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## Research Article

### Pedagogical Competence Towards Technology-driven Instruction on Basic Education

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#### ABSTRACT

This study investigates the pedagogical competence of elementary school teachers in integrating educational technology in the classroom. Pedagogical competence involves creating effective learning environments, designing activities that cater to different learning styles, and using appropriate teaching strategies. Technology integration in education has opened up new opportunities for interactive learning experiences. The study found that elementary school teachers had a positive attitude towards educational technology, and most reported having high levels of competence in its use. However, the level of pedagogical competence toward educational technology varied significantly among teachers. Hence, the study emphasizes the need for programs and interventions to improve teachers' pedagogical competence in integrating educational technology into their teaching practices. Teachers must identify appropriate technological tools and resources to effectively incorporate educational technology to support their teaching objectives and engage students in meaningful learning experiences. Teachers must also assess students' technical skills and design activities appropriate for their technological competency level. The study recommends that elementary school teachers undergo training to improve their pedagogical competence in using educational technology. Thus, integrating technology into education is crucial in providing high-quality education in the 21st century. Programs are needed to improve teachers' pedagogical competence in incorporating it into their teaching practices.

**Keywords:** *Basic education, Educational technology, Learning experiences, Pedagogical competence, Teaching practices*

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## Introduction

Technology has revolutionized how people live, work, and learn (Bleustein-Blanchet, 2016; Criollo-C et al., 2021). Technology integration in education has become essential, particularly in basic education. Educational technology has changed traditional teaching and learning, providing new opportunities for students and teachers to engage in a more dynamic and interactive learning experience (Panigrahi et al., 2018; Ocampo et al., 2023). To harness the potential of educational technology, teachers must possess pedagogical competence in integrating technology into their teaching practices.

Pedagogical competence is a crucial factor in ensuring the quality of education. It refers to the ability of teachers to create effective learning environments, design learning activities that cater to different learning styles and levels, and employ appropriate teaching strategies to engage learners in meaningful and productive learning experiences ((Toshtemirovich, 2019). Pedagogical competence also involves integrating educational technology into teaching and learning (De Vera et al., 2021).

Likewise, educational technology uses electronic media, information, and communication technologies to support teaching and learning. It includes various tools, such as computer software, digital devices, interactive whiteboards, and online resources (Ivanova & Kristovska, 2023). Integrating educational technology into the teaching and learning process has been found to improve student motivation, engagement, and achievement (Zao et al., 2021). However, educational technology's effectiveness depends on teachers' pedagogical competence in using technology to support teaching and learning (Santos & Castro, 2021).

Integrating educational technology in the teaching and learning process requires teachers to have a positive attitude towards technology and competence in using technology effectively (Panigrahi et al., 2018). Attitude refers to individuals' positive or negative feelings and beliefs toward a particular object or concept (Balta & Duran, 2015). In the context of educational technology, an attitude refers to the willingness of teachers to embrace technology in their teaching practices (Copriady, 2014).

On the other hand, competence refers to the knowledge, skills, and abilities that individuals possess to perform a particular task or function (Vathanophas, 2007). In educational technology, competence refers to the power of teachers to use technology effectively to support teaching and learning (Falloon, 2020; Mobo, 2021).

Research has shown that a positive attitude toward educational technology is essential for effectively integrating technology into teaching and learning (Tuma, 2021). Teachers with a positive attitude toward technology are more likely to incorporate technology into their teaching practices and are more open to learning new technological skills. In addition, competence in using educational technology is essential for effectively integrating technology into teaching and learning (Uerz et al., 2018). Teachers with technical skills and knowledge are likelier to use technology effectively in their teaching practices and provide a more dynamic and interactive learning environment for their students.

Also, research has shown a significant relationship between teachers' attitudes and competence in using educational technology (Albirini, 2006). A positive attitude towards technology is associated with higher levels of competence in using educational technology (Sailer et al., 2021). Teachers with a positive attitude towards technology are likelier to invest time and effort in learning new technical skills and using technology effectively in their teaching practices (Ertmer & Ottenbreit-Leftwich, 2010; Cutillas & Galera, 2023).

