

# Digital Pedagogy in Indian Higher Education: Faculty Perspectives

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<https://doi.org/10.34190/ejel.24.2.4189>

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**Abstract:** The rapid digitalization of higher education has significantly reshaped teaching and learning practices worldwide; however, the adoption of digital pedagogy among university teachers remains uneven, particularly in developing contexts such as India. This study examines the lived experiences of Indian university teachers in adopting digital pedagogy and explores the factors influencing this process within higher education institutions. Using a qualitative research design, the study employs Interpretative Phenomenological Analysis to develop an in depth understanding of how teachers perceive, experience, and make sense of digitally mediated teaching practices. Data were collected through semi structured interviews with university teachers representing diverse disciplinary backgrounds and institutional settings. The analysis followed a systematic and iterative IPA approach to identify emergent themes grounded in participants' narratives. The findings indicate that digital pedagogy adoption is shaped by a dynamic interplay of institutional, technological, and personal factors. Institutional support structures, availability of digital infrastructure, access to professional development opportunities, and collaborative peer environments emerged as key enablers of adoption. In contrast, challenges such as inadequate training, inconsistent technical support, increased workload, infrastructural disparities between institutions, and varying levels of digital confidence among teachers were identified as persistent barriers. The study further highlights the central role of teachers' beliefs, attitudes, and perceived pedagogical value of digital tools in determining the depth and sustainability of digital pedagogy integration. By foregrounding faculty perspectives, this research contributes to the limited qualitative literature on digital pedagogy adoption in Indian higher education and extends existing scholarship beyond technology acceptance oriented explanations. The study supports e learning practice by offering context specific recommendations related to faculty training, institutional policy, and digital readiness. By emphasizing teachers' lived experiences, the findings advance understanding of digital pedagogy as a socially situated and contextually embedded practice, providing a foundation for inclusive and sustainable digital transformation in higher education. The insights generated offer important implications for higher education leaders and policymakers seeking to strengthen digital capacity and enhance teaching quality in evolving educational environments.

**Keywords:** Digital pedagogy, Interpretative phenomenological analysis (IPA), Higher education sector, Quality assurance, University teachers

## 1. Introduction

Digital technology in the classroom refers to the use of tools, software, and devices that support learning for all students, including those with specific accessibility needs. It has recently become essential for student development and national growth. In line with the "Digital India" initiative, the government aims to turn the country into a digitally empowered, knowledge-driven society. Reflecting this vision, India's higher education sector, which is the third largest in the world, with over 51,000 institutions and nearly 40 million students, is actively adopting digital transformation. India's Gross Enrolment Ratio (GER) in higher education is 28.4% (AISHE, 2021–22), which is relatively low when viewed against the National Education Policy (NEP) 2020 target of achieving a GER of 50% by 2035 (Government of India, 2020). This level is also below the global average GER of approximately 38% (UNESCO Institute for Statistics, 2022) and significantly lower than that of many developed economies, where GER typically exceeds 60–80% (OECD, 2021; World Bank, 2022 a). Further, access to digital infrastructure is uneven. About 24% of rural households have internet access, while 67% of urban households do (National Family Health Survey-5, 2019-21), highlighting a stark rural–urban disparity in comparison to

international benchmarks (World Bank, 2022 b). This disparity creates challenges for adopting digital teaching fairly across different regions. However, the National Education Policy (NEP) 2020 strongly supports integrating digital teaching methods in schools and universities. While digital tools had started to gain popularity before, their use became widespread during the COVID-19 pandemic, accelerating a digital revolution. Technology has since changed the education landscape, affecting students, educators, administrators, and policymakers.

Digital Pedagogy (DP) involves the utilization of contemporary digital technologies in teaching and learning exchange, and it involves reading, accessing, retrieving, and reacting to course materials on digital platforms and devices (Croxal & Kho, 2012; Morris, 2014). Due to the challenges posed by the COVID-19 pandemic and the initiatives of NEP 2020, digital pedagogy has become imperative in the educational environment. The promotion and integration of digital pedagogy in Indian Universities is greatly influenced by the statutory and regulatory bodies, such as the University Grants Commission (UGC) and the All India Council for Technical Education (AICTE), with an aim of augmenting the experience of teachers and students. Scholars have listed various advantages of digital pedagogy, for instance, facilitating the personalized learning experience, enhancing student engagement, and preparing students for digital workplaces (Bećirović, 2023; Schoors et al., 2023). Fuelled by the expectations of students, global competition, and access to a large number of students, it has become significant for teachers to transform their teaching pedagogies (Tom et al., 2023; Montebello, 2017; Sailin & Mahmor, 2018).

The academic community, especially university lecturers, plays an important role in using digital teaching methods. While they have freedom in choosing how to teach, challenges such as limited digital training, heavy workloads, and varying levels of technology readiness make it hard to integrate these tools well. This situation affects student engagement and learning aspects (Bond et al., 2022; Rapanta et al., 2020). As universities prioritize digital transformation to meet evolving student expectations and global educational trends, lecturers' willingness, preparedness, and institutional support become critical for success (Mishra et al., 2020; Tondeur et al., 2017). However, disparities exist in adoption due to infrastructure limitations, discipline-specific needs, and individual digital competence (Bali & Liu, 2018). According to past research, a major challenge for 21st-century teachers is effectively integrating technology into their teaching, which requires strong Technological Pedagogical Content Knowledge (TPACK) or digital pedagogy skills (Ertmer et al., 2012; Milton & Vozzo, 2013). Previously, scholars have opined that technology integration is more likely to be successful if the teacher possesses a constructivist, student-centred pedagogical orientation (Montebello, 2017; Wadmany and Kliachko, 2014). Though the growth of digitalization has propelled the need for using digital pedagogy, the adoption of digital pedagogy is a difficult terrain, especially in an emerging economy like India. Researchers across the globe have identified the various roadblocks in the adoption of digital pedagogy by the academic fraternity for instance; short time span, resources, and technical support (Nanjundaswamy, Baskaran & Leela, 2021), the attitude, beliefs and confidence of teachers in using the digital technologies, their upskilling to match with rapid transformation in DP, perceived support from institutions (Ertmer et al. 2012). These challenges show the need to use e-learning and shift to a more digital approach (Xu et al., 2022). Since digital teaching is still new in India (Efremova & Huseynova, 2022), and considering the differences in internet access and digital infrastructure across Indian regions (National Family Health Survey-5, 2019-21), it is important to examine how university teachers perceive and manage the adoption of digital pedagogy. To gain a deeper understanding of their experiences, this study uses a qualitative method, Interpretative Phenomenological Analysis (IPA). Based on this, the following research questions are proposed:

*RQ1 How do Indian university teachers make sense of their lived experiences with adopting digital pedagogy in higher education?*

*RQ2 What are the key factors influencing university teachers' adoption of digital pedagogy in the Indian higher education sector?*

*RQ3 What strategies facilitate the effective adoption of digital pedagogy in the HEIs (Higher Educational Institutions), particularly from the perspective of different stakeholders of Indian HEIs?*

Considering the above research questions, the study aims to explore the factors affecting the adoption of digital pedagogy in university settings.

## **2. Literature Review**

The digitalization of education has created new opportunities for teaching and learning (Pillai et al., 2023; Savotina et al., 2020). However, many educators have yet to adopt digital pedagogy fully. They need to change their mindsets and redefine their roles (Herbert et al., 2020). Digital pedagogy (DP) involves using digital tools thoughtfully within an educational framework (Khan, 2021). It combines both constructivist and traditional

teaching methods. Traditional approaches focus on teacher-led instruction, while the constructivist model emphasizes student-centered learning, collaboration, and active engagement (Väättäjä & Ruokamo, 2021). Research shows that constructivist methods support technology integration in classrooms more effectively (Pittman & Gaines, 2015). Another important framework for digital pedagogy is TPACK. This framework helps educators design meaningful and engaging learning experiences. Studies indicate that teachers' TPACK skills are crucial for implementing digital strategies successfully. This reinforces the need for ongoing professional development (Souza & Cardoso, 2024; Rosamsi & Nurdiani, 2024; Silvester et al., 2024). Theories such as Innovation Diffusion Theory (Rogers, 1962), Technology Acceptance Model (Davis, 1989), and UTAUT (Venkatesh et al., 2003) also shed light on what affects technology adoption in education. Despite the increasing research on technology adoption in higher education, there are still few studies focused on digital pedagogy (Belenkova, Skudnyakova & Bosov, 2022). In India, the adoption of digital pedagogy has increased, particularly due to COVID-19 and government initiatives. Programs aimed at improving digital infrastructure and skills have expanded access to online courses and virtual classrooms, especially in remote areas (Kumar, 2024; Singh, 2023; Fatima et al., 2025). However, challenges such as digital equity, inadequate teacher training, and limited internet access in rural areas continue (Roy, 2022; Singh, 2023). These issues raise concerns about educational quality and the digital divide, particularly for disadvantaged learners.

Earlier studies on digital pedagogy adoption have largely focused on primary and secondary education teachers in advanced economies, identifying both institutional barriers (limited access to resources, training, and support) and personal barriers related to teachers' confidence, beliefs, attitudes, and perceived value of technology (Ertmer et al. 2012; Pongsakdi, Kortelainen & Veermans, 2021). Similarly, teachers' attitudes towards technology have been identified as an important parameter that may significantly impact their perception of the usefulness of technology (Instefjord and Munthe 2017; Teo, Zhou & Noyes, 2016). Further, El-Hamamsy et al. (2024) have also identified the challenges encountered by the school teachers in the adoption of digital pedagogy, for instance, lack of access to resources, fear of change, workload increase, and the need for high-quality digital learning materials. Another study in the Australian and Swedish context emphasized competencies such as attitude, self-efficacy, and peer collaboration skills that can contribute to the successful integration of technologies in teaching ( McCarthy, Maor & McConney, 2017; Mannila, 2018).

So far as the Indian educational landscape is concerned, the research studies here have primarily emphasized the quantitative exploration. To quote a few research studies, Sharma and Srivastava (2020) empirically confirmed the significant positive impact of value beliefs (VB), social influence (SI), and perceived ease of use (PEOU) on the behavioural intention (BI) to use technology by the teachers in management institutions. Additionally, another research study in Indian HEIs examined the perceptions of teachers and found that continuance intention towards using online teaching in HEIs is most significantly influenced by teachers' satisfaction rather than perceived usefulness (PU), perceived ease of use (PEOU), and attitude (Kumar et al., 2022).

Further, only a limited number of qualitative studies have been conducted. For instance, Goarty and Gupta (2023) examined the factors influencing digital transformation in Indian higher education institutions and identified environmental factors and teachers' knowledge as key predictors of digital transformation. Phutela and Dwivedi (2020), using IPA, identified inhibitors and motivators of e-learning adoption by students. Another qualitative exploratory case study focused on the Indian elementary school teachers and unveiled their experiences of the learner-centered pedagogy (Evans, 2023). The available literature reveals a dearth of studies examining teachers' perspectives (Singh, Sharma & Paliwal, 2021). Most existing studies have primarily employed the Technology Acceptance Model and are empirical in nature. The majority of this research has focused on students' digital learning acceptance behaviour rather than on educators' experiences. Furthermore, the literature indicates a lack of qualitative exploration of technology integration within the teaching-learning process (Kaushik and Verma, 2020). Therefore, this knowledge and methodological gap paves the way for exploring teachers' perspectives on digital pedagogy adoption using the Interpretative Phenomenological Analysis approach within Indian higher education institutions (HEIs).

