Adaptive Capability Beyond Digital Competence: Toward a Multidimensional Understanding of Lecturer Technology Adaptability

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ARTICLE INFO

Article history:
Received: March 13, 2025
Revised: July 30, 2025
Accepted: August 22, 2025

JEL Classification:
I21, I23, O33, O35

DOI:
10.14414/jebav.v28i2.5735

Keywords:
technology adaptability;
digital competence;
higher education;
e-learning, digital transformation

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ABSTRACT

Digital transformation in higher education requires lecturers to integrate technology into teaching and academic performance reporting. However, evidence on the technology adaptation of lecturers, particularly digital immigrants, remains limited. This study examines technology adaptability among lecturers at a private college of economics in Indonesia in using e-learning platforms and digital reporting systems. A qualitative case study approach with purposive sampling was employed. Data were collected through semi-structured interviews with 24 full-time lecturers and analyzed using thematic analysis supported by NVivo software. The findings reveal four dimensions of technology adaptability: technological competence, adaptive behavior, challenges and coping strategies, and digital agility. Major barriers included limited digital confidence, inadequate institutional training, and reliance on technical support. Lecturers who continuously developed their digital competencies demonstrated higher adaptability and greater instructional innovation. These findings suggest that successful digital transformation depends not only on technological infrastructure but also on continuous professional development, institutional support, and the enhancement of lecturers' adaptive digital competencies.

ABSTRAK

Transformasi digital di perguruan tinggi menuntut dosen untuk mengintegrasikan teknologi dalam proses pembelajaran dan pelaporan kinerja akademik. Namun, kajian mengenai adaptasi teknologi dosen, khususnya di kalangan digital immigrants, masih terbatas. Penelitian ini bertujuan untuk menganalisis adaptasi teknologi dosen di sebuah perguruan tinggi swasta bidang ekonomi di Indonesia dalam menggunakan platform e-learning dan sistem pelaporan digital. Penelitian ini menerapkan pendekatan studi kasus kualitatif dengan teknik purposive sampling. Data dikumpulkan melalui wawancara semi-terstruktur terhadap 24 dosen tetap dan dianalisis menggunakan analisis tematik. Hasil penelitian mengidentifikasi empat dimensi adaptasi teknologi, yaitu kompetensi teknologi, perilaku adaptif, tantangan beserta strategi untuk mengatasinya, serta kelincahan digital. Hambatan utama mencakup keterbatasan kepercayaan diri dalam menggunakan teknologi digital, minimnya pelatihan, dan ketergantungan pada dukungan teknis. Sebaliknya, dosen yang secara aktif meningkatkan kompetensi digital menunjukkan kemampuan adaptasi dan inovasi pembelajaran yang lebih baik. Temuan ini menegaskan pentingnya pengembangan profesional berkelanjutan, dukungan institusi, serta penguatan kompetensi digital dalam mendukung transformasi digital di perguruan tinggi.

1. INTRODUCTION

The acceleration of digital transformation has fundamentally reshaped higher education worldwide (Alenezi, 2023). Universities are increasingly expected to integrate digital technologies into teaching, research, academic administration, and institutional governance to improve educational quality, operational efficiency, and organizational competitiveness. The expansion of learning management systems (LMS), digital assessment platforms, virtual collaboration tools, integrated academic reporting systems, and other institutional digital infrastructures has transformed lecturers'

professional responsibilities beyond conventional classroom instruction (Zhou & Milecka-Forrest, 2021, p. 4). Consequently, lecturers are no longer required to merely possess pedagogical expertise but also to demonstrate the capacity to continuously adapt to rapidly evolving digital technologies.

Therefore, technology adaptation should be understood as more than just the initial decision to accept or use a particular technology. In organizational contexts characterized by continuous technological change, adaptation involves cognitive, behavioral, and psychological adjustments through which individuals acquire new competencies, modify established work routines, respond to unfamiliar demands, and maintain effective performance under changing conditions (Bala & Venkatesh, 2015). This distinction is particularly important in higher education, where lecturers are often required to use institutional technologies that are not entirely voluntary (Sum and Oancea, 2022, p. 73). The challenge is not simply whether lecturers intend to use a technology, but how they learn to use it, adjust their professional practices, manage difficulties, and continue functioning as the technological systems evolve.

Previous research on educational technology has frequently been informed by technology acceptance theories, particularly the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTAUT). TAM emphasizes perceived usefulness and perceived ease of use as key determinants of technology acceptance, whereas UTAUT extends this perspective by incorporating performance expectancy, effort expectancy, social influence, and facilitating conditions. These models have made substantial contributions to understanding why individuals are willing or unwilling to adopt new technologies. In higher education, they have been widely used to examine lecturers' and students' intentions to use LMS, e-learning systems, online learning platforms, and other digital applications. However, TAM and UTAUT also have limitations when used to explain technology adaptation in the context of continuous institutional digital transformation (Lehmann et al., 2022, p. 800). First, both models primarily focus on determinants of acceptance and use rather than the longitudinal process through which individuals adjust to technological change. They are particularly useful for identifying factors associated with adoption intentions or technology usage but provide less explanation of how users respond when technologies are repeatedly updated, organizational procedures change, or technology use becomes mandatory. Second, these models generally emphasize predictive relationships among predefined variables, making them less suited to capturing the lived experiences, coping processes, and behavioral adjustments that occur during ongoing adaptation. Third, in mandatory organizational environments, actual technology use may not necessarily indicate genuine acceptance or adaptive capability. Lecturers may use a system because institutional regulations require them to do so while still experiencing uncertainty, stress, resistance, or difficulty integrating the technology effectively into their professional routines.