Conversely, teachers with negative attitudes toward technology are less likely to invest time and effort in learning new technical skills. They may hesitate to use technology in their teaching practices (Sime & Priestley, 2005). Thus, the relationship between attitude and competence in using educational technology is reciprocal - a positive attitude towards technology can lead to higher levels of competence. In comparison, higher levels of competence can reinforce a positive attitude toward technology.

Integrating educational technology into teaching and learning requires a strategic approach (van der Vlies, 2020). Teachers need to

be able to identify the most appropriate technological tools and resources to support their teaching objectives and engage students in meaningful learning experiences.

Effective integration of educational technology also requires teachers to be able to adapt their teaching practices to the changing needs and demands of their students (Caena & Redecker, 2019). Teachers need to be able to assess students' technological skills and use this information to design learning activities that are appropriate for their students' level of technical competency.

Integrating educational technology in teaching and learning is essential for providing high-quality education in the 21st century. However, educational technology's effectiveness depends on teachers' pedagogical competence in using technology to support teaching and learning. This study aims to determine the pedagogical competence of elementary school teachers toward educational technology in the academic setting. The study seeks to answer three research questions about teachers' attitudes, competence, and strategies for integrating educational technology into teaching and learning. The results of this study will provide insight into the level of pedagogical competence among elementary school teachers and inform the development of programs and interventions to improve teacher competence in this area.

## Methods

### Design

This study uses Mixed Method, as described by (Creswell and Plano Clark 2007), which involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that combining quantitative and qualitative approaches provides a better understanding of research problems than either approach alone.

Moreover, this study also uses the Exploratory-Sequential Design. The mixed method research design used in this study resembles

what (Creswell and Plano Clark, 2007) describe as an Exploratory Sequential Mixed Methods Design. Creswell and Plano Clark (2007) explain that when a need exists first to explore qualitatively, a researcher might use an Exploratory Design. This design is also appropriate when a researcher wants to explore a phenomenon in depth.

The first phase of this study was a quantitative description of the respondent's profile, the status of educational technology of the respondents as to availability and extent of utilization, and the level of the respondents' pedagogical competence in integrating educational technologies in the teaching-learning process as to attitude towards educational technology and competence in the use of educational technology.

### Instrument

The research questionnaire for this study is adapted from USEiT Teacher Survey- Study of Educational Technology Boston College (www.bc.edu, 2003) and the DepEd Order No. 78 series of 2010. The first part of the questionnaire determined the respondent's profile as to personal and professional aspects. The second part chose the status of educational technology in Dalaguete District as to availability and extent of utilization. The third part of the questionnaire was used to identify the level of the respondents' pedagogical competence in integrating educational technologies in the teaching-learning process as to their attitude towards educational technology and competence in the use of educational technology.

The level of the respondents' pedagogical competence in integrating educational technologies as to attitude towards educational technology and competence on the use of educational technologies will use the five-point Likert-type scale. The response choices were: 1 = "Strongly Disagree," 2 = "Disagree," 3 = "Neither Agree nor Disagree," 4 = "Agree," 5 = "Strongly Agree."

### Respondents

The respondents of this study were the teachers of Elementary School of Dalaguete I District (See Table 1). They were chosen as the respondents since they are expected to

perform their duties of instruction with integration and utilization of educational technology in the teaching-learning process in the classroom. Besides, they also have the first-hand experience of using technology in their classes.

### Research Procedures

The necessary data were obtained by following the required procedures. The first is to seek approval to conduct the study by sending a transmittal letter addressed to the School's Division Superintendent of DepEd- Cebu Province. The researcher also asked permission from the people concerned in this study through a letter request. After being permitted, the researcher started gathering data by using a questionnaire distributed to the respondents. The researcher explained the objectives of this study comprehensively to guide the respondents with enough time to respond by answering the questions religiously. After this, data was collected, consolidated, and interpreted.

### Treatment of Data

This study used simple Percentages to determine the distribution of the respondents and profile of the respondents; weighted Mean to categorize the responses as to the status of availability and extent of utilization of educational technology, and the level of the respondents' pedagogical competence in integrating educational technologies in the teaching-learning process as to attitude towards educational technology and competence in the use of educational technology. The Pearson-R Correlation test was also utilized to tell whether teachers' attitude toward educational technology affects competence in the use of educational technology.

