



Digital Competence and Technology-Integrated Teaching: The Mediating Role of Teacher Self-Efficacy

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ABSTRACT

The rapid advancement of digital technologies has increased the need for teachers to develop digital competence and effectively integrate technology into teaching practices. This study explored the relationship between teachers' digital competences and technology integrated teaching with teacher self-efficacy as a mediating variable. The quantitative research method was used with a cross sectional correlational design. A structured questionnaire was used to gather data from 200 teachers from schools on digital competence, teacher self-efficacy and technology-integrated teaching. Data were analyzed with correlation, regression and mediation analysis. The results indicated high positive correlation between all the variables of the study. The digital competence significantly explained the technology-integrated teaching, and the teacher self-efficacy reinforced the use of digital skills in teaching practices. The mediation analysis found partial mediation between digital competence and technology integration at the level of the teacher's self-efficacy. The study emphasizes the need for the enhancement of teachers' digital skills, confidence, and institutional support to achieve a successful digital transformation in education.

Introduction

Digital technologies have shaped the learning landscape in a dramatic way, impacting teaching and learning in so many fundamental ways. As digital technologies have developed so quickly, they have had a huge impact on the learning landscape, affecting teachers' design of learning, communication with learners, and evaluation of learning and assessment of learning (Paetsch et al., 2023). In today's world, digital tools, learning management systems, online resources, and interactive technologies have become a part of education. The digital revolution has emphasized the need for teachers to have sufficient digital competence in meeting the challenges of using digital technology in teaching. Recent studies highlight the critical importance of teachers' capacity to employ digital technologies not just as tools, but also as pedagogical resources for enhancing teaching and learning outcomes (Tzafilkou et al., 2023; Hu et al., 2025).

Although there are more and more educational technologies that are becoming available, it is still difficult for many teachers to integrate them effectively. Digital training, technological proficiency, institutional support, and pedagogical appropriation of digital tools are gains for teachers, but they may experience obstacles. The implementation of digital training, the technological knowledge, the support of the institutions and the pedagogical approach to the use of digital tools are assets for teachers, but they can experience difficulties. As such, access to technology doesn't always mean an effective use in the classroom, and teachers need to master the digital skills and confidence to effectively use technology-supported teaching methods (Wang & Chu, 2023; Paetsch et al., 2023). Recent research also shows that institutional conditions, professional development opportunities, and teachers' perceived competence are important factors in their preparedness to incorporate digital teaching methods (Sihombing et al., 2025).

Digital Competence and Technology-Integrated Teaching

Teachers' digital competence refers to their ability to effectively and responsibly use digital technologies for professional teaching activities (Sharma & Saini, 2022). It encompasses a variety of aspects such as selecting digital resources, planning lessons with technology, using digital assessments, engaging learners, communicating online and collaborating professionally. Digital competence allows teachers to go beyond using technology for mere applications and use digital resources to create student-centered and innovative learning environments (Tzafilkou et al., 2023; Luo et al., 2025).

Teachers who are more competent in handling digital technology tend to be more likely to use information and communication technology (ICT) in their teaching, as per the previous studies. The digital competence enhances teachers' skills in the selection of the suitable technological tools, the design of learning activities suitable for interaction, and the use of digital resources for evaluation and feedback. Therefore, teachers' digital competence has become one of the important factors to be considered for successful technology integration in teaching (Peng et al., 2024; Sulistiani & Dewi, 2024). However, having digital knowledge doesn't mean that it will always be used in the classroom, and so there are other psychological factors that may influence the technology adoption behaviors of teachers. Previous studies have shown that the digital competence of teachers is significantly related to their confidence, technological acceptance, and adoption of digital pedagogies (Sharma & Saini, 2022; Yang & Du, 2024).