These limitations suggest the need to complement technology acceptance perspectives with theories that conceptualize adaptation as a dynamic response to changing work environments. The Individual Adaptability Theory (I-ADAPT) provides an important theoretical foundation for this study. I-ADAPT conceptualizes adaptability as an individual's capacity and willingness to modify thoughts, behaviors, and strategies in response to changing, uncertain, or novel work demands (Johnstone & Wilson-Prangley, 2021, p. 4). Compared with TAM and UTAUT, which primarily explain why individuals accept or use a technology, I-ADAPT is more relevant for understanding how individuals respond to continuous changes in their work environment. This makes the theory particularly useful for examining lecturers who must repeatedly adjust to new digital platforms, institutional procedures, teaching practices and performance-reporting requirements.

Nevertheless, I-ADAPT alone does not fully specify the digital capabilities and technology-related processes required in contemporary higher education. Its broad conceptualization of adaptability needs to be contextualized within digital work environments. Accordingly, this study combines the adaptive perspective of I-ADAPT with literature on digital competence, adaptive behavior, coping strategies, and digital agility. Rather than treating these concepts as unrelated variables, this study conceptualizes them as interconnected dimensions of lecturers' technology adaptation. Together, these dimensions provide a more comprehensive explanation of how lecturers develop the capability to respond effectively to continuing technological change.

Technology Adaptation in the Indonesian Higher Education Context. The need for a broader understanding of technology adaptation is particularly relevant in Indonesia. Indonesian higher education has experienced substantial digital transformation, accelerated by the COVID-19 pandemic and reinforced by the continued institutionalization of digital learning and administrative systems (Fuadiy et al., 2025; Priyanto & Suhandi, 2022). Universities increasingly rely on LMS platforms, video-conferencing applications, digital assessment systems, online academic administration, research

information systems, quality-assurance platforms, and integrated reporting mechanisms (Yusnaini et al., 2022, p. 2049). Consequently, digital technology is no longer limited to a supplementary teaching tool but has become embedded in multiple aspects of lecturers' professional work. Existing studies in Indonesia have contributed important knowledge regarding digital technology in higher education. Much of this research has examined lecturers' or students' acceptance of e-learning, LMS adoption, online learning readiness, digital competence, technology self-efficacy, and barriers to online teaching (Cassandra et al., 2025). During and after the COVID-19 pandemic, Indonesian scholars have also increasingly investigated lecturers' experiences with emergency remote teaching, online pedagogical practices, digital literacy, and challenges associated with the rapid transition from face-to-face to technology-mediated learning. These studies demonstrate that Indonesian lecturers' engagement with technology is shaped by multiple factors, including perceived usefulness, ease of use, digital competence, institutional facilities, training opportunities, technological infrastructure, and individual motivation (Cassandra et al., 2025; Sondakh et al., 2025).

However, the existing Indonesian literature remains fragmented in several ways. First, many studies focus on a specific technology, particularly e-learning or online learning platforms, rather than examining lecturers' adaptation across multiple institutional technologies (Abibin et al., 2025). This technology-specific orientation tends to emphasize whether lecturers accept or successfully use a system rather than how they continuously adapt as digital demands expand across teaching, research, administration, and performance reporting. Second, much of the existing research relies on quantitative surveys and behavioral intention models (Mekheimer, 2025, p. 25050). While valuable for identifying statistically significant determinants of adoption, such studies provide relatively limited insight into the processes through which lecturers experience technological difficulty, modify their work practices, develop coping strategies, and gradually build adaptive capability.

Third, the Indonesian higher education context is highly heterogeneous (Yusnaini et al., 2022, p. 2049). Public and private institutions differ considerably in their access to financial resources, digital infrastructure, institutional support, staff development programs, and organizational capacity for managing technological change (Yusnaini et al., 2022, p. 2049). These differences are especially important for private higher education institutions, which may operate under tighter resource constraints while simultaneously being expected to comply with national quality assurance, reporting, and digitalization requirements. Consequently, findings derived from well-resourced institutions or studies focusing exclusively on emergency online learning cannot automatically explain the experience of lecturers working in smaller or resource-constrained private institutions.

The Indonesian context also introduces organizational and cultural factors that may shape adaptation differently than those reported in other countries. The availability of technical support, leadership commitment, organizational communication, peer collaboration, access to training, and the prevailing culture toward innovation can influence lecturers' responses to new technologies. Government policies and institutional requirements may further transform technology use from a voluntary choice to a professional obligation. Under such conditions, adaptation involves more than just favorable perceptions of technology. Lecturers must develop the capability to continue performing their professional roles while managing technological demands that are organizationally required and are continuously changing. This contextual perspective strengthens, rather than contradicts, the existing international literature. Studies in developed and developing countries have similarly demonstrated that technology adoption is influenced by individual capability and institutional conditions (Ruzzante et al., 2021). However, the relative importance of these factors may differ according to institutional resources, technological infrastructure, organizational support, and the maturity of the digital transformation. Therefore, Indonesia should not be described as a context in which research is absent. Rather, the more precise research gap is that existing Indonesian research has concentrated substantially on technology acceptance, online learning, and digital readiness (Rukmini et al., 2023, p. 2286), whereas qualitative evidence concerning the ongoing and multidimensional adaptation of lecturers to mandatory institutional technologies, particularly within private higher education institutions, remains comparatively limited (Irawan et al., 2018, p. 6). This distinction is important because it provides a stronger and more defensible basis for this study. This research does not claim that technology adaptation in Indonesian higher education has never been studied. Instead, it extends existing research by examining an underexplored aspect of that broader literature: the process through which lecturers continuously adapt to institutional digital technologies and develop adaptive capability within a specific organizational and developing-country context. Digital competence as the foundation for technology adaptation. The first dimension of the proposed framework is digital competence (DC). Previous literature generally defines digital competence as the

knowledge, skills, confidence, and capacity required to use digital technologies effectively, critically, and appropriately (Kamsker et al., 2020, p. 6). In higher education, this competence extends beyond basic technical abilities. Lecturers must be able to select and operate relevant technologies, integrate them into pedagogical practices, evaluate their appropriateness, solve technology-related problems, and continue learning as digital systems evolve.