### **3. Research Methodology**

#### **3.1 Research Design**

IPA has been used in the current study to identify the factors affecting the digital pedagogy adoption amongst teachers in Indian HEIs. This technique is usually applied to a research question or problem that needs to be discovered and is at a nascent stage, where not much research has been conducted. Further, this technique has found its popularity in the field of education research as well (Bhaskar & Rana, 2024; Rana, 2022; McCarthy,

Glassburn & Dennis, 2022; Creely & Laletas, 2020). In the current study, the authors unveil the factors affecting the University teachers' adoption of digital pedagogy. IPA allowed the authors to conduct in-depth interviews and bring out the ground perceptions of the University faculty members about the challenges they face while implementing digital pedagogy in their daily routine.

Following the approach of Eatough and Smith (2017), the IPA technique was incorporated into this study for its idiographic focus, holistic orientation, and phenomenological depth. The authors followed the guidelines of Bogner, Littig & Menz (2009) and Patton (1990), where semi-structured interviews were conducted with homogeneous respondents which consisted of faculty members in the higher education sector. In-depth analysis of the existing literature provided the authors with clarity on basic terms like digital pedagogies and the already studied factors in this and related research topics. This helped to build the initial draft of the interview questions, which were verified by a group of academic experts who dealt in quality assurance in different Universities and faculty members with different experiences in teaching.

### 3.2 Respondent Profile

The respondents consisted of faculty members in different Universities and colleges. The authors deliberated to include teaching faculty members from different parts of the country and also from different tier cities to gain as diverse inputs as possible. An effort was made to include Faculty from diverse fields of expertise to understand if there was any difference in the same in adoption of digital pedagogies. The sample consisted of 44% male and 56% female Faculty with an average work experience of 8 years (Refer to Table 1)

**Table 1: Respondents' Profile**

| Respondent | Domain                         | Designation         | Location of the Institution |
|------------|--------------------------------|---------------------|-----------------------------|
| R1         | Engineering                    | Associate Professor | Gurgaon                     |
| R2         | Finance                        | Assistant Professor | Dehradun                    |
| R3         | Management                     | Professor           | Chandigarh                  |
| R4         | Design                         | Associate Professor | Mumbai                      |
| R5         | Law                            | Assistant Professor | Vadodara                    |
| R6         | Marketing                      | Assistant Professor | Bangalore                   |
| R7         | Media                          | Assistant Professor | Bhuaneshwar                 |
| R8         | Liberal Studies/<br>Humanities | Assistant Professor | Noida                       |
| R9         | Data Analytics                 | Associate Professor | Delhi                       |
| R10        | Taxation                       | Assistant Professor | Calcutta                    |
| R11        | Engineering                    | Assistant Professor | Mandi                       |
| R12        | Human Resource                 | Assistant Professor | Rishikesh                   |
| R13        | Media                          | Professor           | Dehradun                    |
| R14        | Media                          | Assistant Professor | Delhi                       |
| R15        | Health Sciences                | Assistant Professor | Rishikesh                   |
| R16        | Design                         | Assistant Professor | Delhi                       |
| R17        | Finance                        | Professor           | Indore                      |
| R18        | Law                            | Assistant Professor | Haridwar                    |

### 3.3 Data Collection

The data collection phase spanned from February to March 2024, during which semi-structured interviews were conducted with 18 purposively selected faculty members. The sampling strategy followed guidelines for Interpretative Phenomenological Analysis (IPA), where information-rich cases are prioritized (Palinkas et al., 2015; Creswell & Creswell, 2017).

Respondents were identified based on two key inclusion criteria:

- Active or prior implementation of digital pedagogical tools in their teaching; and
- Diversity in academic disciplines and geographical locations (urban vs. semi-urban/tier cities).

LinkedIn served a dual purpose: it was used both to identify suitable participants, based on their public teaching portfolios, and to establish initial contact. This approach ensured a homogenous sample in terms of exposure to digital pedagogy, consistent with the idiographic emphasis of IPA (Smith, Jarman & Osborn, 1999).

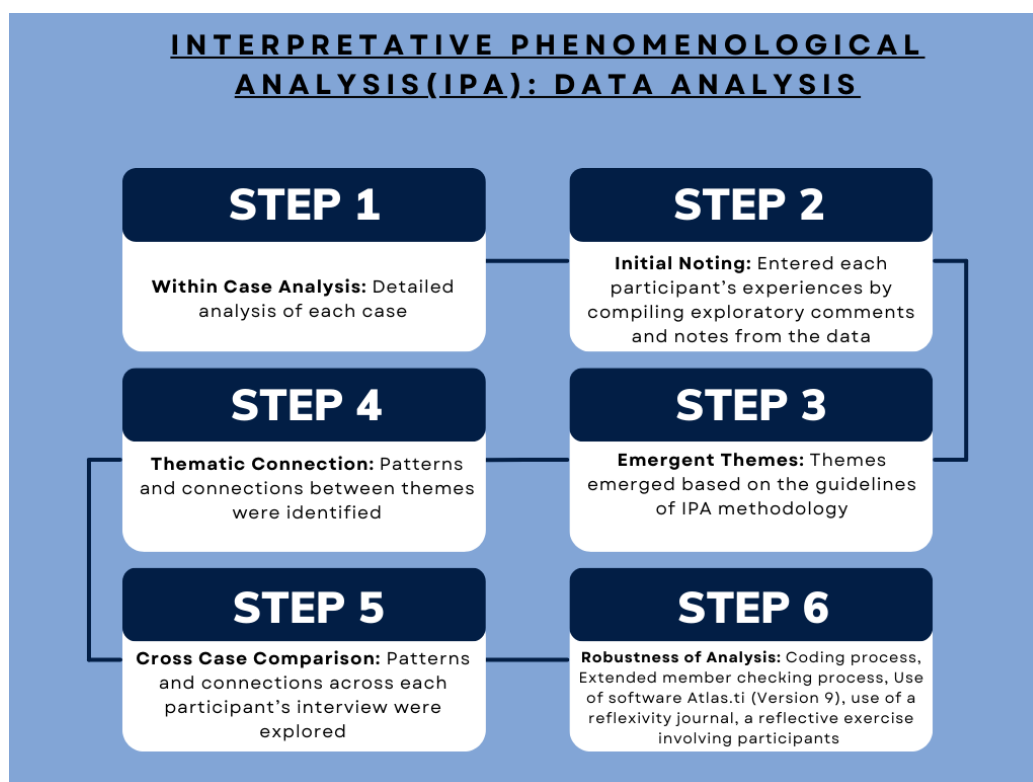
The final number of respondents (n = 18) was not predetermined but determined through data saturation. After the 16th interview, no new sub-themes emerged, indicating thematic redundancy. Two additional interviews were conducted to confirm this saturation point (Rajasinghe, 2020; Vasileiou et al., 2018).