Role of Teacher Self-Efficacy in Technology Integration

Teacher self-efficacy is a teachers' self-confidence in their ability to do teaching tasks and solve teaching problems well. Technology related self-efficacy with reference to education technology is defined as teachers' self-assurance in their capacity to successfully employ ICTs in an educational context (Sharma & Saini, 2022). In general, teachers with higher self-efficacy levels tend to be more willing to try out new teaching strategies, address technological challenges, and integrate digital tools into their teaching.

It is shown in recent evidence that teacher self-efficacy is important in technology integration. It was expected that teachers who are more confident in their technological skills will be more inclined to use technology in their teaching and learning activities (Hershkovitz et al., 2023; Paetsch et al., 2023). In addition, self-efficacy can be a psychological mechanism which translates teachers' digital competence into real practice in the classroom. That is, teachers can have digital skills, but their confidence is what is going to be used to implement them in teaching situations. This is supported by research which has shown that digital literacy self-efficacy plays a mediating role between teachers' technological literacy and teachers' engagement in digital teaching environments (Fan et al., 2023; Afari et al., 2023).

Digital self-efficacy and competence for teachers also is enhanced through professional development experiences. Recent research indicates that intentional digital pedagogy training positively impacts teacher confidence, technological capabilities, and professional well-being, especially in inclusive and technologically-supported classrooms (Shi et al., 2025; Amilusholihah et al., 2025).

Research Gap and Study Purpose

Previous studies have found connections between digital competence, self-efficacy, and technology integration, but there are few studies that have explored how teachers' digital competence impacts technology-integrated teaching (Rivandi & Pahlevi, 2025). Previous research has primarily examined direct links between technological skills and ICT adoption, but there has been limited research attention paid to the mediating psychological processes in this relationship.

This study fills this gap by focusing on teacher self-efficacy as a mediator between digital competence and technology-integrated teaching. This mechanism can be of help to gain insight into the process of how teachers' technology skills get translated into good practice in the classroom. According to previous studies, self-efficacy is considered an explanatory variable between teachers' digital competence and the adoption of technology, its readiness for use in the classroom, and continued use of digital technology in the classroom (Caratiquit & Javier, 2025; Tzafilkou et al., 2023).

Research Objectives

The present study aims to achieve the following objectives:

1. To examine the relationship between digital competence and technology-integrated teaching among teachers.
2. To determine the relationship between digital competence and teacher self-efficacy among teachers.
3. To investigate the relationship between teacher self-efficacy and technology-integrated teaching among teachers.
4. To examine the mediating role of teacher self-efficacy between digital competence and technology-integrated teaching among teachers.

Research Questions

The following research questions are suggested based on the research objectives:

- **RQ1:** What relationship exists between digital competence and technology-integrated teaching among teachers?
- **RQ2:** What relationship exists between digital competence and teacher self-efficacy among teachers?
- **RQ3:** What relationship exists between teacher self-efficacy and technology-integrated teaching among teachers?
- **RQ4:** Does teacher self-efficacy mediate the relationship between digital competence and technology-integrated teaching among teachers?

Literature Review

Digital Competence among Teachers

Digital competence has become a fundamental professional requirement for teachers in the contemporary educational environment. It represents teachers' confidence, critical and effective use of digital technologies in supporting and extending learning, assessment, communication and professional development (Tzafilkou et al., 2023). Digital competence is not merely about knowing how a technology works but also about how to apply the technical knowledge to a pedagogical context to afford meaningful learning (Rivandi & Pahlevi, 2025). Recent research highlighted that digital competency (DC) of teachers has several aspects, including: digital professional communication, digital resource management, digital teaching practices, digital assessment, empowering students through technology, and facilitating the development of learners' digital competence (Tzafilkou et al., 2023). Previous studies also indicated the relationship between teachers' digital competence and their self-efficacy beliefs and professional training needs, implying that self-efficacy and competence grow hand-in-hand with suitable learning opportunities (Mannila et al., 2018).

