

Teacher Digital Competence, Teaching Quality, and Learner Satisfaction in Vietnam: A Qualitative Synthesis

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ABSTRACT

Digital transformation has become an important policy and professional agenda in education systems worldwide, including Vietnam. In this context, teachers are increasingly expected not only to use digital tools but also to design meaningful, interactive, and learner-centered technology-enhanced learning experiences. This paper explores the relationship among teacher digital competence, teaching quality, and learner satisfaction in the Vietnamese educational context. Using a qualitative method based on document analysis, conceptual analysis, and synthesis of recent literature, the paper develops an interpretive framework explaining how teacher digital competence can contribute to teaching quality and, indirectly, learner satisfaction. The findings suggest that teacher digital competence affects teaching quality through four main mechanisms: digital pedagogical design, interactive communication, digital assessment and feedback, and learner support. The paper also argues that learner satisfaction is influenced not merely by the availability of digital platforms but by the perceived quality of instructional design, teacher presence, timely feedback, accessibility, and the usefulness of learning activities. In Vietnam, where digital transformation in education is strongly promoted, teacher digital competence should be understood as a professional capability combining technological, pedagogical, communicative, evaluative, ethical, and reflective dimensions. The paper concludes with theoretical and practical implications for teacher professional development, institutional management, and future empirical research.

Keywords: teacher digital competence, teaching quality, learner satisfaction, digital transformation, Vietnam, qualitative synthesis

INTRODUCTION

Digital transformation has become one of the most important forces reshaping contemporary education, as education systems are increasingly expected to build effective digital learning ecosystems rather than merely adopt technological tools (OECD, 2023). The rapid expansion of learning management systems, digital learning resources, online assessment tools, blended learning models, and artificial intelligence-supported applications has changed how teachers design, deliver, and evaluate teaching. In many countries, the COVID-19 pandemic accelerated the transition from traditional face-to-face instruction to emergency remote teaching and later to more systematic forms of online and blended education. However, this transition also revealed that access to technology alone is insufficient for ensuring effective teaching and meaningful learning. What matters more is whether teachers possess the digital competence needed to integrate technology into pedagogy in an appropriate, inclusive, and learner-centered manner.

Recent studies suggest that digital education quality depends not only on infrastructure but also on teachers' ability to design meaningful, interactive, and well-supported learning experiences (Adedoyin & Soykan, 2023; Rapanta et al., 2020). Teacher digital competence has therefore become an important dimension of teacher professionalism, particularly as teachers are expected to help learners participate effectively in increasingly digital learning and social environments (Fraillon et al., 2020; Vuorikari et al., 2022). It includes not only technical ability but also digital pedagogical design, online communication, digital assessment, ethical awareness, learner support, and professional engagement (Falloon, 2020; Redecker, 2017; UNESCO, 2018). In

this sense, digital competence is not simply the ability to operate devices or software; it is the ability to use digital technologies to improve teaching and learning.

In Vietnam, digital transformation in education has been increasingly emphasized as part of national development and education modernization. Schools, colleges, and universities have adopted various digital platforms for teaching, administration, communication, learning management, and assessment. During and after the pandemic, many Vietnamese educational institutions became more familiar with online and blended learning. However, the quality of technology-enhanced teaching remains uneven across institutions, localities, disciplines, and teacher groups. Some teachers use digital tools mainly for presenting information, while others are able to redesign learning activities, support interaction, provide timely feedback, and create flexible learning environments. This difference suggests that teacher digital competence is likely to play an important role in improving teaching quality and learner satisfaction.

Teaching quality is generally associated with clear learning objectives, appropriate instructional methods, meaningful interaction, effective classroom management, constructive feedback, learner support, and alignment between teaching activities and learning outcomes. In digital and blended learning environments, teaching quality also includes the ability to select digital tools, organize online learning activities, manage digital communication, create accessible content, protect learners' data and well-being, and use digital assessment responsibly. Learner satisfaction, meanwhile, reflects learners' perceptions of whether their learning experiences meet their needs and expectations. In online and blended learning, satisfaction is influenced by system quality, course design, instructor support, interaction, feedback, flexibility, and perceived usefulness of learning activities (Martin & Bolliger, 2018; Pham et al., 2019).