Research on lecturers' digital competence has frequently measured areas such as technical skills, information and data literacy, communication and collaboration, digital content creation, problem-solving, and technology-supported pedagogy (Suzer & Koç, 2024, p. 22059). However, the present study extends this perspective by treating digital competence not merely as a static collection of skills but as a developing resource that supports ongoing adaptation. A lecturer may initially possess limited knowledge of a newly introduced system but gradually develop competence through experimentation, training, peer learning, and repeated use.

Digital competence is therefore positioned as a foundational condition for technology adaptation (Jarjabka et al., 2024, p. 3). Without a sufficient ability to understand and operate technology, lecturers may experience greater uncertainty and dependence on others. Conversely, increasing competence can strengthen technological confidence and provide the resources necessary for behavioral adjustment. Nevertheless, competence alone does not guarantee successful adaptation. A lecturer may possess adequate technical knowledge but remain reluctant to change established routines. For this reason, the framework distinguishes digital competence from adaptive behavior.

Adaptive behavior serves as a behavioral expression of adaptability and represents the second dimension. Adaptive behavior refers to the actions through which individuals modify established routines and respond to changing work demands (Adaptive Behavior, n.d.). In the context of higher education, such behavior may include experimenting with unfamiliar platforms, modifying teaching strategies, seeking new information, learning through trial and error, adjusting work procedures, and integrating digital technologies into academic activities. This dimension is necessary because successful technology adaptation cannot be inferred solely from technological knowledge or positive attitude. The transition from knowing how a technology works to effectively incorporating it into professional practice requires a behavioral change. Lecturers must often abandon or modify familiar routines, allocate time for learning, experiment with new approaches, and adjust their practices repeatedly when systems are updated. Therefore, adaptive behavior represents the process through which digital competence is translated into action. As lecturers acquire or improve their digital competence, they may become better equipped to experiment with new technologies and modify their work practices accordingly. Simultaneously, engaging in adaptive behavior can further enhance competence because repeated experimentation and practice generate new learning experiences. Consequently, the relationship between these two dimensions is reciprocal rather than strictly linear.

Coping strategies, which involve the management of technology-related challenges, represent the third dimension. Technology adaptation frequently involves challenges such as uncertainty, technical failure, workload pressure, fear of making mistakes, resistance to unfamiliar procedures, and difficulties associated with changing established professional habits. These challenges are particularly relevant when technology implementation is mandatory and users have limited control over the timing or nature of organizational change. Coping strategies refer to the cognitive and behavioral efforts individuals use to manage demands that they perceive as challenging or stressful (Les Difficultés et Les Stratégies d'ajustement Des Enseignants Face à l'innovation Technologique : Trois Études de Cas, n.d., p. 6). In the context of lecturers' technology adaptation, coping may involve seeking assistance from colleagues or technical staff, participating in training, engaging in self-directed learning, experimenting independently, searching for online resources, collaborating with peers, or reorganizing work routines to accommodate technological demands.

The inclusion of coping strategies addresses an important limitation in conventional technology acceptance research (Beaudry & Pinsonneault, 2005). Positive perceptions of usefulness or ease of use do not fully explain what individuals actually do when they encounter technological difficulties. Coping focuses attention on the response process. Two lecturers with similar levels of digital competence may adapt differently because one actively seeks support and experiments with solutions, while the other avoids the technology or relies only on minimum compliance. Coping strategies are therefore expected to interact with both digital competence and adaptive behavior. Effective coping can help lecturers overcome competence gaps and sustain behavioral adjustment during periods of technological difficulty. Conversely, repeated coping experiences may increase competence, confidence, and willingness to engage with future technological changes.

Digital agility, the capacity for continuous and proactive adaptation, is the fourth dimension (McCormack et al., 2021, p. 3). Whereas digital competence concerns what lecturers are capable of doing with technology and adaptive behavior concerns how they modify their actions in response to change, digital agility refers to the broader capacity to respond quickly, flexibly, and proactively to evolving digital demands. It reflects an orientation toward continuous learning and the ability to transfer previous experience to unfamiliar technological situations. Digital agility is particularly relevant because digital transformation in higher education is not a one-time event. New systems are introduced, existing platforms are updated, institutional procedures are modified, and technological expectations continue to evolve. Under these conditions, successful adaptation cannot depend exclusively on mastery of a single platform. Lecturers require the ability to learn, unlearn, and relearn as technological environments change.

Therefore, digital agility may be viewed as an emergent capability that develops through the interaction of other dimensions. Digital competence provides the technological resources required to engage with new systems. Adaptive behavior translates these resources into modified professional practice. Coping strategies enable lecturers to manage the obstacles and uncertainties encountered during the adaptation process. Through repeated cycles of learning, adjustment, and problem management, lecturers may develop greater confidence and flexibility in their responses to future technological changes. In this sense, digital agility represents a higher-order and continuing form of adaptive capability rather than simply being another technical skill.

THEORETICAL FRAMEWORK

Based on the reviewed literature, this study conceptualizes lecturers' technology adaptation as a dynamic and multidimensional process involving four interconnected dimensions: digital competence, adaptive behavior, coping strategies, and digital agility (Kakavand et al., 2024; Wardhani et al., 2026). The framework begins with digital competence as an essential resource that enables lecturers to engage with institutional technologies. However, competence must be activated through adaptive behavior, including experimentation, modification of work routines, and active learning. During this process, lecturers encounter technical, psychological, and organizational challenges that require coping strategies. These strategies help them manage difficulties, sustain engagement, and continue adapting despite uncertainty or resistance. Over time, repeated interaction among competence development, behavioral adjustment, and coping may strengthen digital agility—the capacity to respond flexibly and proactively to subsequent technological changes.