All interviews were conducted remotely via Zoom or telephone to ensure the convenience and availability of the respondents. Each session lasted 35–45 minutes, a duration that aligns with best practices in IPA for eliciting rich, reflective narratives while avoiding fatigue (Eatough & Smith, 2017; Peat, Rodriguez & Smith, 2019; Fan et al., 2024; Bauman, 2015).

Participants were informed about the study's objectives and terminology prior to their interviews. Informed consent was obtained for audio recording. For those who declined recording (three respondents), detailed field notes were taken and verified post-interview.

### 3.4 Data Analysis

Interpretative Phenomenological Analysis (IPA) was employed to guide the data analysis process in this study (refer to Figure 1). Rooted in its theoretical and philosophical underpinnings, the authors adopted IPA's analytical framework (Smith, Jarman & Osborn, 1999; Alase, 2017; Larkin, Shaw & Flowers, 2019), which involved verbatim coding of raw data, interpretative engagement, and theme development (Nizza, Farr & Smith, 2021). To enhance analytical rigour, the authors employed *auditing techniques*, which in IPA refer to a systematic approach to ensure transparency and consistency in coding and interpretation by maintaining an audit trail of decisions made throughout the analysis (Smith, Jarman & Osborn, 1999). Each author independently analysed the data and later engaged in collaborative discussions. This comparative approach facilitated an extended member checking process and contributed to the credibility of the findings. Themes and sub-themes showed high concordance across individual analyses, a consistency that was confirmed by the use of Atlas.ti (Version 9), which showed approximately 94% agreement.



Source: Smith & Osborn (2008); Moustakas (1994)

Figure 1: Interpretative phenomenological analysis (IPA)-Data Analysis

To address personal biases, a *reflexivity journal* was maintained by the researchers, especially during the initial interviews. After each of these early interviews, authors spent approximately twenty minutes writing down reflective notes, observations, and potential thematic connections (Peat, Rodriguez & Smith, 2019). This reflexive journaling supported ongoing critical reflection, bracketing of assumptions, and enhanced the confirmability of the study (Vicary, Young & Hicks, 2017; Engward & Goldspink, 2020; Goldspink & Engward, 2019).

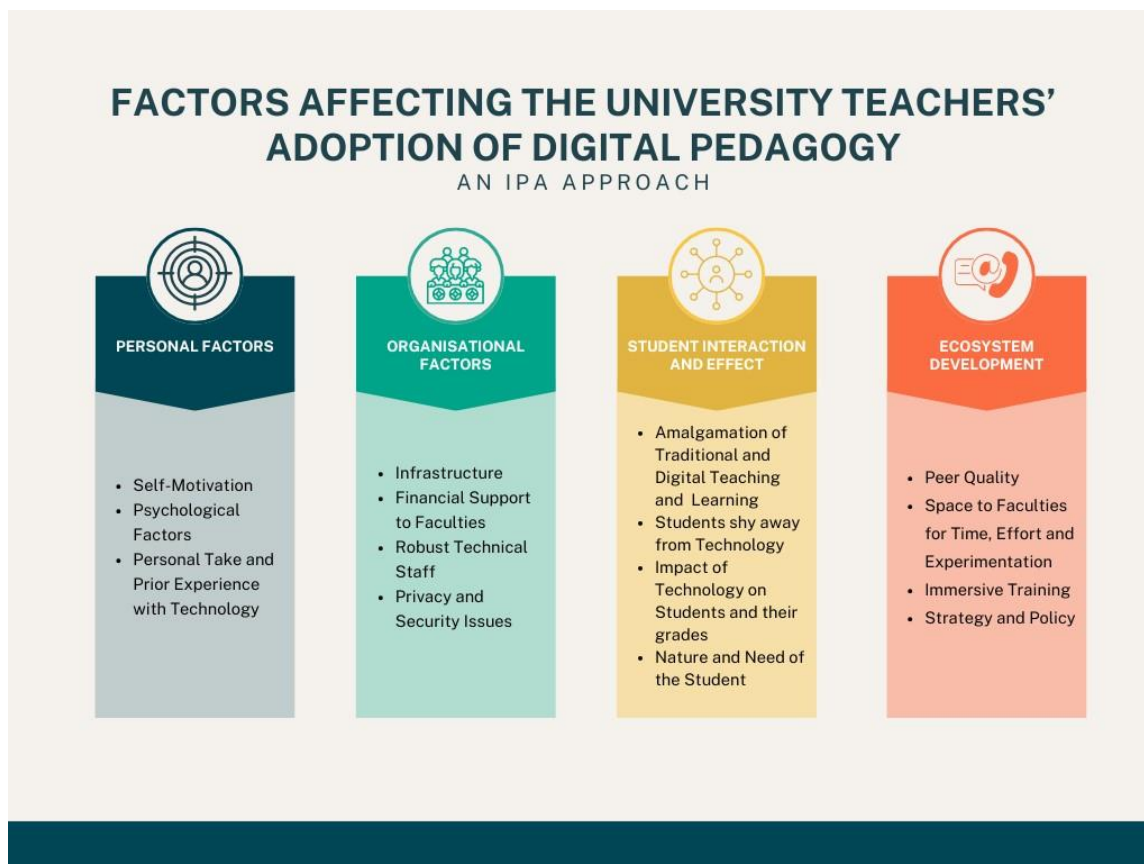
The researchers also applied the *hermeneutic circle*, a core IPA concept referring to the iterative process of understanding parts of the data in relation to the whole, and vice versa, to interpret participants' lived experiences within their broader contexts.