Although many empirical studies have examined technology adoption, online learning, or e-learning service quality, there remains a need for a conceptual synthesis focusing specifically on how teacher digital competence may influence teaching quality and learner satisfaction in Vietnam. This paper addresses this need by analyzing recent literature and policy-oriented frameworks to develop a qualitative explanation of the relationship among these constructs. The study is guided by the following research question:

How does teacher digital competence contribute to teaching quality and learner satisfaction in the Vietnamese educational context?

The paper contributes to the literature in three ways. First, it clarifies teacher digital competence as a pedagogical and professional construct rather than a purely technical skill. Second, it proposes a synthesized framework linking teacher digital competence, teaching quality, and learner satisfaction. Third, it provides practical implications for teacher training, institutional management, and digital transformation in Vietnamese education.

LITERATURE REVIEW

Teacher Digital Competence

Teacher digital competence has become a central concept in educational technology and teacher professional development. It refers to the knowledge, skills, attitudes, and judgment needed for teachers to use digital technologies effectively, critically, creatively, and ethically in educational practice (Falloon, 2020; Pettersson, 2018; Vuorikari et al., 2022). Unlike basic digital literacy, which often focuses on the ability to access, use, and evaluate digital information, teacher digital competence emphasizes the pedagogical integration of technology into teaching and learning.

Redecker (2017) proposed the European Framework for the Digital Competence of Educators, commonly known as DigCompEdu, as a comprehensive model for educators' digital competence. The framework includes six competence areas: professional engagement, digital resources, teaching and learning, assessment, empowering learners, and facilitating learners' digital competence. These areas show that teacher digital competence is not

limited to technical operations. It involves communication, collaboration, professional learning, instructional design, digital content creation, assessment, learner empowerment, and support for learners' own digital skills.

Similarly, UNESCO (2018) emphasizes that teachers need ICT competence to support education systems in knowledge societies. The UNESCO ICT Competency Framework for Teachers connects teachers' ICT competence with education policy, curriculum and assessment, pedagogy, digital skills, organization, and professional learning. From this perspective, digital competence is not an isolated teacher attribute but a systemic requirement connected to institutional capacity and policy implementation. In addition, the broader DigComp framework highlights that digital competence includes not only operational skills but also information and data literacy, communication, content creation, safety, and problem solving, which are relevant to both teachers and learners in digital education environments (Vuorikari et al., 2016, 2022).

Recent literature has also moved from the narrow concept of digital literacy to a broader understanding of digital competence. Falloon (2020) argues that teacher digital competence should include not only technical skills but also curriculum, pedagogy, ethics, safety, and professional learning. Pettersson (2018) notes that digital competence in educational contexts is a complex and context-dependent concept that requires attention to both individual and organizational dimensions. Instefjord and Munthe (2017) also found that teacher education needs to integrate professional digital competence more systematically rather than treating technology as an add-on component.

The concept of teacher digital competence is also related to the Technological Pedagogical Content Knowledge framework. Mishra (2019) emphasizes that effective technology integration depends on the relationship among technological knowledge, pedagogical knowledge, content knowledge, and contextual knowledge. This view is highly relevant to digital education because teachers cannot simply apply technology in a general way. They need to make pedagogical decisions based on subject matter, learner characteristics, institutional conditions, and learning objectives.

Teacher Digital Competence as Digital Pedagogical Professionalism

Teacher digital competence can be understood as a form of digital pedagogical professionalism. This means that digitally competent teachers are not merely users of digital tools; they are professionals who can make informed pedagogical decisions about when, why, and how to use technology to support learning (Mishra, 2019; Tondeur et al., 2019). This interpretation is consistent with DigCompEdu, which links digital competence to professional engagement, teaching, assessment, learner empowerment, and learner digital competence (Redecker, 2017). It is also consistent with UNESCO's view that teachers' ICT competence should be integrated with curriculum, pedagogy, assessment, and professional learning (UNESCO, 2018).