Therefore, the framework is not intended to represent a simple linear causal sequence. Instead, technology adaptation is understood as an iterative process. Digital competence can facilitate adaptive behavior, while adaptive experiences can simultaneously develop new competence. Coping strategies can compensate for temporary competence limitations and support continued behavioral adjustment. Successful adaptation experiences can then strengthen digital agility, which, in turn, may enable lecturers to approach future technological changes with greater confidence, flexibility, and readiness.

This multidimensional perspective is consistent with I-ADAPT's emphasis on responding to changing work environments while extending the theory to the specific requirements of digital transformation in higher education. TAM and UTAUT remain useful for explaining perceptions and intentions related to technology use (Shelton, 2016, p. 306); however, the present framework addresses a different analytical problem: how lecturers experience and manage continuous technological change after institutional technologies become part of their professional environment (Buchan, 2014).

Importantly, the framework also recognizes that individual adaptation does not occur in isolation (Eryanto et al., 2024, p. 1148). Organizational support, leadership, professional development opportunities, peer collaboration, technological infrastructure, and institutional culture form the contextual conditions within which the four dimensions operate (Eryanto et al., 2024, p. 1148). In the context of private higher education in Indonesia, these conditions may be particularly significant because institutions vary substantially in their digital resources and capacity to support staff development (Makmun et al., 2025). Therefore, the framework treats organizational factors as important contextual enablers or constraints that shape lecturers' adaptive experiences.

Digital transformation has fundamentally changed the operational landscape of higher education institutions, requiring lecturers to integrate digital technologies into teaching, research, academic administration, and institutional reporting. Consequently, lecturers are expected not only to master disciplinary knowledge but also to continuously adapt to emerging technologies that evolve rapidly within organizational environments. Technology adaptability therefore represents a strategic capability that enables academic staff to maintain instructional effectiveness while responding to ongoing

technological change. Technology adaptability differs conceptually from technology acceptance. While technology acceptance primarily concerns an individual's intention or willingness to use a technology, technology adaptability emphasizes the continuous behavioral, cognitive, and psychological adjustments required after technology has been implemented. (Tyre & Orlikowski, 1994) describe technology adaptation as the modification of user behavior following technological implementation, whereas (Kashefi et al., 2015) argue that adaptation reflects an ongoing process through which users learn, negotiate, and optimize technology utilization within their work environment. Therefore, successful digital transformation depends not merely on technology adoption but on lecturers' ability to continuously adapt their professional practices as technologies evolve. Within higher education, technology adaptability encompasses multiple dimensions, including digital competence, instructional flexibility, willingness to learn new technologies, and the capacity to integrate digital tools into academic activities. These dimensions collectively determine how effectively lecturers transform technological resources into meaningful educational outcomes. Furthermore, institutional readiness and effective leadership serve as critical mediators that enable faculty to transition from simple tool usage toward the application of innovative pedagogical approaches that transcend traditional physical boundaries. By cultivating a supportive environment that prioritizes professional development and resource allocation, institutions help lecturers successfully integrate complex digital mandates into their teaching practices (Deacon et al., 2022; Landa et al., 2023, p. 15523). Consequently, when leadership actively promotes a culture of experimentation rather than mere compliance, faculty are better equipped to integrate these technologies into their teaching practice, ultimately fostering a more resilient and dynamic academic landscape that is capable of adapting to future technological disruptions.

The theoretical foundation of this study is individual adaptability theory (I-ADAPT), developed by (Ployhart & Bliese, 2005). The theory conceptualizes adaptability as an individual's capability, willingness, and motivation to adjust effectively to changing task demands, organizational environments, and technological developments. I-ADAPT proposes that adaptability is multidimensional rather than a single behavioral characteristic. Individuals continuously modify their knowledge, attitudes, and behaviors in response to environmental changes. Within educational institutions, technological innovation creates dynamic working conditions that require lecturers to develop new competencies, redesign teaching strategies, and continually update professional knowledge. From this perspective, technology adaptation should not be interpreted solely as technological proficiency. Instead, adaptation reflects the interaction between individual capabilities and organizational contexts. Lecturers who possess high adaptive capability are expected to demonstrate greater flexibility in responding to technological innovation, reduced resistance to organizational change, and stronger commitment to continuous professional learning. Digital Competence and Technology Adaptation. Digital competence has emerged as one of the most important determinants of lecturers' adaptability in digitally transformed universities. Digital competence extends beyond operational computer skills to include information management, online communication, digital collaboration, content creation, problem-solving, and ethical technology use. Recent studies indicate that lecturers with stronger digital competence are more likely to integrate learning management systems, virtual learning environments, and interactive digital media into teaching activities. Conversely, inadequate digital competence often results in limited utilization of institutional technologies, increased dependence on technical support, and reduced instructional innovation. Nevertheless, digital competence alone cannot fully explain technology adaptability. Several researchers argue that psychological readiness, confidence in using technology, learning motivation, and organizational support collectively influence lecturers' adaptive behavior. Therefore, technology adaptation should be understood as a multidimensional phenomenon combining technical capability with cognitive and behavioral readiness.