A reflective exercise was conducted during a second round of interviews, wherein participants were presented with preliminary findings derived from the first round. This process served as a member checking mechanism to validate the emerging interpretations (Smith & McGannon, 2018). All participants confirmed that the interpretations accurately represented their experiences, thereby enhancing the credibility of the findings.

Out of the total interviews conducted, three were not audio-recorded due to participant preference. In these instances, the researchers relied on detailed note-taking during the interview and immediately afterwards. For member checking in these cases, the researchers shared synthesized summaries of interpreted themes with the respective participants through follow-up communication, allowing them to review, validate, and revise any part of the interpretation as needed. No discrepancies were noted during this validation process.

#### 4. Results and Findings

The findings of the study revealed four major themes, namely, personal factors, organisational factors, student interaction and effect, and ecosystem development. The themes and sub-themes are discussed in length under this section (refer to Figure 2). The discussion addresses each of the three research questions guiding this study: (Q1) teachers' lived experiences with adopting digital pedagogy, (Q2) key factors influencing adoption, and (Q3) strategies that facilitate effective implementation within Indian HEIs.



Source: Authors' own work

**Figure 2: Factors Affecting the University Teachers' Adoption of Digital Pedagogy**

**Theme 1: Personal Factors**

In response to Research Question 1 (Q1)—How do Indian university teachers make sense of their lived experiences with adopting digital pedagogy in higher education?—the first theme that emerged was titled as ‘Personal Factors’, which included the following sub-themes (refer to Table 2)- ‘Self-Motivation’, ‘Psychological factors’, ‘Personal take and Prior Experience with Technology’. The elaboration of each sub-theme, along with the responses, has been explained below:

**Table 2: Sub-themes, Responses, and Key Takeaways- Theme 1: Personal Factors**

| <b>Theme 1: Personal Factors</b>  |  |
|---|--|
| <b>Sub-theme 1: Self-Motivation</b>   |  |
| <b>Responses</b>  | <b>Key Take-Aways</b>  |
| R5: "It is self-motivation that drives an individual to learn more on their own. Imbibing technology is possible only through a self-driven faculty."   | Self-driven Faculty are technology inclined.   |
| R3: "Faculty do the bare minimum when it comes to using technology. It is because of the huge workload, leaving little time to explore and experiment with the existing digital tools."   | Faculty find it difficult to use technology in their teaching pedagogy because of the heavy workload.  |
| R6: "I teach a theory-based course where technology isn't essential; digital tools are more relevant in subjects requiring practical exposure."   | Faculty finds relevance of digital tools in practical courses rather than theory courses.  |
| R14: "Learning technology is entirely a teacher's personal effort as there is no mandate to use the digital tools in the class."  | There is no mandate to use digital tools in classroom teaching.  |
| <b>Sub Theme-2 Psychological Factors</b>  |  |
| <b>Responses</b>  | <b>Key Take-Aways</b>  |
| R8: "I prefer traditional teaching, as digital tools tend to make students lazy and passive. They follow instructions but struggle to apply concepts independently."  | More comfortable with the traditional teaching method.<br>The use of digital tools while teaching makes students lazy and inactive in class. |
| R12: "I am not very comfortable with using digital pedagogical tools as there is always a possibility of making more errors."   | Faculty members believe that there is a possibility of more errors while using digital tools.  |
| R2: "I avoid experimenting with digital tools as they require time and effort to learn, and are not always welcomed by students or the institution."  | Faculty have discouraging experiences while using digital tools.   |
| <b>Sub-theme 3: Personal Take and Prior Experience with Technology</b>  |  |
| <b>Responses</b>  | <b>Key Take-Aways</b>  |
| R13: "I have a background in computer science; therefore, I am comfortable with using and experimenting with different digital tools for teaching."   | Prior experience with technology helps in inculcating digital tools in teaching  |
| R1: "I am a strong believer in the amalgamation of technology with education. I started experimenting with different digital tools I learnt during different FDPs (Faculty Development Program) and MDPs. (Management Development Program)" | Personal take on technology influences the use of digital tools in teaching.   |

The sub-theme '*Self-Motivation*' highlights its vital role in integrating technology into teaching. Faculty with intrinsic motivation proactively explore and adopt digital tools, regardless of institutional mandates (Balakrishnan & Shuib, 2021; Rahi et al., 2021). While these self-driven educators embrace innovation, factors like heavy workloads and course-specific demands can hinder adoption.

The sub-theme '*Psychological Factors*' captures the cognitive and emotional challenges faculty face in adopting digital pedagogy. Use of new technologies often led to more frequent errors—such as typos, uploading issues, and execution mistakes—compared to traditional methods (Gerli et al., 2022). Negative classroom experiences and student feedback further fuelled doubts about technology's effectiveness. Moreover, faculty's comfort with conventional methods, coupled with perceived low student engagement in digital settings, significantly deterred adoption (Ray, Bala & Dasgupta, 2019).

The sub-theme '*Personal Perspective and Previous Encounters with Technology*' reveals that faculty with computing proficiency adopt digital tools more easily and are open to experimentation. Those with positive prior experiences actively pursue refresher courses, showing a strong willingness to enhance efficiency through technology (Tursunbayeva & Gal, 2024).

## Theme 2: Organisational Factors

In continuing to the discussion aligned with Research Question 2 (Q2)—*What are the key factors influencing university teachers' adoption of digital pedagogy in Indian higher education?*—the theme of 'Organisational Factors' (refer to Table 3)- and includes the following sub-themes- 'Infrastructure', 'Financial Support to Faculty', 'Robust Technical Staff', and 'Privacy and Security Issues'. This section enumerates each sub-theme by laying down the following responses and the key takeaways.