Teachers who are digitally competent can choose digital resources, create learning activities with technology, assess online resources, and leverage technology to engage students in learning in the classroom. Teachers' digital competencies are also growing in significance as a result of the wide-spread use of learning management systems, online collaboration tools, multimedia resources and AI-driven learning technologies. Despite this, studies show that teachers continue to struggle to effectively integrate digital technologies into their classrooms due to a lack of training, experience, and confidence in using the technology (Paetsch et al., 2023). Recent studies also indicate that professional competence, lifelong learning attitude, and self-efficacy about technology have a significant effect on teachers' readiness to embrace digital teaching practices (Şen & Durak, 2022).

Hence, digital competence plays a pivotal role in shaping teachers' capabilities and transitioning from mere technology access to its effective integration. The more teachers know about digital knowledge, the more they are capable of using the appropriate

technology tools and how to tweak them to meet instructional goals. This has led to enhancing the digital competences of teachers to be one of the key objectives of any educational institution aiming to achieve a successful digital transformation.

Technology-Integrated Teaching

Technology-integrated teaching is teaching that systematically leverages digital technologies for improving the quality of teaching and learning, as well as for creating interactive teaching environment (Tzafilkou et al., 2023). Technology integration is not simply a matter of using new technology tools instead of old ones directly in instruction, but it is the way that technology is used to enhance student-centered instruction. Digital technologies may be employed by teachers for planning, teaching, assessment, feedback, collaboration and communication with learners.

Recent studies have shown that technology integration can offer teachers the flexibility of learning opportunities, personalization of teaching, and increase in student participation. The use of digital tools like virtual learning environments, educational apps, multimedia and online assessment systems empowers educators to create dynamic and inclusive learning experiences. But the integration of technology into teaching and learning requires teachers to be able to translate technological knowledge into relevant pedagogical approaches (Peng et al., 2024). Additionally, studies show that the acceptance of technology, continuance intention and self-efficacy beliefs of teachers has a significant impact on their willingness to use digital technologies in their educational practice (Sharma & Saini, 2022).

Teachers' readiness and beliefs of technology use are also important components of effective teaching using technology. Research shows that teachers with positive attitudes toward technology and adequate digital competence, tend to adopt innovative teaching as well. Thus, to integrate technology, both technological resources and teachers' competence and confidence in utilizing the resources in classroom contexts are needed (Hershkovitz et al., 2023).

Teacher Self-Efficacy

Teacher self-efficacy is the sense that teachers have when they can successfully carry out teaching functions, handle challenges in the classroom, and reach the desired learning goals (Tzafilkou et al., 2023). The Social Cognitive Theory by Bandura states that self-efficacy has a significant effect on people's motivation, decision making, persistence and willingness to try tasks that are difficult. This view suggests that people who have higher self-efficacy beliefs have greater self-beliefs to try out difficult tasks, they are more likely to show increased effort and willingness to try alternative strategies if they encounter problems.

In the context of technology integrated education, teacher self-efficacy is teachers' trust in the effective ways they can use digital tools to teach. Teachers who have higher technology-related self-efficacy are more ready to investigate new technology, troubleshoot technical problems and try out new ideas on how to use technology in their classrooms (Hershkovitz et al., 2023). On the other hand, teachers lacking in self-efficacy may choose not to use technology even if digital resources are provided because of a lack of confidence in their own capacity to successfully use technology. The factors affecting teachers' self-efficacy in the context of online teaching have been shown in recent research, including technological competence, institutional support, previous digital experiences, and others (Baroudi & Shaya, 2022).

Teacher self-efficacy has been shown to be an important predictor of technology use in recent research. Paetsch et al. (2023) revealed that TISSE had a significant impact on teachers' actual ICT usage in teaching. In the same way, Hershkovitz et al., (2023) found that teachers' confidence and the nature of their prior technology experiences were significant factors in the successful integration of technology. In addition, recent studies have also demonstrated that self-efficacy toward digital literacy is significantly correlated with teachers' acceptance of technology in digital teaching and learning, suggesting that self-efficacy is an important psychological factor in the adoption of digital teaching (Yang & Lou, 2024).