Organizational Support and Adaptive Behavior. Technology adaptation occurs within organizational contexts rather than in isolation. Universities influence lecturers' adaptive behavior through leadership commitment, institutional policies, professional development opportunities, technical assistance, and organizational culture (Deacon et al., 2022). Recentort provides both instrumental and psychological resources that reduce uncertainty during technological change. Continuous training, peer collaboration, mentoring, and responsive IT services enable lecturers to develop confidence in utilizing institutional technologies. In contrast, inadequate support often increases technology-related anxiety, discourages experimentation, and limits effective use of digital platforms (Sha'ar et al., 2025). Adaptive behavior therefore reflects an interaction between individual willingness and institutional readiness. Lecturers who perceive greater organizational support

generally demonstrate stronger engagement with digital innovation and are more willing to explore advanced technological features beyond mandatory institutional requirements. Moreover, the alignment between institutional objectives and faculty development initiatives creates a framework in which risk-taking is incentivized rather than penalized. By establishing clear pathways for professional growth that reward innovative pedagogical applications of technology, universities shift the emphasis from surface-level compliance to genuine instructional transformation (Deacon et al., 2022; Zhao et al., 2020, p. 584857). Such institutional backing ensures that lecturers feel empowered to navigate the complexities of digital adoption, fostering a culture of psychological safety where experimentation is viewed as a vital component of ongoing professional evolution rather than a source of potential failure. Furthermore, this structural coherence between development initiatives and organizational culture ensures that support mechanisms actively cultivate sustained adaptive behavior, enabling faculty to refine their instructional strategies consistently throughout the lifecycle of institutional technology adoption. As institutional structures mature, this iterative cycle of support and application transforms isolated instances of technological experimentation into embedded institutional practices, ultimately securing the long-term relevance of digital pedagogical strategies in an increasingly volatile academic environment.

Digital Agility in Higher Education: Recent literature increasingly highlights digital agility as an important extension of technology adaptability (Surjawan et al., 2025). Digital agility refers to the capability to rapidly recognize technological opportunities, learn emerging digital tools, and apply them effectively within changing organizational environments. Unlike basic digital literacy, digital agility emphasizes proactive learning, continuous experimentation, and flexible problem-solving (Izni & Thominathan, 2024). Digitally agile lecturers are capable of integrating various educational technologies into teaching practices, modifying instructional strategies according to technological developments, and responding effectively to institutional changes. Building this capacity has become particularly relevant as universities increasingly implement artificial intelligence, learning analytics, cloud-based learning systems, and integrated academic management platforms. Consequently, lecturers' adaptive capability must evolve beyond operational technology use toward continuous digital innovation. This shift necessitates a paradigm change in faculty development, moving from static, tool-based training toward agile, competency-based models that prioritize cognitive flexibility and strategic foresight (Sirianni et al., 2020). By transitioning the focus from mere operational proficiency to the cultivation of creative problem-solving and proactive learning, universities can better equip faculty to navigate the inherent uncertainties of rapid technological transitions. Furthermore, fostering an environment where pedagogical risk-taking is encouraged and digital advancements are continuously integrated into classroom practices allows lecturers to transcend basic tool utilization and achieve deep, enduring instructional innovation, ultimately aligning their professional evolution with the dynamic requirements of a digitally mature academic landscape. Building such resilience requires institutions to institutionalize feedback loops that connect faculty experiences with strategic technology planning, ensuring that digital adoption remains a collaborative, evolving endeavor rather than a top-down mandate (Gallagher & Lamb, 2023, p. 625).

Synthesis of Previous Studies and Research Gap, previous research has consistently demonstrated that the constructivist paradigm guides the study of educational quality and institutional performance. However, several important limitations remain evident. First, most empirical studies adopt quantitative approaches based on the technology acceptance model (TAM), the unified theory of acceptance and use of technology (UTAUT), or related behavioral intention frameworks (Peek et al., 2019, p. 245). Although these models successfully explain technology adoption, they provide a limited understanding of how lecturers continuously adapt to mandatory institutional technologies after implementation (Akram et al., 2019, p. 239). Second, existing studies predominantly conceptualize adaptation as technology usage rather than as a multidimensional process involving digital competence, adaptive behavior, coping strategies, organizational support, and digital agility. Third, qualitative evidence from private higher education institutions in developing countries remains relatively limited despite considerable contextual differences in technological infrastructure, institutional culture, and organizational resources (Iqbal & Bhatti, 2020, p. 13; Shah et al., 2020, p. 542). These contextual factors may substantially influence lecturers' adaptive experiences and therefore require deeper exploration. Consequently, this study addresses these limitations by exploring the complex, multidimensional interplay between individual adaptive behaviors and institutional support structures within the unique socio-technical context of private higher education. By employing a qualitative inquiry lens, this study aims to elicit nuanced perspectives from faculty regarding the barriers and facilitators of long-term technology integration. This research seeks to bridge the existing

gap by uncovering the tacit mechanisms that enable faculty to sustain pedagogical innovation amidst shifting institutional requirements.

Accordingly, this study addresses these limitations by employing a qualitative case study approach to investigate lecturers' technology adaptability within a private higher education institution in Indonesia. Rather than focusing exclusively on technology acceptance, this research explores how lecturers experience technological change, develop adaptive behaviors, overcome technological challenges, and strengthen digital agility through continuous professional learning. Conceptual Contribution. Building on individual adaptability theory, this study conceptualizes technology adaptability as an integrated process comprising four interconnected dimensions:

1. **Digital competence** represents lecturers' technological knowledge and operational capability.
2. **Adaptive behavior** reflects behavioral adjustments toward institutional digital systems.
3. **Coping strategies** describe individual responses to technological challenges and organizational change.
4. **Digital agility** represents lecturers' capability to continuously learn, innovate, and respond proactively to emerging technologies. By synthesizing these four dimensions, this framework moves beyond traditional 'learn and use' models, acknowledging that sustainable integration requires a 'continuous relearn and adapt' approach characterized by high learning agility and motivational disposition (Şimşek et al., 2025).