**Table 3: Sub-themes, Responses, and Key Takeaways- Theme 2: Organisational Factors**

| <b>Theme 2: Organisational Factors</b>  |   |
|---|---|
| <b>Sub-theme 1: Infrastructure</b>  |   |
| <b>Responses</b>  | <b>Key Take-Aways</b>   |
| R3: "There is a need for huge capital investment to build the required digital infrastructure. This will help the faculty to use the digital pedagogies."   | Infrastructure building is required for making use of advanced digital tools and technology.<br>Infrastructure building requires huge capital investment. |
| R17: "We are still struggling with the basic infrastructure, like internet connectivity. Example out of 60 systems, only 10-15 systems will be working efficiently."  | Basic infrastructure still requires overhauling to achieve 100% efficiency.   |
| R18: "We are struggling to get subscriptions for basic statistical software, plagiarism check software, journal subscriptions, and availability of smart classes."  | Basic digital infrastructure and necessities to become an effective faculty are still required to be fulfilled.   |
| <b>Sub-theme 2: Financial Support to the Faculty</b>  |   |
| <b>Responses</b>  | <b>Key Take-Aways</b>   |
| R17: "I wanted to learn the inclusion of simulation in my domain, which cost me around 50,000 rupees, as no financial support was provided to me by the institution. Also, my leaves were used during travelling."    | Lack of financial support to learn advanced digital tools in teaching   |
| R15: "To learn technology for digital pedagogy requires some financial support from the institution, which is still missing."   | Revamping policy for financial support for faculty training and development.  |
| <b>Sub-theme 3: Robust Technical Support</b>  |   |
| <b>Responses</b>  | <b>Key Take-Aways</b>   |
| R11: "Once I had prepared all the study material with the help of digital tools, but was not able to deliver it in the class due to technical issues, so I switched to board and chalk teaching."                     | Frequent requirement for technical staff  |
| <b>Sub-theme 4: Privacy and Security Issues</b>   |   |
| <b>Responses</b>  | <b>Key Take-Aways</b>   |
| R4: "I learnt to use a digital tool, but avoid it as the institution requires us to teach using personal systems. Logging in with email-linked passwords and connecting to multiple devices raises privacy concerns." | Using own systems for Institutional work creates privacy issues, especially where login is connected to their personal email IDs.                         |
| R7: "I have experienced my personal system getting corrupted when connecting with the institution's devices. This has resulted in the loss of my personal research work as well."                                     | Connecting personal systems with different devices causes a loss of personal data of the faculty.   |
| R13: "It's unsafe to use personal systems for institutional work, risking data leaks. But due to limited funding, faculty have no option but to rely on their own devices."   | Faculty working on their systems can lead to leakage of sensitive institutional data.   |

The primary sub-theme highlights the financial commitment institutions must make to build the digital *infrastructure* essential for adopting digital pedagogy (Mateko, 2024). Faculty emphasized that integrating advanced digital tools requires robust infrastructure, which motivates their engagement with these platforms. They noted that investing in updated technologies helps them stay current and experiment with innovations. Currently, many faculty feel the existing institutional technologies are inadequate and call for a comprehensive upgrade (Verdecchia, Lago & Vries, 2022).

The second sub-theme, '*Financial Assistance for Faculty Members*,' reveals faculty concerns over insufficient institutional support for learning new digital technologies (Almansour & Almoayad, 2024). Faculty faced difficulties securing leave and funding to attend training at prestigious institutions. Existing policies often exclude travel and accommodation costs, forcing them to bear expenses personally or miss these opportunities entirely.

The third sub-theme- '*Robust Technical Support*' highlights the necessity for a proficient technical team to assist faculty members in setting up classroom technology and addressing any mid-session technical challenges promptly (Kumalasari et al., 2024). Faculty members encounter various instances where inadequately trained technical staff leads to disruptions in lecture delivery, resulting in valuable time loss for both faculty members and students. This aspect led to the non-adoption of digital pedagogy, sticking to traditional methods of teaching.

The fourth sub-theme, '*Security and Privacy Issues*,' highlights faculty concerns over using personal devices connected to institutional networks (Kumar et al., 2022). Many reported data and research losses due to unsecured networks, leading to distrust and reluctance toward digital pedagogy. The gap between policy and practice, along with inadequate cybersecurity support, exacerbates these fears. Institutions must offer secure infrastructure, technical assistance, and clear data protection policies to build faculty confidence and enable sustainable digital adoption.

**Theme 3: Student Interaction and Effect**

Also connected to Research Question 2, the third theme, *Student Interaction and Effect* (Refer to Table 4), expands the understanding of influencing factors by focusing on how students' engagement, attitudes, and learning outcomes shape faculty adoption decisions and their perception of the value of digital pedagogy. The third theme includes the following sub-themes: '*Amalgamation of Traditional and Digital Teaching and Learning*', '*Students Shy Away from Technology*', '*Impact of Technology on Students and their Grades*' and '*Nature and Needs of Students*'. This section enumerates each sub-theme by laying down the responses of faculty members and the key takeaways.

**Table 4: Sub-themes, Responses and Key Takeaways-Theme 3: Student Interaction and Effect**

| <b>Theme 3: Student Interaction and Effect</b>  |   |
|---|---|
| <b><i>Sub-theme 1: Amalgamation of Traditional and Digital Teaching and Learning</i></b>  |   |
| <b>Responses</b>  | <b>Key Take-Aways</b>   |
| R11: "Relying only on technology for teaching leaves the students with no interest in the faculty. It is the one-on-one interaction between students and faculty that makes learning most effective." | Digital tools are supplementary to traditional teaching.<br>Traditional teaching is irreplaceable.<br>Amalgamation of traditional and digital teaching is the most effective. |
| F17: "I use digital pedagogical tools but continuously engage students with questions, activities, opinions, and numerical problems during class to maintain their involvement."                      |   |
| R5: "In face-to-face teaching, factors like body language and real-time modulation allow customization based on students' needs, which isn't possible in online mode."                                |   |
| <b><i>Sub-theme 2: Students Shy Away from Technology</i></b>  |   |
| <b>Responses</b>  | <b>Key Take-Aways</b>   |
| R10: "Many students shy away from using technology for learning, struggling with software and doing only the minimum to show task completion."  | Students shy away from using digital tools.<br>Students are not using the available digital resources to their advantage.   |