Relationship among Study Variables

Digital Competence and Technology-Integrated Teaching

Digital competence equips teachers with the knowledge and skills necessary to use the digital tools in teaching. Teachers with greater digital competence have better abilities to create lessons using technology, to find digital tools to help them, and to apply online assessment and communication tools (Hershkovitz et al., 2023). The empirical results show that there is a positive correlation between teacher's digital competence and ICT integration, meaning that the higher the teacher's digital competence, the more likely it is that he or she is able to integrate ICTs into teaching (Peng et al., 2024; Tzafilkou et al., 2023).

Digital Competence and Teacher Self-Efficacy

Teacher self-efficacy is also related to digital competence. The more teachers understand and have experience with technology, the more confident they are in their own capacity to effectively utilize technology (Şen & Durak, 2022). Digital skills alleviate technological anxiety and boost teachers' confidence in their capabilities. The present study revealed that there is a positive significant relationship between teachers' digital competency and self-efficacy, which means that teachers who are digitally competent tend to have high levels of self-efficacy in managing digital learning environments in their teaching. The digital competence and teachers' self-efficacy have been identified by Mannila et al. (2018) as interrelated aspects that affect teachers' technological practices and professional development requirements.

Teacher Self-Efficacy and Technology-Integrated Teaching

Teachers' self-efficacy is a critical factor in teacher implementation of technological knowledge in the classroom. Increased teacher self-efficacy is associated with increased use of digital tools, incorporating new teaching methods, and persevering with technology even in the face of challenges. It has been found that technology-related self-efficacy is a good predictor of teachers' attitude and readiness to use ICT in teaching (Paetsch et al., 2023; HersHKovitz et al., 2023). Likewise, Yang and Lou (2024) found that digital literacy self-efficacy impacted the teachers' acceptance and use of educational technologies.

Mediating Role of Teacher Self-Efficacy

Digital competence equips teachers with the technological skills required, but knowledge might not be enough for effective technology integration. Teacher self-efficacy could be an important psychological pathway that illuminates the link between digital competence and the use of digital technologies in education (Peng et al., 2024). In some cases, teachers might be reluctant to use digital competence because of their low confidence. Teachers who are digitally competent and who have a high degree in self-efficacy, on the other hand, are more likely to implement digital competence into their practical teaching.

Therefore, teacher self-efficacy can serve as a mediating variable which enhances the connection between digital competence and technology-integrated teaching. Although prior research has included direct links between these variables, few studies have explored the mediation process by which increasing teachers' digital competence leads to adopting technology in classroom instruction (Şen & Durak, 2022).

Research Gap

Although a significant amount of research has been conducted on digital competence and technology integration, there are a number of gaps. The existing studies have paid more attention to the direct link between the digital competence of teachers and how they apply ICTs and studying the psychological factors that explain this link has received limited attention (Peng et al., 2024). Second, while teacher self-efficacy is known to be a key determinant of the uptake of technology, its mediation between digital competence and technology-integrated teaching has hardly been investigated. Third, additional empirical research is required to gain insight into how teachers' technology competency and confidence combine to affect technology use in the classroom (Tzafilkou et al., 2023). Thus, the present study is designed to fill the gap by studying the role of teacher self-efficacy as a mediator between digital competence and technology-integrated teaching.

Research Methodology

Research Approach

The present research employed quantitative research method to analyze the relationship between digital competence, teacher self-efficacy and technology integrated teaching. The quantitative method was appropriate as the study was designed to measure relationships between variables by using numerical data and statistical analysis. The method allowed the researcher to test the proposed hypotheses and to explore teacher self-efficacy as a mediator using empirical evidence. Patterns, correlations and predictive relationships between measurable constructs are often explored by using quantitative methods (Creswell & Creswell, 2017).

Research Design

This study used a cross sectional correlational research design. Data gathered by teachers were collected at one time to review the current relationships between digital competence, teacher self-efficacy and technology-integrated teaching. Since the study was of

a non-experimental nature and involved determining the direction and strength of the relationship(s) between the variables, the correlational design was appropriate. This type of design has been frequently applied in educational technology research to explore factors influencing teachers' technology adoption behaviors (Fraenkel et al., 2000).