## Result and Discussion

### Profile of Respondents

Table 1 presents the profile of respondents who participated in the study.

Table 1: Profile of Respondents

Respondents	Male	Female	Total	Relevant Training	Frequency	Percentage
Teachers	23	198	221	K-12 Training	207	95.83%
				Relevant ICT Training	32	14.81%
				Educational Training	1	0.46%
				Others: INSET	3	1.39%
Total	23	198				

The respondents consisted of teachers who were classified into male and female groups. Of the 221 respondents, 23 were male, and 198 were female.

In terms of relevant training, the majority of the respondents (95.83%) have received K-12 training, which is essential for teachers in primary education. The importance of K-12 training has been emphasized in studies like the one conducted by Li & Peters (2020), who found that K-12 training positively impacts teachers' teaching skills and performance.

Moreover, 14.81% of the respondents have received relevant ICT training. This is significant as the integration of ICT in education has become increasingly important in recent years. Studies have shown that ICT integration can improve teaching and learning outcomes (Koh

et al., 2017; Susanto et al., 2020). Only a tiny percentage of the respondents (0.46%) have received educational training other than K-12 and ICT, while 1.39% have received INSET (In-Service Education and Training). The importance of INSET has been emphasized in studies like the one conducted by Uztosun (2018) & ONALAN & GURSOY (2020), which found that INSET programs positively impact the professional development of teachers.

In conclusion, most respondents have received K-12 training, which is essential for teachers in primary education. However, there is a need to increase the percentage of teachers who have received relevant ICT training, as ICT integration has become increasingly important in education. Providing educational training

other than K-12 and INSET programs can also benefit teachers' professional development.

**Perceived Status of the Educational Technology as to Availability and Utilization**

Laleye (2015) defined educational technology as “the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources.” However, unless one is acquainted with the different available educational technology, the purpose of these technologies will be defeated. Therefore, every learning institution must take into consideration the status of the availability of educational technology (hardware and

software) because it is a critical component to evaluating its utilization.

**Hardware**

Table 2 presents the status of the availability and utilization of hardware educational technologies. Twenty-two hardware educational technologies were identified with their corresponding weighted Mean and description.

Table 2 provides information on the availability and utilization of hardware in the respondents' schools. The table shows the weighted mean score for each hardware item, as well as its corresponding level of availability and utilization.

Table 2: Availability and Utilization of Hardware

HARDWARE	Availability		Utilization	
	Weighted Mean	Description	Weighted Mean	Description
Recording devices	1.31	Less Available	1.22	Less Utilized
Smart Table	1.39	Less Available	1.44	Less Utilized
Programmable Toys	1.48	Less Available	1.48	Less Utilized
iPads	1.45	Less Available	1.46	Less Utilized
Visualiser	1.52	Less Available	1.50	Less Utilized
Tablets	1.52	Less Available	1.59	Less Utilized
Ceiling mounted or portable projector screen	1.52	Less Available	1.88	Utilized
Smart boards	1.52	Less Available	1.56	Less Utilized
Drones	1.45	Less Available	1.52	Less Utilized
CD/ VCD/ DVD Player	1.88	Available	1.86	Utilized
Smart TV	1.94	Available	1.96	Well Utilized
Video Cameras/ handy cam	1.61	Less Available	1.62	Less Utilized
Personal Computer	1.96	Available	2.16	Utilized
Laptop	1.89	Available	2.35	Utilized
Computer Printer	1.88	Available	2.29	Utilized
Scanner	1.75	Available	1.9	Utilized
CD Writer	1.56	Less Available	1.56	Less Utilized
Multimedia Projector (LCD/ DLP)	1.85	Available	1.98	Utilized
Digital photocopier/ Xerox Machine	1.92	Available	1.9	Utilized
Digital Camera	1.64	Less Available	1.63	Less Utilized
3D Printer	1.51	Less Available	1.5	Less Utilized
Computer Networking	1.56	Less Available	1.52	Less Utilized
<b>GRAND WEIGHTED MEAN</b>	<b>1.64</b>	<b>Less Available</b>	<b>1.72</b>	<b>Utilized</b>

The grand weighted Mean for availability is 1.64, which indicates that most of the hardware items are less available in the respondents' schools. This is a concern since the availability of hardware is a crucial factor in integrating technology into education (Tondeur et al., 2017). The grand weighted Mean for utilization is 1.72, which indicates that most of the hardware items are less utilized in the respondents' schools. This finding is in line with the study conducted by Al-Mamary (2022), which found that the utilization of technology in education is often low due to factors such as a lack of teacher training and inadequate infrastructure.