This conceptualization extends previous literature by proposing a more comprehensive understanding of lecturers' technology adaptability within digitally transforming higher education institutions and provides a theoretical foundation for strengthening institutional digital transformation strategies. Research Gap and Positioning of the Present Study

The literature indicates that research on educational technology has generated substantial knowledge concerning technology acceptance, adoption intention, e-learning readiness, and digital competence. Indonesian studies have also contributed significantly to understanding online learning, lecturers' digital literacy, technology self-efficacy, and barriers to digital implementation (Nurhikmah et al., 2024). However, three limitations remain.

1. Technology acceptance and adaptation should not be treated as equivalent concepts. Existing TAM- and UTAUT-based research provides important explanations of why users perceive technology favorably or intend to use it but offers less insight into the continuous process through which lecturers adjust their behavior and professional practices after technology becomes mandatory (Bayaga & Plessis, 2023, p. 9690).
2. Existing research often examines digital competence, behavioral intention, institutional support, or technology use as separate constructs (Wang et al., 2026, p. 7). Less attention has been paid to understanding how digital competence, adaptive behavior, coping strategies, and digital agility interact as components of an ongoing adaptive process.
3. Although research on digital technology in Indonesian higher education has expanded, qualitative evidence from private higher education institutions concerning lecturers' lived experiences of adapting to multiple mandatory institutional technologies remains comparatively limited. This gap is especially relevant in institutions where resource limitations, organizational culture, staff development opportunities, and government or institutional reporting requirements may create distinct adaptation conditions.
4. Accordingly, the present study does not claim that technology adaptation research in Indonesia is absent. Rather, it addresses the under-explored intersection between continuous technology adaptation, lecturers' lived experiences, multidimensional adaptive capability, and the organizational context of private higher education in Indonesia. Using a qualitative case study approach supported by NVivo-assisted thematic analysis, the study explores how lecturers adapt to institutional digital technologies used in teaching and academic performance reporting. Particular attention is given to their experiences, digital competence development, behavioral adjustments, coping strategies, challenges, and emerging digital agility.

This study contributes to the literature in three ways. First, it shifts the analytical focus from initial technology acceptance toward technology adaptation as an ongoing and dynamic process. Second, it integrates digital competence, adaptive behavior, coping strategies, and digital agility into an interconnected framework for examining lecturers' adaptive capability. Third, it provides contextualized qualitative evidence from a private higher education institution in Indonesia, thereby contributing to a more nuanced understanding of how organizational conditions and individual capabilities interact during institutional digital transformation.

By positioning technology adaptation as a multidimensional and contextually embedded process, this study offers a broader explanation of lecturers' digital transformation experiences than approaches focused exclusively on acceptance or intention to use. The findings are expected to contribute theoretically to the literature on individual adaptability and digital transformation while providing practical insights for higher education institutions seeking to strengthen lecturers' digital readiness, professional learning, and capacity for sustainable adaptation.

3. RESEARCH METHOD

Research Design

This study employed a qualitative case study design to explore how lecturers adapt to mandatory digital technologies implemented within a private higher education institution in Indonesia. A qualitative approach was selected because technology adaptability is a complex phenomenon involving cognitive, behavioral, and contextual dimensions that cannot be adequately captured through quantitative measurement alone. The case study design enabled an in-depth examination of lecturers' experiences, perceptions, and adaptive behaviors within their real organizational setting.

The study was guided by the constructivist paradigm, which assumes that reality is socially constructed through individual experiences and interactions. Accordingly, this study sought to understand how lecturers interpret technological changes, respond to institutional digital transformation, and develop adaptive strategies in their professional practice.

Research Setting and Participants

This research was conducted at a private college of economics in Surabaya, Indonesia, which has implemented institutional digital systems for teaching, learning, and academic performance reporting. The institution has adopted a learning management system (LMS), online teaching platforms, and integrated reporting systems to support the implementation of the Tri Dharma of Higher Education. Participants were selected using purposive sampling to ensure that respondents possessed direct experience with institutional digital technologies. The inclusion criteria required participants to:

1. Permanent lecturers are employed by the institution.
2. Actively used the institutional learning management system.
3. Have experience using the Tri Dharma Academic Reporting System.
4. Have participated in institutional digital transformation initiatives.

A total of 24 permanent lecturers participated in this study. Participants represented different academic disciplines, ranks, teaching experiences, educational backgrounds, and age groups, providing diverse perspectives on technology adaptation.

Data Collection

Primary data were collected through semi-structured, in-depth interviews conducted during the research period. Semi-structured interviews were chosen because they provided flexibility to explore participants' experiences while maintaining consistency across interview sessions.

The interview protocol was developed based on Individual Adaptability Theory (I-ADAPT) and previous literature on technology adaptation in higher education. The questions explored several aspects of lecturers' technology adaptation, including the following:

1. familiarity with emerging technologies.
2. digital competence in teaching activities
3. experiences of using institutional e-learning systems;
4. adaptation to academic reporting technology;
5. perceived challenges during technology implementation.
6. strategies employed to overcome technological difficulties
7. Perceptions regarding institutional support and professional development
8. Each interview lasted approximately 45–60 min and was conducted face-to-face or online, depending on participant availability. With participants' consent, interviews were audio-recorded and subsequently transcribed verbatim for analysis.

To strengthen data credibility, the interview findings were complemented by institutional documents, including reports related to lecturer demographics, digital learning implementation, and institutional technology utilization.

Data Analysis

Data were analyzed using thematic analysis supported by the NVivo software. The analysis followed Braun and Clarke (2006) six-step thematic analysis framework.
The analytical procedures consisted of the following:

1. Familiarization with the interview transcripts through repeated reading.
2. Initial coding was performed to identify meaningful statements related to technology adaptation.
3. Categorization of similar codes into broader concepts
4. Development of overarching themes representing lecturers' adaptive experiences
5. The themes were reviewed and refined to ensure conceptual consistency.
6. Interpretation of themes in relation to individual adaptability theory and previous empirical findings.