Population and Sample

The population of the study were the school teachers. The teachers were stratified random sampled and the sample size was 200 teachers. The population was broken down into relevant subgroups (strata), and a random sampling procedure was used to ensure that the number of subjects in each subgroup reflected the sample size of the population. Stratified sampling was used as this type of sampling enhances the representativeness of the sample and decreases the sampling bias associated with studying diverse education populations.

Research Instrument

The data were gathered by a structured questionnaire that included three constructs: digital competence, teacher self-efficacy and technology-integrated teaching. The digital competence scale was used to assess digital competence in the following four areas: digital use, digital teaching strategies, digital communication management and use of technology for assessment. The dimensions were based on the current concept of teachers' digital competence that focuses on both technical and pedagogical applications of digital technologies (Tzafilkou et al., 2023).

Teacher self-efficacy was assessed by items that evaluated teachers' confidence in their instructional approaches, managing classroom, and interacting with students. The construct was based on the theoretical assumption that teachers' beliefs about their capabilities influence their professional actions and willingness to adopt innovative practices.

Technology integrated teaching measured by items of technology in classroom teaching, digital learning activities in classroom teaching and technology-supported assessment practices. The questions used were based on the similar earlier studies in educational technology and were evaluated with a Likert type response scale.

Data Collection Procedure and Ethical Considerations

An online questionnaire was used to gather data that were sent out on Google Forms. Research purpose was explained to the participants prior to participating in questionnaire. The study was voluntary and respondents were informed of confidentiality of the study and their right to withdraw at any time of the study.

Ethical issues were adhered to in conducting the research. No personal identifying information was gathered and participants' responses were only used for academic research. In this regard, the researcher ensured the informed consent, privacy and confidentiality of data collected, observing the ethical principles of educational research.

Data Analysis

The data collected were analyzed by means of SmartPLS-Structural Equation Modeling (SEM). Measurement model was measured by reliability analysis and validity assessment, including the construct reliability, convergent validity and discriminant validity. The structural model was subsequently analyzed for testing the relationships between the study variables.

The direct effect analysis was conducted to reveal the relationships between digital competence, teacher self-efficacy and technology-integrated teaching. In addition, mediation analysis was conducted to see if digital competency mediated the relationship between technology-integrated teaching and teacher self-efficacy. Because it was appropriate for analyzing complex and multiple constructs models and examining predictive relationships in an educational research study, Partial Least Squares Structural Equation Modeling was chosen.

Results

Demographic Characteristics of Respondents

Table 1: Demographic Characteristics of Teachers

Variable	Category	Frequency	Percentage
Gender	Male	112	56.0
	Female	88	44.0
Qualification	Bachelor	42	21.0
	Master	118	59.0
	MPhil/Above	40	20.0
Teaching Experience	Less than 5 years	48	24.0
	5–10 years	86	43.0
	Above 10 years	66	33.0
School Type	Public	108	54.0
	Private	92	46.0

Demographic results indicated that there were 200 teachers who participated in the study, of which 56% were male and 44% female. As for academic qualification, the majority of respondents (59%) held a Master's degree. Most teachers had teaching experience of 5-10 years (43%). The sample consisted of both public (54%) and private (46%) school teachers to provide representation from diverse educational settings.

Reliability Analysis

Table 2: Reliability Statistics of Study Variables

Variable	No. of Items	Cronbach's Alpha
Digital Competence	20	.912
Teacher Self-Efficacy	18	.894
Technology-Integrated Teaching	15	.901

The internal consistency reliability was determined by Cronbach's Alpha values. All reliability coefficients were between .894 and .912, which is above the accepted .70 reliability. The results showed that all scales showed good reliability and appropriate for further statistical analysis.