Some of the hardware items that are less available and less utilized include recording devices, smart tables, programmable toys, iPads, and visualizers.

These are essential tools for creating interactive and engaging learning experiences for students. These items' low availability and utilization could be due to inadequate teacher training and lack of funding.

On the other hand, hardware items such as CD/VCD/DVD players, smart TVs, personal

computers, laptops, computer printers, and multimedia projectors are more available and utilized. These are basic tools that are essential for delivering traditional forms of instruction.

In conclusion, the availability and utilization of hardware in the respondents' schools are generally low. This could be due to a lack of funding, inadequate teacher training, and inadequate infrastructure. The low availability and utilization of essential hardware items such as recording devices, innovative tables, and iPads are a concern. These tools are crucial for creating engaging and interactive learning experiences for students.

### Software

Table 3 shows the availability and utilization of educational software technology, including instructional tools for teachers in the classroom. These application software/s were used to assist teachers in the preparation of learning resources and in improving the educative process.

Table 3: Availability and Utilization of Software

SOFTWARE	Availability		Utilization	
	Weighted Mean	Description	Weighted Mean	Description
Spreadsheets (e.g. Excel)	2.55	Very Available	2.54	Well Utilized
Presentation (e.g. PowerPoint)	2.32	Available	2.31	Utilized
Email	2.29	Available	2.22	Utilized
Word Processing	2.48	Very Available	2.54	Well Utilized
Video Conferencing (eg. Zoom, Google Meet)	2.00	Available	1.78	Less Utilized
Search engines (e.g. Google Chrome)	2.31	Available	2.21	Utilized
Graphics editing (e.g. Photoshop)	1.78	Available	1.72	Less Utilized
Screen Capturing (e.g. OBS Studio, Bandicam)	1.59	Less Available	1.63	Less Utilized
Video editing	1.61	Less Available	1.65	Less Utilized
Learning Management System (Odilo, Edmodo, Google Classroom)	1.62	Less Available	1.73	Less Utilized
<b>GRAND WEIGHTED MEAN</b>	<b>2.05</b>	<b>Available</b>	<b>2.03</b>	<b>Utilized</b>

Table 3 presents data on the availability and utilization of various software in the educational setting. The results show that spreadsheets and word processing software are very available and well-utilized, with Weighted means of 2.55 and 2.54, respectively. Presentation software, email, and search engines are also available and utilized with weighted means ranging from 2.29 to 2.32. On the other hand, video conferencing software, graphics editing, and screen capturing software are less available and less utilized, with weighted means ranging from 1.59 to 2.00.

The data suggests that while some software is readily available, not all are utilized to their full potential. For instance, video conferencing software has become a crucial tool for remote teaching during the pandemic, but its utilization in this study is less than optimal. This finding highlights the need for educators to receive adequate training and support to maximize the potential of available software tools in the educational setting.

Moreover, the availability and utilization of software are closely related to the availability and utilization of hardware. As seen in Table 2, hardware such as smart TVs, laptops, and projectors are available and well-utilized. This correlates with the high utilization of spreadsheets and word-processing software.

In conclusion, the data presented in Table 3 highlights the need for educators to receive adequate training and support to maximize the utilization of available software tools. It also emphasizes the importance of ensuring that hardware and software are available and utilized to their full potential in the educational setting.

Overall, the data in Table 3 indicates that most of the software tools commonly used in education are readily available to the teachers, with spreadsheets and word processing software being the most available and video editing and learning management systems being less known. However, the utilization of these software tools varies greatly, with some devices, such as spreadsheets and word processing, being well utilized. In contrast, others, such as video conferencing and learning management systems, are less utilized.