The distinction between technical use and digital pedagogical competence is important. A teacher may be able to use presentation software, messaging applications, video conferencing tools, or learning management systems, but this does not necessarily mean that the teacher can create high-quality digital learning experiences. For example, uploading lecture slides to a platform is different from designing interactive tasks, formative quizzes, collaborative projects, peer feedback activities, or differentiated learning pathways. Therefore, teacher digital competence should be evaluated by the pedagogical quality of technology use rather than the number of digital tools used. Teacher educators also play an important role as "gatekeepers" in preparing future teachers for technology integration, because their beliefs, modeling practices, and curriculum decisions can influence how pre-service teachers develop digital pedagogical competence (Tondeur et al., 2019).

The COVID-19 pandemic further demonstrated the importance of teacher digital competence. During emergency remote teaching, many teachers had to move their courses online quickly. However, online teaching requires more than transferring face-to-face lectures to video conferencing platforms. Teachers need to redesign learning activities, establish teacher presence, facilitate interaction, support students emotionally and academically, and adapt assessment methods to digital environments (Rapanta et al., 2020). König et al. (2020) found that teacher competence and opportunities to learn digital teaching were important for adapting to online teaching during

school closures. These findings indicate that teacher digital competence is a key condition for educational resilience and quality in periods of disruption. International large-scale evidence also shows that preparing learners for life in a digital world requires teachers and education systems to pay attention to computer and information literacy, digital learning conditions, and students' ability to use digital technologies meaningfully (Fraillon et al., 2020).

Teaching Quality in Digital and Blended Learning Environments

Teaching quality is a multidimensional construct. In traditional classrooms, it is often associated with clear explanation, appropriate methods, classroom interaction, learner engagement, feedback, subject knowledge, and assessment practices. In digital and blended environments, these dimensions remain important but need to be reinterpreted. Digital teaching quality requires teachers to design learning activities that are coherent, interactive, accessible, and aligned with learning outcomes, while also ensuring that digital technologies are embedded in meaningful pedagogical processes rather than used as isolated tools (Sailer et al., 2021; Tondeur et al., 2019).

A teacher with high digital competence can improve teaching quality in several ways. First, digital competence enables better instructional design. Teachers can select digital tools that match learning objectives rather than using technology for superficial purposes. For example, collaborative platforms may be used for group problem-solving, video lectures may support flipped learning, online quizzes may provide immediate formative feedback, and digital portfolios may help students reflect on their learning progress.

Second, digital competence supports interaction. In online or blended learning, teacher-student and student-student interaction may decline if activities are poorly designed. Teachers need to create structured discussion, collaborative tasks, peer feedback, and opportunities for active participation. Martin and Bolliger (2018) found that students valued learner-to-instructor, learner-to-learner, and learner-to-content engagement strategies in online learning. This implies that teacher digital competence can enhance teaching quality by promoting engagement across different forms of interaction.

Third, digital competence strengthens assessment and feedback. Digital tools allow teachers to provide quizzes, rubrics, learning analytics, comments, audio feedback, and individualized support. However, these tools only enhance teaching quality when used with clear pedagogical intention. Fourth, digital competence supports learner inclusion. Teachers can use digital resources to provide multiple forms of content, such as text, audio, video, and interactive materials, thereby supporting learners with different needs and learning preferences (Falloon, 2020; Redecker, 2017).

Sailer et al. (2021) argue that digital learning in schools requires more than digital technology. It also depends on pedagogical design, teacher competence, and meaningful integration into learning processes. This view is important because it challenges technology-centered approaches to educational reform. Teaching quality in digital education should not be evaluated only by whether teachers use digital tools. It should be assessed by how effectively technologies support learning objectives, learner engagement, assessment, feedback, and learner development.