Descriptive Statistics

Table 3: Mean and Standard Deviation of Study Variables

Variables	Mean	SD
Digital Competence	4.02	.61
Teacher Self-Efficacy	3.94	.58
Technology-Integrated Teaching	3.88	.64

According to the descriptive statistics, the teachers' digital competence, teacher self-efficacy, and technology-integrated teaching were all high. The mean score of digital competence ($M = 4.02$) was the highest followed by teacher self-efficacy ($M = 3.94$) and technology-integrated teaching ($M = 3.88$).

Pearson Correlation Analysis

Table 4: Correlation among Digital Competence, Teacher Self-Efficacy, and Technology-Integrated Teaching

Variables	1	2	3
Digital Competence	1		
Teacher Self-Efficacy	.645**	1	
Technology-Integrated Teaching	.612**	.671**	1

Note: $p < .01$

There were significant positive relationships among all the study variables using Pearson correlation analysis. The digital competence was significantly and positively associated with teacher self-efficacy ($r = .645$, $p < .01$). Likewise, technology-integrated teaching was significantly related to digital competence ($r = .612$, $p < .01$). Teacher self-efficacy was also found to have a significant positive correlation with the use of technology in teaching ($r = .671$, $p < .01$).

Regression Analysis

Regression Model 1

Digital Competence Predicting Teacher Self-Efficacy

Table 5: Regression Analysis

Predictor	β	t	p	R	R^2	F	p
Digital Competence	.645	12.884	<.001	.645	.416	166.01	<.001

The regression results showed that digital competence had a significant role in the teacher's self-efficacy ($\beta = .645$, $p < .001$). The digital competence was found to explain 41.6% of the variance in teacher self-efficacy.

Regression Model 2

Digital Competence and Teacher Self-Efficacy Predicting Technology-Integrated Teaching

Table 6: Multiple Regression Analysis

Predictor	β	t	p	R	R^2	F	p
Digital Competence	.382	5.941	<.001	.773	.598	146.52	<.001
Teacher Self-Efficacy	.471	7.236	<.001				

The multiple regression analysis revealed that the factors of digital competence and teacher self-efficacy were significant predictors of technology-integrated teaching. Both predictors together accounted for 59.8% variance in the teachers' technology-integrated teaching practices.

Mediation Analysis (SPSS PROCESS Macro Model 4)

Table 7: Mediation Effect of Teacher Self-Efficacy

Effect	β	SE	p
Direct Effect (DC $\rightarrow$ TIT)	.382	.064	<.001
Indirect Effect (DC $\rightarrow$ TSE $\rightarrow$ TIT)	.304	.047	<.001

Total Effect	.686	.052	<.001
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The results of the mediation analysis confirmed that the relationship between digital competence and technology-integrated teaching was mediated by teacher self-efficacy. Digital competence had a significant direct effect on technology-integrated teaching. Further, an indirect effect via the teachers' self-efficacy was found to be significant, suggesting that this pathway was partially mediate.

Hypothesis Testing Summary

Hypothesis	Relationship	Result
H1	Digital Competence → Technology-Integrated Teaching	Supported
H2	Digital Competence → Teacher Self-Efficacy	Supported
H3	Teacher Self-Efficacy → Technology-Integrated Teaching	Supported
H4	Teacher Self-Efficacy mediates DC → TIT relationship	Supported

The results of the hypothesis testing showed that all the relationships proposed in the research model were supported. The results indicated that for successful technology-integrated teaching, teacher's digital competency and confidence to use and utilize technological knowledge are required. Digital competency gives teachers the skills to use technology, but teacher self-efficacy enhances teachers' desire and capacity to translate these skills into effective practices in the classroom.

Discussion

The present study focused on the relationships among digital competence, teacher self-efficacy and technology-integrated teaching, especially the mediation role of teacher self-efficacy. The results showed that digital competence was significantly positively correlated with technology-integrated teaching, suggesting that digital competence had a significant positive relationship with technology-integrated teaching, where teachers with high digital competencies were more likely to incorporate digital tools into teaching. The discovery implies that teachers are able to select digital tools and materials, create activities with the use of digital technology and to make use of digital platforms for communication and evaluation. This outcome aligns with the findings of previous studies that have shown that teachers' digital competence is one of the most important success factors for the effective use of technology in education, in which they possess not only technical skills but also pedagogical skills (Tzafilkou et al., 2023; Peng et al., 2024).