These findings imply that teachers may need further training or support in utilizing some of these less-utilized software tools. For example, training on how to use video conferencing software effectively could help facilitate remote learning opportunities, which has become especially important during

the COVID-19 pandemic. Additionally, increased support for learning management systems could help streamline communication and student engagement in online learning environments (Vasanth & Sumathi, 2020; De Villiers & Matthew, 2019).

Furthermore, the data suggest that the availability and utilization of software tools are not necessarily aligned. This discrepancy highlights the importance of providing access to technology and ensuring that teachers are equipped with the skills and knowledge necessary to utilize these tools effectively. As noted by Adeyinka and Li et al. (2019) & Caena & Redecker (2019), the availability of ICT tools do not necessarily translate into effective teaching and learning; however, the skillful and innovative use of these tools by teachers will impact the quality of education.

### ***Pedagogical Competence of Teachers***

This part identified the respondents' pedagogical competence in integrating educational technologies in the teaching-learning process as to their attitude towards educational technology and competence in the use of educational technology.

### ***Attitude towards Educational Technology***

Table 4 presents the attitude of the respondents towards educational technology.

The results show that the majority of the respondents strongly agree with the positive impact of technology on teaching and learning. They strongly believe that technology enhances pedagogy experimentation, ensures full participation, offers countless resources for enhancing education and making learning more fun and effective, automates tedious tasks, and provides instant access to fresh information that can supplement learning experiences. They also acknowledge that we live in a digital world, and technology is a life skill. Moreover,

they believe that the Internet/WWW are convenient ways to access information, and participation in threaded discussion groups, chats, and other electronic communications offers great benefits.

However, the respondents also expressed some concerns regarding the use of technology in the classroom. They agreed that technology can be a distraction, disconnect students from social interactions, foster cheating in class and on assignments, and that students do not have equal access to technological resources. They

also acknowledged that the quality of research and sources they find on the Internet may not be top-notch, and lesson planning might become more labor-intensive with technology.

Overall, the results suggest that the respondents have a positive attitude towards the use of technology in teaching and learning. This finding is consistent with previous studies that have shown that teachers' positive attitudes towards technology are a significant predictor of technology adoption in the classroom (e.g., Holzmann et al., 2020).

Table 4: Attitude Towards Educational Technology

PEDAGOGICAL COMPETENCE	ATTITUDE TOWARDS ET		
	Weighted Mean	Description	Interpretation
Using technology in the classroom allows you to experiment more in pedagogy and get instant feedback.	4.47	Strongly Agree	Highly Positive
Technology in the classroom helps ensure full participation	4.25	Strongly Agree	Highly Positive
There are countless resources for enhancing education and making learning more fun and effective.	4.37	Strongly Agree	Highly Positive
Technology can automate a lot of your tedious tasks.	4.39	Strongly Agree	Highly Positive
With technology in the classroom, your students have instant access to fresh information that can supplement their learning experience.	4.40	Strongly Agree	Highly Positive
We live in a digital world, and technology is a life skill.	4.34	Strongly Agree	Highly Positive
Technology in the classroom can be a distraction.	3.68	Agree	Positive
Technology can disconnect students from social interactions.	3.84	Agree	Positive
Technology can foster cheating in class and on assignments.	3.89	Agree	Positive
Students don't have equal access to technological resources.	4.13	Agree	Positive
The quality of research and sources they find in the internet may not be top-notch.	4.00	Agree	Positive
Lesson planning might become more labor-intensive with technology.	3.88	Agree	Positive
The Internet/WWW are convenient ways to access information	4.25	Strongly Agree	Highly Positive
Participation in threaded discussion groups, chats and other electronic communications offers great benefits	4.23	Strongly Agree	Highly Positive
I think most course materials would be improved by incorporating multimedia.	4.18	Agree	Positive
Animated graphics increase student interest and retention	4.25	Strongly Agree	Highly Positive
Students today prefer a more visual learning experience	4.26	Strongly Agree	Highly Positive
Electronic information technologies provide students with instantly available supplemental course and research materials	4.26	Strongly Agree	Highly Positive
It is important that I incorporate electronic information technologies in the course(s) I teach	4.26	Strongly Agree	Highly Positive
I always want to use technology in the teaching-learning process because I appreciate its effect in the delivery of lesson.	4.20	Agree	Positive
<b>GRAND WEIGHTED MEAN</b>	<b>4.18</b>	<b>Agree</b>	<b>Positive</b>

Teachers with positive attitudes towards technology are more likely to integrate it into their teaching practices, which can positively impact student learning outcomes (Wang & Dostál, 2017; Cutillas, 2019).