Learner Satisfaction in Technology-Enhanced Education

Learner satisfaction refers to learners' overall evaluation of their learning experience and is commonly examined as an important indicator of perceived quality in online and technology-enhanced education (Al-Fraihat et al., 2020; Eom & Ashill, 2016). It is influenced by both academic and non-academic factors, including course content, teaching methods, interaction, support services, technology infrastructure, assessment, and perceived learning outcomes. In online and blended learning, satisfaction is closely related to learners' perceptions of system quality, course design, instructor quality, support services, interaction, perceived usefulness, and perceived learning outcomes (Al-Fraihat et al., 2020; Eom & Ashill, 2016; Pham et al., 2019).

In the Vietnamese context, Pham et al. (2019) examined e-learning service quality and found that e-learning service quality was positively related to student satisfaction and loyalty. Their study identified e-learning system

quality, instructor and course materials quality, and administrative and support service quality as important dimensions of e-learning service quality. This finding is important because it indicates that learner satisfaction depends not only on technology infrastructure but also on instructor-related and course-related factors. This finding is consistent with broader e-learning research showing that system quality, information quality, service quality, learner characteristics, and instructor-related factors can influence perceived learning outcomes and satisfaction (Al-Fraihat et al., 2020; Eom & Ashill, 2016).

Learner satisfaction is also connected to learner engagement. Bond et al. (2020) showed that research on educational technology and student engagement has expanded significantly in higher education. Engagement is often linked to the ways students interact with content, peers, instructors, and learning environments. In digital learning, engagement strategies are strongly influenced by teachers' instructional design and facilitation practices. If teachers provide clear expectations, meaningful activities, timely feedback, and accessible materials, learners are more likely to experience digital learning positively. Conversely, poorly designed online learning may increase confusion, isolation, cognitive overload, and dissatisfaction.

Therefore, teacher digital competence may influence learner satisfaction indirectly through teaching quality. When teachers design clear digital learning activities, communicate effectively, provide timely feedback, and support learners' difficulties, students are more likely to perceive the learning experience as useful and satisfying. Conversely, when teachers lack digital competence, learners may experience poor communication, limited interaction, unclear assessment requirements, technical confusion, or low motivation. Thus, teacher digital competence can be considered an important antecedent of learner satisfaction, especially in online and blended learning environments.

Vietnam as a Context for Digital Transformation in Education

Vietnam provides a relevant context for examining teacher digital competence because the country has been actively promoting digital transformation across sectors, including education, especially after the issuance of Resolution No. 57-NQ/TW on breakthroughs in science, technology, innovation, and national digital transformation (Politburo of Vietnam, 2024). More recently, Resolution No. 57-NQ/TW has further strengthened the national policy emphasis on science, technology, innovation, and digital transformation. This creates a stronger policy rationale for examining teacher digital competence in Vietnam, as teachers are expected to play a central role in translating digital transformation policies into actual teaching and learning practices. Digital platforms are increasingly used in schools and universities for teaching, administration, student management, communication, and assessment. The expansion of digital learning during the pandemic also increased public awareness of the importance of online teaching capacity. From a policy perspective, this orientation is consistent with international discussions emphasizing that digital education requires not only infrastructure investment but also the development of a coherent digital education ecosystem, including teacher capacity, digital resources, governance, and learner support (OECD, 2023).

However, several contextual challenges remain. First, teachers' digital competence may vary significantly according to age, discipline, institution type, locality, and access to professional development. Second, infrastructure gaps may affect the quality of technology-enhanced teaching, especially in rural or disadvantaged areas. Third, many teachers have experience using digital tools but may lack deeper competence in digital pedagogy, assessment, learner support, and ethical digital practice. Fourth, learner satisfaction may be affected by both teacher-related factors and institutional factors, such as platform stability, technical support, administrative responsiveness, and learners' own digital readiness.

These contextual characteristics suggest that Vietnam needs a comprehensive approach to teacher digital competence. Training should not focus only on software operation. It should help teachers develop pedagogical strategies for using digital tools to improve learning quality and learner satisfaction. This approach is consistent with the international literature, which emphasizes that digital competence should be connected to pedagogy, professional development, learner engagement, and institutional support (Caena & Redecker, 2019; Falloon, 2020; Pettersson, 2018).