Trustworthiness. To enhance the quality and rigor of the study, the four criteria of trustworthiness proposed by Lincoln et al. (1985) were applied.
Credibility was established through prolonged engagement with the participants, member checking, and triangulation between the interview findings and institutional documents.
Transferability was enhanced by providing rich contextual descriptions of the institutional setting, participants and the digital transformation environment.
Dependability was ensured through an audit trail documenting the research procedures, coding decisions, and analytical development throughout the study.
Confirmability was achieved by maintaining researcher reflexivity, documenting analytical decisions, and ensuring that the interpretations were grounded in the participants' narratives rather than the researchers' assumptions.
Ethical Considerations
Prior to data collection, the participants received information regarding the objectives of the study and voluntarily agreed to participate through informed consent. Participants were assured that their identities would remain confidential and that all interview data would be anonymized during transcription, analysis, and publication. Participation was entirely voluntary, and respondents retained the right to withdraw from the study at any stage without consequence.
Data Analysis Framework
Based on the thematic analysis, lecturers' technology adaptability was interpreted through four interconnected analytical dimensions:

1. **Digital competence –** lecturers' capability to understand and utilize institutional digital technologies.
2. **Adaptive behavior –** behavioral adjustments made in response to technological change.
3. **Coping strategies**: individual efforts to overcome technological barriers and organizational challenges.
4. **Digital Agility –** continuous learning and responsiveness of lecturers toward emerging educational technologies.

These four dimensions constitute the analytical framework used to explain lecturers' technology adaptability throughout the study and provide the basis for interpreting the findings within the perspective of Individual Adaptability Theory (Bhattacherjee & Harris, 2015).

4. DATA ANALYSIS AND DISCUSSION

Overview of Findings

The thematic analysis identified four interconnected dimensions that explain lecturers' technology adaptability within institutional digital transformation: **(1) digital competence, (2) adaptive behavior, (3) coping strategies, and (4) digital agility**. These themes demonstrate that technology adaptation is not a linear process of technology acceptance but rather a dynamic interaction between individual capability, organizational support, and continuous professional learning.
The findings further indicate that lecturers' adaptability varies considerably according to their previous technological experiences, confidence in using digital technologies, and institutional learning opportunities. Rather than representing fixed individual characteristics, adaptability emerged as a developmental process that continuously evolves through repeated interactions with institutional digital systems.

Digital Competence as the Foundation of Technology Adaptation

The first theme demonstrates that digital competence constitutes the initial foundation for lecturers' technological adaptability. Most participants reported being able to operate fundamental institutional technologies, including the learning management system (LMS), virtual learning platforms, and basic digital communication tools. However, their competencies remained largely procedural rather than strategic. Many lecturers indicated that they were comfortable performing routine activities such as uploading teaching materials, recording attendance, and administering online examinations. Nevertheless, they experienced considerable difficulties when required to utilize more advanced functions such as learning analytics, interactive assessment features, digital collaboration tools, and integrated reporting applications. These findings suggest that digital competence among lecturers remains uneven. Rather than reflecting comprehensive digital capability, participants primarily developed task-oriented technological skills that satisfied minimum institutional requirements. From the perspective of Individual Adaptability Theory (I-ADAPT), this finding illustrates that technological adaptation requires more than operational knowledge (Beaudry & Pinsonneault, 2005). Adaptive individuals continuously acquire new competencies to maintain compatibility with changing work environments. Consequently, lecturers possessing only procedural technological knowledge may experience difficulties when digital systems evolve beyond familiar routines. This finding also extends previous studies that primarily associate digital competence with technical proficiency (Tool vs. Pedagogy: Deconstructing Faculty Definitions of "Digital Competence," n.d.). The present study demonstrates that sustainable technology adaptation requires continuous competency development rather than one-time technology training.

Adaptive Behavior Reflects Continuous Organizational Adjustment

The second theme revealed that lecturers continuously adjusted their professional practices in response to institutional digital transformation. Adaptation occurred gradually rather than immediately after technological implementation. Participants described modifying teaching strategies, reorganizing learning materials, redesigning assessment methods, and adjusting communication patterns with students after institutional technologies became mandatory. Although many initially experienced uncertainty, repeated exposure gradually increased their confidence and reduced their resistance toward technology. However, adaptation remained selective in this study. Most lecturers concentrated only on technological features directly related to institutional obligations while neglecting optional digital innovations that could improve the quality of learning. This selective adaptation demonstrates that lecturers tend to prioritize organizational compliance over innovation. Consequently, technology use often fulfills administrative requirements without maximizing the educational benefits. From the perspective of I-ADAPT, adaptive behavior represents continuous behavioral modification in response to environmental demands (Botezat et al., 2023, p. 39). Therefore, the findings support the argument that adaptation is an ongoing process rather than a single adoption decision.

Organizational Support Shapes Coping Strategies

The third theme indicates that lecturers encountered multiple technological challenges during institutional digital transformation. These challenges included a limited understanding of advanced system features, inconsistent reporting procedures, technological uncertainty, and a lack of confidence in operating unfamiliar applications.

Importantly, the participants rarely attempted to solve these problems independently. Instead, they relied heavily on institutional IT staff, peer collaboration, informal mentoring and professional training activities.

This finding highlights organizational support as a critical mechanism for facilitating technology adaptation. Rather than relying solely on individual capabilities, lecturers develop adaptive capacity through collaborative learning environments.

Institutional support reduced technology-related anxiety while encouraging experimentation with unfamiliar digital tools. Participants consistently emphasized that regular workshops, technical consultations, and peer assistance significantly improved their confidence in using institutional technologies. These findings reinforce socio-technical perspectives suggesting that digital transformation depends equally on technological infrastructure and organizational learning (Thomas, 2024, p. 439). Investment in digital systems alone cannot ensure successful adaptation without sustained institutional support.