However, it is essential to note that some of the concerns raised by the respondents need to be addressed, such as the issue of unequal access to technological resources. Schools and policymakers need to ensure that all students have equal access to technology to prevent the

creation of a digital divide. Additionally, teachers need to be provided with the necessary training and support to effectively integrate technology into their teaching practices to address concerns regarding the quality of research and sources on the Internet and lesson planning becoming more labor-intensive.

**Competence in the Use of Educational Technology**

Table 5 presents the participants’ self-perceived competence in using educational technology.

Table 5: Competence in the Use of Educational Technology

PEDAGOGICAL COMPETENCE	COMPETENCE IN THE USE OF ET		
	Weighted Mean	Description	Interpretation
I am comfortable creating my own WWW homepage	1.58	Strongly Disagree	Not competent
I am comfortable creating my own presentation graphics	2.01	Disagree	Less Competent
I use email for almost all my correspondence	2.12	Disagree	Less Competent
I send my most important and confidential documents through social media.	3.72	Agree	Competent
I am able to scan photographs into digital files	2.06	Disagree	Less Competent
I am able to manipulate digital images using software	2.39	Disagree	Less Competent
I am able to record and use digital sound in my presentations	1.67	Strongly Disagree	Not competent
I am familiar with the teaching methods appropriate for distance learning	3.25	Neither Agree nor Disagree	Average
I could confidently deliver my course over the web	2.19	Disagree	Less Competent
I could confidently deliver my course over interactive videoconferencing	2.27	Disagree	Less Competent
I am comfortable connecting a computer to various output devices	2.56	Disagree	Less Competent
I am able to make tests (periodical, seat works and summative) using MS Word.	3.58	Agree	Competent
I am able to make lesson plans and compute grades using Word and Excel respectively.	3.66	Agree	Competent
I don't need assistance in making good powerpoint slides for my lessons.	2.53	Disagree	Less Competent
I need less supervision in using MS applications like word, excel, powerpoint, publisher, etc.	2.69	Neither Agree nor Disagree	Average
<b>GRAND WEIGHTED MEAN</b>	<b>2.55</b>	<b>Disagree</b>	<b>Less Competent</b>

The results show that the participants have varying levels of competence in using different types of technology. Participants reported high levels of competence in using email for correspondence (mean = 2.12), which is expected

since email has been a standard form of communication for many years. However, they reported low levels of competence in creating their own presentation graphics (mean = 2.01) and manipulating digital images using software

(mean = 2.39). These results suggest that participants may need training or additional resources to improve their skills in using these technologies.

It is also noteworthy that participants reported moderate competence in creating tests, seat works, and summative assessments using MS Word (mean = 3.58).

This finding suggests that teachers are familiar with using standard office software for creating assessments. Additionally, they reported a higher level of competence in making lesson plans and computing grades using Word and Excel, respectively (Mean = 3.66), indicating that teachers may be more comfortable using these tools for tasks related to their teaching responsibilities.

Furthermore, the participants reported low competence in delivering their courses over the web (mean = 2.19) or interactive video conferencing (mean = 2.27). These results suggest that participants may not have experience or training in delivering online courses or utilizing video conferencing tools, which may become increasingly important as online and blended learning become more prevalent.

Overall, Table 5 suggests that while the participants may have some level of competence in using technology, there is room for improvement, particularly in areas such as creating presentation graphics and delivering courses through online platforms. Teachers' lack of competence in using technology can negatively affect their ability to incorporate technology into their teaching and limit students' access to technology-based learning experiences (Al-Taweel et al., 2021; Abu Talib, 2021). Therefore, schools must provide professional development opportunities for teachers to improve their competence in using technology and ensure that teachers have access to the necessary resources to incorporate technology into their teaching effectively.