METHOD

This study uses a qualitative research approach based on document analysis, conceptual analysis, and synthesis. The purpose is not to test statistical hypotheses but to develop an interpretive understanding of how teacher digital competence may influence teaching quality and learner satisfaction in the Vietnamese educational context.

The study followed three main steps. First, relevant conceptual frameworks and recent studies were purposively selected. The selection focused mainly on documents published within the last ten years, including international frameworks on teacher digital competence, peer-reviewed studies on online teaching and e-learning quality, and research related to learner satisfaction. Key sources included the DigCompEdu framework (Redecker, 2017), the UNESCO ICT Competency Framework for Teachers (UNESCO, 2018), the broader DigComp frameworks (Vuorikari et al., 2016, 2022), studies on online teaching and teacher readiness (König et al., 2020; Rapanta et al., 2020), research on teacher technology integration and adoption (Scherer et al., 2019; Tondeur et al., 2019), and empirical evidence on e-learning quality and learner satisfaction (Al-Fraihat et al., 2020; Eom & Ashill, 2016; Pham et al., 2019).

Second, the selected documents were analyzed thematically. The analysis focused on identifying recurring concepts related to teacher digital competence, digital pedagogy, teaching quality, learner engagement, learner satisfaction, and digital transformation in education. Particular attention was paid to the mechanisms through which teacher digital competence may shape instructional practices and learner experiences.

Third, the findings were synthesized into a conceptual framework. The synthesis was conducted by comparing and integrating concepts from different sources. The analysis aimed to identify common patterns rather than produce a statistical generalization. This method is suitable for the present paper because the relationship between teacher digital competence and learner satisfaction is complex, context-dependent, and mediated by instructional quality.

To ensure academic integrity, this paper does not report fabricated empirical data. The findings are conceptual and interpretive. They are based on analysis and synthesis of existing literature and should be understood as propositions for future empirical testing.

FINDINGS

The qualitative synthesis generated five main findings.

Teacher Digital Competence Is a Multidimensional Professional Capability

The first finding is that teacher digital competence should be understood as a multidimensional professional capability rather than a set of isolated technical skills. This interpretation is consistent with international frameworks that define digital competence as a combination of knowledge, skills, attitudes, ethical awareness, communication, problem solving, and professional practice (Falloon, 2020; Redecker, 2017; UNESCO, 2018; Vuorikari et al., 2022). This means that the ability to operate digital tools is only one component of digital competence.

In the Vietnamese educational context, this distinction is important. Many teachers may be able to use presentation software, messaging applications, or video conferencing platforms, but this does not necessarily mean that they can design high-quality digital learning experiences. A teacher may know how to upload materials to a learning management system but may not know how to structure online discussion, encourage learner participation, design formative assessment, or provide digital feedback. Therefore, teacher digital competence must include pedagogical, communicative, evaluative, ethical, and reflective dimensions.

This finding suggests that professional development programs should move beyond basic ICT training. Teachers need opportunities to learn how to integrate digital tools into lesson planning, learner engagement, assessment,

differentiation, and reflective teaching practice. This is consistent with Falloon's (2020) argument that teacher digital competence should be understood as a broad framework including technical, pedagogical, ethical, and professional dimensions.

Teacher Digital Competence Enhances Teaching Quality Through Digital Pedagogical Design

The second finding is that digital pedagogical design is the central mechanism linking teacher digital competence and teaching quality. This finding aligns with studies suggesting that effective technology integration depends on teachers' ability to connect digital tools with pedagogy, content, context, and learner needs (Mishra, 2019; Sailer et al., 2021; Tondeur et al., 2019). Teachers with stronger digital competence are more capable of aligning digital tools with learning objectives, learner needs, and assessment requirements. Instead of using technology as an additional medium for transmitting information, digitally competent teachers use technology to redesign learning activities.