Digital Agility Distinguishes Highly Adaptive Lecturers

The fourth theme identifies digital agility as the characteristic distinguishing highly adaptive lecturers from those demonstrating minimal technological competence.

Digitally agile lecturers actively explore emerging educational technologies beyond institutional requirements. They incorporated interactive multimedia, video conferencing platforms, collaborative applications, online assessment systems, and AI-assisted educational tools into their teaching practices. Conversely, lecturers demonstrating lower adaptability restricted technology use to mandatory institutional systems and showed a limited willingness to experiment with alternative digital resources. This distinction suggests that digital agility represents proactive rather than reactive adaptation. Highly adaptive lecturers viewed technological change as an opportunity for instructional innovation, whereas less adaptive lecturers perceived technology as an administrative obligation.

Therefore, the findings extend the previous literature (Srivastava et al., 2023) by proposing digital agility as an advanced stage of technology adaptation characterized by continuous learning, experimentation, and innovation.

Discussion

The present study contributes to the literature by demonstrating that lecturers' technology adaptability is a multidimensional process that extends beyond technology acceptance. Existing technology acceptance models, including TAM and UTAUT, primarily explain users' behavioral intentions prior to technology implementation. However, the present findings reveal that lecturers continue to adapt long after institutional technologies have become mandatory. Therefore, technology adaptation represents an ongoing developmental process involving continuous learning, behavioral adjustment, organizational interaction, and professional identity reconstruction. The findings further support the Individual Adaptability Theory by demonstrating that adaptive capability emerges through the interaction of individual competence and organizational context rather than individual characteristics alone. Lecturers possessing similar demographic backgrounds frequently exhibited substantially different levels of technology adaptability depending on their learning motivation, organizational support, and willingness to engage in continuous professional development. Another important contribution concerns the role of organizational support. Previous studies frequently conceptualize technology adaptation as an individual responsibility (Flavell et al., 2018, p. 2). In contrast, this study demonstrates that adaptation is strongly influenced by institutional learning ecosystems that encourage collaboration, mentoring, and knowledge sharing.

Furthermore, the identification of digital agility expands existing conceptualizations of technology adaptation. Rather than representing merely successful technology usage, digital agility reflects lecturers' capacity to anticipate technological change, continuously develop digital competencies, and transform technological resources into pedagogical innovation. Consequently, higher education institutions should reconsider digital transformation strategies that primarily emphasize technological infrastructure. Sustainable digital transformation requires continuous investment in professional learning communities, mentoring systems, digital leadership, and organizational cultures that encourage experimentation and lifelong learning.

5. CONCLUSION, IMPLICATIONS, SUGGESTIONS, AND LIMITATIONS

Conclusion

This study explored lecturers' technology adaptability within the context of digital transformation at a private higher education institution in Indonesia. Using a qualitative case study approach, the research demonstrated that technology adaptability is a dynamic and multidimensional process rather than a simple decision to adopt digital technology. Four interconnected dimensions emerged from the thematic analysis: **digital competence, adaptive behavior, coping strategies, and digital agility**. The findings indicated that digital competence constitutes the initial foundation of technology adaptation; however, technical skills alone are insufficient to sustain digital transformation. Lecturers continuously modified their teaching practices, administrative routines, and professional learning strategies as institutional technologies evolved. Their adaptive behaviors were strongly influenced by organizational support, opportunities for continuous learning, and collaboration with colleagues. The study further revealed that digital agility distinguishes lecturers who merely comply with institutional technological requirements from those who actively utilize digital technologies to improve teaching innovation. Consequently, successful digital transformation depends not only on technological infrastructure but also on the development of adaptive capabilities that enable lecturers to respond proactively to technological change. Overall, the findings suggest that technology adaptability should

be understood as a continuous organizational learning process involving interactions between individual competencies, institutional support, and changing technological environments.

Implication

This study contributes to the literature by extending individual adaptability theory (I-ADAPT) within the context of higher education digital transformation. Previous studies have predominantly interpreted lecturers' technology use through technology acceptance frameworks, such as the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTAUT), which primarily emphasize behavioral intention prior to technology adoption (Bayaga & Plessis, 2023, p. 9690). In contrast, this study demonstrates that technology adaptation is an ongoing developmental process occurring after technology implementation. The proposed framework integrates four complementary dimensions—digital competence, adaptive behavior, coping strategies, and digital agility—that collectively explain lecturers' adaptive capability within organizational digital transformation. This multidimensional perspective provides a richer conceptual understanding of technology adaptation by emphasizing continuous learning, behavioral adjustment, and organizational interaction rather than technology acceptance alone.

Suggestion

Future studies can extend this research in several directions. Comparative research involving public and private universities could examine how organizational characteristics influence lecturers' technology adaptability. Mixed-methods studies could quantitatively validate the conceptual framework proposed herein and investigate causal relationships among its dimensions. Longitudinal research is also recommended to examine how lecturers' adaptive capabilities evolve throughout different stages of digital transformation. Furthermore, future studies may explore the influence of emerging technologies—including artificial intelligence, learning analytics, immersive learning environments, and generative AI—on lecturers' adaptive behavior and digital agility.

Limitations

This study has several limitations. First, this study was conducted within a single private higher education institution; therefore, the findings should not be generalized to all universities without considering the institutional differences. Second, the qualitative case study design prioritizes depth of understanding over statistical generalization (Understanding Co-Production through Sanitation Intervention Case Studies in South Africa, n.d., p. 59). Although these findings provide rich insights into lecturers' adaptive experiences, broader quantitative validation remains necessary. Third, the participants primarily consisted of permanent lecturers who had already been involved in institutional digital transformation. Future studies should include contract lecturers, new faculty members, and university administrators to obtain more comprehensive perspectives.

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