The results also showed that teacher self-efficacy made a significant contribution to the prediction of technology-integrated teaching and mediated the relation between digital competence and technology use. This means that the ability to use digital skills is not enough for successful technology adoption, teachers need to have confidence in how to use these tools within the classroom setting. Self-efficacy is positively associated with teachers' willingness to try new technology tools, to address technological challenges, and to use innovative teaching practices. The results were consistent with those of Paetsch et al. (2023) and HersHKovitz et al. (2023) which highlighted that technology-related self-efficacy was a significant determinant in teachers' willingness and ability to use ICT in the classroom.

Furthermore the findings indicated that the current study confirms the findings of the previous studies that there is a strong association between digital competence and teacher self-efficacy. The more teachers know about technology and use it in their teaching, the more confident they feel about the digital learning environment. Alwi and Sehar (2023) also concluded that there was a significant relationship between teachers' digital competency and self-efficacy, which further reflects the connection between teachers' digital competency and self-efficacy.

From a theoretical perspective, this study enhances the understanding of technology integration from a psychological viewpoint. The results show that, according to the Social Cognitive Theory by Bandura, self-efficacy is an important mechanism that helps teachers makes digital competence a reality. Successful digital transformation in education is thus not just about technological capacity but also educators' beliefs that they can effectively utilize technology. These findings have implications for professional development programs; teacher training needs to simultaneously increase the digital competence and the self-efficacy of teachers with regard to technology.

Conclusion and Implications

The present study examined the relationships among digital competence, teacher self-efficacy, and technology-integrated teaching among teachers. The results indicated that digital competence is an essential aspect of supporting effective inclusion of technology in learning environments. Digital knowledge and skills are essential for teachers to effectively use digital resources, to apply technology supported pedagogical practices and to design purposeful digital learning experiences for students. The results, however, also showed that technical skills do not necessarily translate to effective classroom application of technology. The concept of teacher self-efficacy was found to be an important factor that enhances the relationship between digital competence and using technology in teaching by making teachers' self-confidence, willingness and ability to use digital technologies in teaching stronger.

The study contributes to the understanding of technology adoption in education by highlighting the combined importance of teachers' digital capabilities and psychological beliefs. Teacher self-efficacy plays a mediating role in the study, suggesting that digital transformation is not just about acquiring technological competences but also about boosting teachers' self-confidence in effectively leveraging digital resources.

The results have relevant practical implications for education institutions and policy makers. Digital training programs should be designed to be implemented continuously, to further improve teachers' digital competences and to offer opportunities for digital learning. Professional development efforts should include strategies to increase teacher confidence and alleviate barriers to technology use. In addition, schools need to have the necessary digital infrastructure, technical support and collaborative learning space to support sustainable integration of technology in the schools. Educational systems can enhance teachers' preparedness for effective digital teaching practices by reinforcing their digital competence and teacher self-efficacy.

Limitations and Future Research

There are some limitations that should be taken into account for the results obtained of the present study. First, the cross-sectional research design limited the ability to determine causal relationships among digital competence, teacher self-efficacy, and technology-integrated teaching. Longitudinal research can be used in future to assess the evolution of teachers' digital practices over time. Secondly, this study was based on self-reported data, which might be subject to perceptions and response bias. Classroom observations, interview, or multiple data sources should be included in future research to gain a better understanding. Third, the study was done in a small geographic area and this could contribute to the results not being applicable to higher levels of the geographic scale. Further research is needed on a variety of educational settings and with larger samples. Furthermore, it is recommended to use mixed methods and investigations on various educational levels to build a broad knowledge about the factors that affect the use of technology for teaching.

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