For example, a teacher may use video content to support pre-class preparation, online quizzes to check understanding, collaborative documents to support group work, discussion forums to extend classroom interaction, and digital portfolios to assess learning progress. These practices can improve teaching quality because they make learning more active, flexible, and evidence-based. This is consistent with the view that effective digital learning depends on the interaction between technological resources, pedagogical design, teacher competence, and institutional support (OECD, 2023; Sailer et al., 2021).

However, the effect of digital competence on teaching quality depends on pedagogical judgment. Technology can improve teaching only when it is used purposefully. If digital tools are used without clear instructional design, they may increase cognitive load, create confusion, or reduce learner motivation. This finding is consistent with Mishra's (2019) emphasis on the integration of technological, pedagogical, content, and contextual knowledge. Therefore, teacher digital competence should be evaluated not by the quantity of digital tools used but by the quality of pedagogical decisions behind their use.

Teacher Digital Competence Supports Learner Interaction, Feedback, and Inclusion

The third finding is that teacher digital competence contributes to teaching quality by strengthening interaction, feedback, and inclusion. In online and blended learning, learners may feel isolated if teachers do not create meaningful interaction. Digitally competent teachers can design communication channels, collaborative activities, peer learning tasks, and interactive discussions that promote social and cognitive engagement.

Feedback is another important dimension. Digital tools make it possible to provide faster and more individualized feedback through online comments, automated quizzes, rubrics, audio feedback, and learning analytics. Timely feedback can help learners understand their progress and improve their performance. In this sense, teacher digital competence contributes to both instructional quality and learner satisfaction.

Inclusion is also significant. Digital learning can increase access, but it can also create new inequalities if learners lack devices, internet access, digital skills, or supportive learning environments. Teachers with strong digital competence are more likely to provide flexible learning materials, alternative formats, clear instructions, and support for learners with different needs. Therefore, digital competence is not only a technical or pedagogical issue but also an equity issue (Redecker, 2017; UNESCO, 2018).

Learner Satisfaction Depends on the Perceived Quality of Digital Teaching Experiences

The fourth finding is that learner satisfaction is influenced by the perceived quality of digital teaching experiences, including system quality, instructional design, interaction, support, and perceived learning outcomes (Al-Fraihat et al., 2020; Eom & Ashill, 2016; Pham et al., 2019). Learners are more likely to be satisfied when they perceive that digital learning is useful, well-organized, interactive, accessible, and supportive. In the Vietnamese context, Pham et al. (2019) showed that e-learning service quality was positively

associated with student satisfaction and loyalty. This supports the argument that satisfaction is shaped by learners' experiences with systems, instructors, materials, and support services.

Teacher digital competence affects learner satisfaction indirectly through teaching quality. When teachers provide clear guidance, meaningful activities, responsive communication, and timely feedback, learners are more likely to feel supported. When digital teaching is poorly organized, learners may become dissatisfied even if the institution has modern platforms. This suggests that learner satisfaction depends not only on technology infrastructure but also on teacher capacity and instructional design.

Therefore, improving learner satisfaction in digital and blended learning requires investment in both technology systems and teacher professional development. Institutions should not assume that digital transformation is complete once platforms are installed. The quality of teacher practice remains central.

Teacher Digital Competence May Act as a Mediating Resource Between Digital Transformation and Learner Experience

The fifth finding is that teacher digital competence functions as a mediating resource between institutional digital transformation and learners' actual educational experience. Digital transformation policies often focus on platforms, infrastructure, digital resources, and administrative systems. This argument is consistent with the view that digital education should be understood as an ecosystem in which infrastructure, governance, teacher competence, digital resources, and learner support interact to shape educational quality (OECD, 2023). However, learners experience digital transformation mainly through teaching practices. A learning management system, online platform, or digital assessment tool becomes educationally meaningful only when teachers use it to organize learning, communicate expectations, support interaction, and provide feedback.