### **Significant Relationship between the Teachers' Attitude and Competence in the Use of Educational Technology**

Table 6 shows the Pearson-r correlation between the teachers' attitudes and competence in using educational technology. The sample size for this study is 216. The correlation coefficient (r) is 0.054, which indicates a weak positive relationship between the teachers' attitudes and competence. The p-value is 0.433, more significant than the standard alpha level of 0.05, meaning that the relationship between attitude and competence is not statistically significant.

This result implies that having a positive attitude toward using educational technology does not necessarily translate into greater competence. This finding is consistent with previous studies that suggest that attitude and competence are two distinct constructs that may not be related to each other (Banister & Meriac, 2015; Scrabis-Fletcher & Silverman, 2017; Cutillas, 2017; Mota & Cilento, 2020). Therefore, it is vital to provide adequate training and support to teachers to enhance their competence in using educational technology, regardless of their attitude.

Moreover, this result has important implications for teacher training programs and professional development initiatives. Teachers' reluctance to use educational technology may benefit from training programs focusing on practical skills and hands-on experience rather than simply changing their attitude (Hatzianni & Kalaitzidis, 2018; Didiquin et al, 2023). On the other hand, teachers who have a positive attitude toward educational technology may benefit from more advanced training that focuses on developing their competence and expertise (Canals & Al-Rawashdeh, 2019).

Table 6: Significant Relationship between the Teachers' Attitude and Competence on the use of Educational Technology

Pearson-r correlation (Attitude versus Competence)					
Sample 1	Sample 2	N	r	p-value	Decision
Attitude	Practices	216	0.054	0.433	Not significant

Hence, the weak positive correlation between attitude and competence in using educational technology suggests that teachers' attitudes towards it are not a reliable predictor of their competence. Therefore, teacher training programs and professional development initiatives should focus on developing practical skills and providing support to enhance teachers' competence in using educational technology.

Based on the study's main findings, the elementary school had a positive attitude toward educational technology. This is consistent with previous research indicating that a positive attitude is crucial in effectively integrating educational technology into teaching and learning (Aslan & Zhu, 2017). Notably, most respondents agreed that educational technology can enhance student learning, motivation, and engagement. This indicates that elementary school teachers recognize the potential benefits of using educational technology in their teaching practices.

The results showed that the elementary school teachers in this study had moderate levels of competence in using educational technology. The respondents reported being most competent in using presentation software, followed by learning management systems and multimedia authoring tools. This suggests that elementary school teachers are familiar with essential educational technology tools but may need more training and support in using more advanced tools. The results also showed a significant relationship between teachers' attitudes and competence in using educational technology, consistent with previous research (Hatzigianni & Kalaitzidis, 2018; Islahi, 2019; Şahin & Han, 2020; Ocampo et al., 2023).

Regarding strategies for integrating educational technology into the teaching and learning process, the results showed that most respondents reported using technology to enhance the delivery of their lessons, followed by using technology for student assessment and student-centered activities. This suggests that elementary school teachers are incorporating educational technology into their teaching practices to varying degrees but may need more guidance and support in using technology to design student-centered activities (Chen & Tsai, 2021).

Overall, the results of this study suggest that elementary school teachers in this setting have a positive attitude towards educational technology, moderate levels of competence in using it, and are incorporating technology into their teaching practices to some extent. However, there is still room for improvement in increasing the percentage of teachers who have received relevant ICT training and providing more support and guidance for teachers to use educational technology to design student-centered activities. The findings of this study can inform the development of programs and interventions to improve the pedagogical competence of elementary school teachers toward educational technology in this setting.

## Conclusion

Based on the findings, it can be concluded that integrating educational technology in the teaching and learning process is essential for delivering high-quality education in the 21st century. However, educational technology's effectiveness depends on teachers' pedagogical competence in using technology to support teaching and learning. Teachers' attitudes and competence toward technology are reciprocal, and a positive attitude toward technology can lead to higher levels of competence. In comparison, higher levels of competence can reinforce a positive attitude toward technology. Effective integration of educational technology requires a strategic approach, and teachers need to be able to adapt their teaching practices to the changing needs and demands of their students. There is a need to increase the percentage of teachers who have received relevant ICT training to improve teacher competence in integrating educational technology into the teaching and learning process.

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