| <b>Theme 3: Student Interaction and Effect</b>   |  |
|--|--|
| R16: "Only a few students actively use technology for studying, while most underutilize available digital resources. To address this, we've been conducting awareness workshops at our institution." | Awareness workshops are a way to create the required push in effective digital learning.                                 |
| <b>Sub-theme 3: Impact of Technology on Students and their Grades</b>  |  |
| <b>Responses</b>   | <b>Key Take-Aways</b>  |
| R1: "I've used digital tools for years, but student grades haven't improved significantly; they focus only on exam prep, not on learning new concepts."  | There is no radical difference in the grades of the students after including digital tools for teaching.                 |
| R3: "I've integrated advanced digital tools in teaching, but only 5–10% of students respond well; most find them daunting or are reluctant to learn quickly."  | A very low percentage of students learn from the advanced digital tools.   |
| <b>Sub-theme 4: Nature and Needs of Students</b>   |  |
| <b>Responses</b>   | <b>Key Take-Aways</b>  |
| R15: "Digital tools help students with language barriers by providing accessible content they can revisit to clarify doubts and solve problems."   | Digital tools and platforms have provided students with flexibility in relation to access to study material and content. |
| R1: "Digital pedagogy has helped us identify slow and fast learners, enabling us to tailor supportive materials and activities using advanced tools to meet their diverse needs."                    | Digital tools help in customising learning requirements as per students' calibre.  |
| R14: "Recent curriculum changes have added vocational courses focused on new technologies to enhance student employability."   | Digital capabilities are a mandate to enhance student employability.   |

The first sub-theme, '*Amalgamation of Traditional and Digital Teaching and Learning*,' reflects faculty views that face-to-face interaction surpasses digital delivery (Schmitz et al., 2024). Faculty strongly believe that combining traditional and digital methods achieves optimal efficiency and student outcomes (Harper, McCormick & Marron, 2024). This blended approach offers flexibility, enabling faculty to tailor sessions for the best learning results.

The second sub-theme, '*Student Shy Away from Technology*,' highlights faculty concerns about students' reluctance to embrace digital tools, varying by background and city tier (Rahimi et al., 2024). Many undergraduates and postgraduates lack awareness of digital resources offered by HEIs, limiting their effective use. This can be addressed through proactive awareness programs by HEI libraries and digital teams. Tracking library visits and resource usage helps institutions identify gaps and tailor interventions.

The third sub-theme, '*Impact of Technology on Students and their Grades*,' reflects faculty observations of no significant grade improvement after integrating digital tools. They also noted increased student reliance on these platforms to complete tasks, reducing effort (Harper, McCormick & Marron, 2024; Osabutey, Senyo & Bempong, 2024).

The fourth sub-theme, '*Nature and Needs of Students*,' highlights how digital tools help faculty identify diverse learning paces and tailor support accordingly (Hernandez & Keane, 2024). These platforms provide access to teaching materials and personalized resources, while vocational courses on sites like Coursera and Udemy enhance employability and enable customized advanced courses.

#### **Theme 4: Ecosystem Development**

Addressing Research Question 3—*What strategies facilitate the effective adoption of digital pedagogy in HEIs?*—the final theme, *Ecosystem Development* (refer to Table 5), identifies actionable strategies at both institutional and systemic levels. These include peer mentorship programs, immersive training, flexible experimentation spaces, and policy reforms that collectively promote sustained and meaningful digital adoption. This section enumerates each sub-theme by laying down the Responses and the key takeaways.

Table 5: Sub-themes, Responses and Key Takeaways-Theme 4: Ecosystem Development

| <b>Theme 4: Ecosystem Development</b>  |  |
|--|--|
| <b>Sub-theme 1: Peer Quality</b>   |  |
| <b>Responses</b>   | <b>Key Take-Aways</b>  |
| R15: "Research competition is intense, with little peer collaboration. Experienced faculty rarely assist with new digital research and teaching tools, leaving individuals to invest their own time, money, and effort despite having in-house experts." | Poor peer collaboration and support  |
| R7: "Among my peers, I use digital teaching tools the most. The environment isn't competitive, and most faculty prefer traditional methods since digital tools aren't mandatory."  | Less interest of peers in discovering new digital tools for teaching.  |
| <b>Sub-theme 2: Space to Faculty for Time, Effort and Experimentation</b>  |  |
| <b>Responses</b>   | <b>Key Take-Aways</b>  |
| R18: "We are often pressed against time to learn new things and enhance our skill sets. To deliver a session via digital modes requires a lot of background time."   | Use of digital tools requires considerable background work.  |
| R4: "Faculty need proper training, time, and support to integrate technology effectively; mandating digital tools risks only surface-level, minimal use."  | Mandating digital tools will only help inculcate the same on a very surface level.                               |
| R11: "Before COVID, our institution introduced an LMS, starting with basic features due to initial challenges. Gradually, both faculty and students adapted, allowing us to later implement advanced features that eased our work during the pandemic."  | Use of digital tools takes time to imbibe.   |
| R9: "The effort faculty invest varies individually. They need time and freedom to experiment with digital tools, accepting mistakes as part of the learning and adaptation process."   | Effective use of digital tools requires flexibility to experiment.   |
| <b>Sub-theme 3: Immersive Training</b>   |  |
| <b>Responses</b>   | <b>Key Take-Aways</b>  |
| R16: "The organization can ease psychological barriers by providing extensive, hands-on training that lets faculty immerse themselves, experiment, and gain confidence with digital tools."  | Hands-on immersive training can help remove psychological barriers.  |
| R13: "Learning digital tools and platforms requires time and ongoing support; a few online sessions aren't enough for daily adoption."   | Imbibing technology will take time for the faculty.  |
| <b>Sub-theme 4: Strategy and Policy</b>  |  |
| <b>Responses</b>   | <b>Key Take-Aways</b>  |
| R10: "The training should be need-based after conducting the need analysis with the help of fellow faculty."   | Requirement of need-based training sessions.<br>Experts should be selected after the need analysis is conducted. |
| R5: "Integrating advanced digital tools requires a clear strategy; faculty shouldn't be overwhelmed but gradually accustomed, allowing them to become proficient at their own pace."   | Use of advanced digital tools in teaching pedagogy requires a proper strategy in place.                          |
| R14: "Institutions can really assist the Faculty in building digital competencies by revamping the financial and training support strategy and policies."  | HEIs require revamping the financial and training support strategy and policies.                                 |