This finding is important for Vietnam because many educational institutions have invested in digital platforms, but the effectiveness of these investments depends on teachers' pedagogical use of technology. When teachers lack digital pedagogical competence, digital transformation may remain technical and administrative. When teachers possess strong digital competence, digital transformation can become a source of improved teaching quality and learner satisfaction. Therefore, the success of digital transformation in education should be evaluated not only through infrastructure indicators but also through teacher competence, teaching quality, learner engagement, and learner satisfaction.

DISCUSSION AND CONCLUSION

Discussion

The findings of this paper suggest that teacher digital competence is an important driver of teaching quality and learner satisfaction in Vietnam. However, its influence is not direct or automatic. Digital competence contributes to learner satisfaction mainly through improved teaching quality, including better instructional design, clearer communication, stronger interaction, timely feedback, and more inclusive learning support.

This argument is consistent with the broader literature on digital education. Frameworks such as DigCompEdu and UNESCO's ICT Competency Framework emphasize that teachers need to use digital technologies for professional engagement, resource development, teaching, assessment, learner empowerment, and professional learning (Redecker, 2017; UNESCO, 2018). These dimensions are closely related to the quality of teaching. Similarly, studies on online teaching during the COVID-19 period highlight the importance of teacher presence, pedagogical design, and assessment adaptation (Adedoyin & Soykan, 2023; Rapanta et al., 2020). In other words, digital competence should be understood as a form of professional teaching competence in the digital age.

For Vietnam, this paper highlights a key challenge: the gap between digital tool usage and digital pedagogical competence. Many teachers can use common digital tools, but fewer may be fully prepared to design learner-centered digital experiences. This gap may affect teaching quality and learner satisfaction. Therefore, teacher training programs should focus not only on how to use digital platforms but also on how to improve learning

through technology, because teacher preparation and teacher educators' practices strongly influence future teachers' capacity for meaningful technology integration (Scherer et al., 2019; Tondeur et al., 2019).

The relationship between teacher digital competence and learner satisfaction is also shaped by institutional conditions. Even highly competent teachers may face difficulties if platforms are unstable, technical support is limited, class sizes are too large, or learners lack access to devices and the internet. Therefore, improving learner satisfaction requires a system-level approach. Teacher competence, institutional infrastructure, administrative support, and learner readiness must be developed together.

The discussion also suggests that learner satisfaction should be interpreted carefully. Satisfaction does not necessarily mean high learning achievement. A course may be satisfying because it is easy, convenient, or flexible, but this does not always guarantee deep learning. Therefore, learner satisfaction should be combined with other indicators such as engagement, learning outcomes, assessment quality, and learner development. Teachers' willingness to integrate digital tools into teaching may also depend on their perceived usefulness and ease of use of technology, which are important factors in explaining teachers' digital technology adoption (Scherer et al., 2019). Nevertheless, satisfaction remains an important indicator because it reflects learners' perceived experience, which can affect motivation, persistence, and acceptance of digital learning.

Theoretical Implication

This paper offers several theoretical implications. First, it contributes to the conceptualization of teacher digital competence by framing it as a multidimensional professional capability that connects technological knowledge with pedagogy, assessment, communication, ethics, and learner support. This perspective goes beyond narrow definitions of digital competence as tool operation.

Second, the paper proposes a conceptual linkage among teacher digital competence, teaching quality, and learner satisfaction. Specifically, it suggests that teaching quality mediates the relationship between teacher digital competence and learner satisfaction. Teacher digital competence improves teaching quality when teachers use digital tools to design meaningful learning activities, facilitate interaction, provide feedback, and support learner diversity. Improved teaching quality then contributes to learner satisfaction.

Third, the paper contextualizes this relationship in Vietnam, where digital transformation in education is both a policy priority and a practical challenge. The Vietnamese context shows that digital education should be studied not only as a technological issue but also as a matter of teacher professional development, institutional management, and educational equity.

Fourth, the paper extends the literature on digital education by emphasizing that teacher digital competence can be understood as a mediating resource between institutional digital transformation and learner experience. This conceptual view can guide future empirical studies that examine whether teaching quality mediates the effect of teacher digital competence on learner satisfaction.

