L. (2019). *Inteligencia artificial y sus implicaciones en la educación superior. Propósitos y Representaciones*, 7(2), 17. Doi: <http://dx.doi.org/10.20511/pyr2019.v7n2.274>
30. Paine, B. (2022). *The future of elearning: how technology is transforming education*. <https://elearningindustry.com/the-future-of-elearning-how-technology-is-transforming-education>
31. Panoy, J. F. D., Andrade, R. R., Febrer, L. B., & Ching, D. A. (2022). *Perceived proficiency with technology and online learning expectations of students in the graduate program of one state university in the Philippines*. *ResearchGate*, 12(7), 615-624. doi: 10.18178/ijiet.2022.12.7.1661



32. Pavithraa, S. (2023). Empowering students through technology: A path to 21<sup>st</sup> century learning. *LinkedIn*. <https://www.linkedin.com/pulse/empowering-students-through-technology-path-21st-century-pavithraa-s>
33. Perifanou, M., & Economides, A. A. (2022). Digital competences for online teachers. *Journal of Educators Online*. <https://files.eric.ed.gov/fulltext/EJ1363822.pdf>
34. Polizzi, G. (2020). Digital literacy and the national curriculum for England: learning from how the experts engage with and evaluate online content. *Science Direct*, 152. <https://doi.org/10.1016/j.compedu.2020.103859>
35. Rashidov, A. (2020). Development of creative and working with information competences of students in mathematics. *European Journal of Research and Reflection in Educational Sciences*, 8(3). 10-15. <https://www.idpublications.org/wp-content/uploads/2020/03/Full-Paper-development-of-creative-and-working-with-information-competences-of-students-in-mathematics.pdf>
36. Redecker, C., & Punie, Y. (2017). European framework for the digital competence of educators. European Union Publication. <https://op.europa.eu/en/publication-detail/-/publication/fcc33b68-d581-11e7-a5b9-01aa75ed71a1/language-en>
37. Roussinos, D. & Jimoyiannis, (2019). A. examining Primary Education Teachers' perceptions of TPACK and the related educational context factors. *J. Res. Technol. Educ.* 51(4), 377-397. <https://doi.org/10.1080/15391523.2019.1666323>
38. Santos, J. & Castro, R. D. (2021). Technological pedagogical content knowledge (TPACK) in action: application of learning in the classroom by pre-service teachers (PST). *Science Direct*, 3(1). <https://doi.org/10.1016/j.ssaho.2021.100110>
39. Sharma, M. (2017). Teacher in a digital era. *Global Journal of Computer Science and Technology*. <https://computerresearch.org/index.php/computer/article/view/1633>
40. Su, Y. (2023). Delving into EFL teachers' digital literacy and professional identity in the pandemic era: technological pedagogical content knowledge (TPACK) framework. *National Center for Biotechnology Information*, 9(6), 2-7. <https://doi.org/10.1016%2Fj.heliyon.2023.e16361>
41. Sumalinog, J., Sal, J., Carnicer, M., Coletto, F., Dumaguit, J., & Torio, G. (2022). Proficiency level of Teachers and the learning outcomes of students in electrical technology subjects of Senior High School curriculum, *International Research Journal of Advanced Engineering and Science*, 7(2), 207-215. <https://irjaes.com/wp-content/uploads/2022/04/IRJAES-V7N2P170Y22.pdf>
42. Tomczyk, Ł. (2019). What do teachers know about digital safety? *Computers in the Schools*, 36(3), 167-187. <https://doi.org/10.1080/07380569.2019.1642728>
43. Tucan, A. (2022). 7 online teaching skills worth developing. <https://tutorcruncher.com/starting-tutor-business/online-teaching-skills/>
44. UNESCO (2018). *Global Education Monitoring Report: Migration, displacement and education, building bridges, not walls*. Paris: UNESCO.
45. UNICEF, (2019). *Digital literacy for children: exploring definitions and frameworks*. <https://www.unicef.org/globalinsight/media/1271/file/%20UNICEF-Global-Insight-digital-literacy-scoping-paper-2020.pdf>
46. Vanek, J. (2017). Using the PIAAC framework for problem solving in technology-rich environments to guide instruction: An introduction for adult educators. Retrieved from [https://static1.squarespace.com/static/51bb74b8e4b0139570ddf020/t/589a3d3c1e5b6cd7b42cddcb/1486503229769/PSTRE\\_Guide\\_Vanek\\_2017.pdf](https://static1.squarespace.com/static/51bb74b8e4b0139570ddf020/t/589a3d3c1e5b6cd7b42cddcb/1486503229769/PSTRE_Guide_Vanek_2017.pdf)
47. Viberg, O., Mavroudi, A., Khalil, M., & Balter, O. (2020). Validating an instrument to measure teachers' preparedness to use digital technology in their teaching. *Nordic Journal of Digital Literacy*, 15(1), 38-54. <https://doi.org/10.18261/issn.1891-943x-2020-01-04>
48. Xinhua Net. 2020. Teachers' Online Teaching Ability Improvement Training Resource Packages Are Being Released. Available online: [http://education.news.cn/2020-02/22/c\\_1210485797.htm](http://education.news.cn/2020-02/22/c_1210485797.htm)
49. Yazon, A., Manaig, K. A., Buana, C. A., & Tesoro, J. F. (2019). Digital literacy, digital competence and research productivity of Educators. *Universal Journal of Educational Research*, 7(8), 1734-1743. <https://doi.org/10.13189/ujer.2019.070812>
50. Zhang, D., He, J., & Fu, D. (2021). How can we improve teacher's work engagement? Based on Chinese experiences. *Front. Psychol*, 12 <https://doi.org/10.3389/fpsyg.2021.721450>