Practical Implication

The findings provide several practical implications for educational institutions and policymakers in Vietnam.

First, teacher professional development should focus on digital pedagogy rather than only technical skills, in line with international frameworks emphasizing that digital competence includes pedagogical design, assessment, communication, learner empowerment, safety, and problem solving (Redecker, 2017; UNESCO, 2018; Vuorikari et al., 2022). Training programs should help teachers design online and blended lessons, create interactive digital activities, use formative assessment tools, provide feedback, and support learners with different needs. Training should include practical tasks in which teachers redesign actual lessons using digital tools.

Second, institutions should develop clear standards for teacher digital competence. These standards may be adapted from international frameworks such as DigCompEdu and UNESCO's ICT Competency Framework while considering local conditions in Vietnam. Standards can be used for teacher training, self-assessment, performance evaluation, and professional development planning.

Third, schools and universities should support communities of practice. Teachers need opportunities to share digital teaching experiences, discuss challenges, exchange resources, and learn from successful practices. Peer mentoring may be especially useful for teachers who have limited experience with digital pedagogy.

Fourth, learner satisfaction should be used as one indicator of digital teaching quality. Institutions should collect learner feedback on course organization, interaction, feedback, digital materials, platform usability, and teacher support. However, learner satisfaction should not be the only indicator. It should be combined with evidence of learning outcomes, engagement, assessment quality, and equity.

Fifth, institutional support is essential. Teachers cannot improve digital teaching quality without reliable infrastructure, technical support, appropriate workload policies, and access to professional development. Digital transformation should therefore be treated as an institutional strategy rather than an individual teacher responsibility, because effective digital education requires an ecosystem approach involving infrastructure, teacher capacity, governance, digital resources, and learner support (OECD, 2023).

Sixth, institutions should encourage teachers to use digital technologies ethically and responsibly. Issues such as data privacy, academic integrity, digital well-being, accessibility, and responsible use of artificial intelligence should be integrated into teacher training programs. This is especially important as digital platforms and AI-supported tools become more common in education.

Limitation and Suggestion for Further Study

This study has several limitations. First, it is a conceptual and qualitative synthesis based on document analysis. It does not use primary empirical data from teachers or learners. Therefore, the proposed relationship among teacher digital competence, teaching quality, and learner satisfaction should be tested in future empirical research.

Second, the paper discusses Vietnam as a general context, but educational conditions may vary across regions, school levels, disciplines, and institution types. Future studies should examine differences between urban and rural areas, public and private institutions, general education and higher education, and different subject areas.

Third, learner satisfaction is influenced by multiple factors, including learner motivation, digital access, family support, institutional services, platform quality, and learner digital competence. Future research should examine how teacher digital competence interacts with these factors.

Fourth, future studies may adopt quantitative, qualitative, or mixed-method designs. Quantitative research could test a structural model in which teaching quality mediates the relationship between teacher digital competence and learner satisfaction, while also considering technology acceptance, system quality, perceived learning outcomes, and institutional support as additional explanatory variables (Al-Fraihat et al., 2020; Eom & Ashill, 2016; Scherer et al., 2019). Qualitative research could use interviews or focus groups to explore how teachers experience digital transformation in their daily teaching. Mixed-method research could combine survey data with classroom observation and learner interviews to provide a more comprehensive understanding.

Fifth, future research in Vietnam may develop and validate measurement scales for teacher digital competence, digital teaching quality, and learner satisfaction. Such studies would provide stronger evidence for policy and institutional decision-making.

In conclusion, teacher digital competence is a key condition for improving teaching quality and learner satisfaction in Vietnam's digital transformation context. However, digital competence should not be reduced to

technical ability. It should be understood as a professional capacity to design, facilitate, assess, and support learning with digital technologies. For digital transformation in education to be meaningful, Vietnam needs to invest not only in platforms and infrastructure but also in teachers' digital pedagogical competence.

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