The first sub-theme, 'Peer Quality,' highlights colleagues' strong influence on adopting digital pedagogy. Faculty noted minimal peer engagement with digital tools, shaping group behaviour (Kim et al., 2025). Institutional

initiatives driven by senior and motivated junior faculty, supported by management's commitment to quality and flexibility, foster consistent development and integration of new technologies across the HEI.

The second sub-theme, '*Space for Time, Effort, and Experimentation*,' highlights that faculty need ample time and ongoing engagement with technology to become comfortable with digital delivery, despite mastering course content (Laurillard, 2024). Institutions must provide this space, identifying motivated faculty to collaborate with digital teams on tailored solutions.

The third sub-theme, '*Immersive Training*,' stresses the need for continuous, in-depth training in advanced technologies like simulations, AI, and the metaverse (Negahban, 2024). Such comprehensive training, requiring significant HEI investment, enables faculty to confidently and independently use these tools, meeting high institutional standards.

The fourth sub-theme, '*Strategy and Policy*,' explores how HEIs can tailor strategies to promote faculty adoption of digital pedagogy (Rana et al., 2023; Huda, 2019). This includes conducting needs analyses, selecting expert trainers, and involving quality assurance experts in committees to enable faculty visits to reputable institutions and stay updated on emerging technologies. Moreover, HEI policies on travel, accommodation, and financial support must be restructured to better facilitate faculty training and digital skill development.

In response to the above section, the study identifies specific strategies that facilitate digital pedagogy adoption in higher education institutions (HEIs), particularly in the Indian context, where infrastructural, psychological, and policy-related challenges often impede integration. The following strategies emerged from the thematic analysis of faculty interviews:

1. **Institutionalizing Peer Mentorship Programs:** One of the significant insights from the study is the lack of collaborative culture among faculty members when it comes to digital pedagogy. Many digitally adept faculty members work in isolation, while those less confident remain hesitant to experiment due to a lack of guidance. To bridge this gap, HEIs should develop structured mentorship programs where technologically proficient faculty are paired with peers who require support. These mentoring relationships can include joint classroom sessions, peer reviews of digital content, or informal 'tech clinics' where faculty troubleshoot digital tools together. Such peer-to-peer engagement not only facilitates skill transfer but also helps build trust and reduce anxiety associated with digital teaching.
2. **Embedding Financial Support into Institutional Policy:** The financial burden of learning new digital tools and attending training programs was consistently cited by respondents as a barrier. Many faculty members expressed that they had to self-fund their professional development due to inadequate institutional support. To address this, HEIs should revise their faculty development policies to include dedicated funding for technology-related upskilling. This could cover costs for attending national and international workshops, subscribing to professional platforms (such as Coursera or LinkedIn Learning), or accessing licensed simulation tools. Additionally, granting academic leave without penalizing faculty workloads for such initiatives would demonstrate institutional commitment to digital transformation.
3. **Designing Need-Based, Customized Training Modules:** The study also highlights dissatisfaction with generic training programs that do not cater to individual skill levels or discipline-specific needs. Faculty with varying degrees of digital proficiency benefit from different types of support. For instance, a novice may need foundational training on Learning Management Systems, while an advanced user may seek exposure to immersive tools like AR(Augmented Reality)/VR (Virtual Reality) or AI (Artificial Intelligence)-based assessment platforms. Therefore, HEIs should begin with a diagnostic needs assessment to identify existing skill gaps and then curate modular training sessions accordingly. This targeted approach will ensure that faculty feel the training is relevant, manageable, and aligned with their teaching responsibilities.
4. **Providing Time and Space for Digital Experimentation:** A recurring theme in the interviews was the lack of time and institutional encouragement for experimentation. Faculty often reported that the pressure of completing syllabi and administrative tasks leaves little room for testing new digital tools. Without the freedom to explore, innovate, and even fail occasionally, faculty are unlikely to move beyond surface-level adoption. Institutions must therefore allocate 'protected time'—through reduced teaching loads or dedicated innovation hours—so faculty can meaningfully integrate digital tools into their pedagogy. Additionally, setting up sandbox environments or digital learning labs where faculty can test technologies without consequences will promote confidence and sustained usage.

Taken together, the findings across all four themes provide a holistic response to the three research questions. They reveal that while individual agency (Q1) and organizational context (Q2) play crucial roles in shaping adoption, long-term success depends on ecosystem-level strategies (Q3) that institutionalize support and foster a culture of innovation.

## **5. Implications**

### **5.1 Theoretical Implications**

This research paper contributes significantly to the theoretical landscape of digital pedagogy adoption within Higher Education Institutions (HEIs). By offering in-depth qualitative insights into the use of digital pedagogy by faculty members, the study enriches the existing literature on digital adoption. While theories such as the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and diffusion of innovation theory have predominantly been explored in quantitative contexts, this research breaks new ground by providing a qualitative analysis that delves into the psychological aspects of the usage and adoption of digital pedagogy by teachers in HEIs.

Furthermore, the study addresses contemporary topics such as digital pedagogy, quality education delivery, enhancing teaching pedagogy via digital tools, and faculty development, all of which have gained significant prominence in the academic field due to their practical implications. The emergence of higher education quality norms, exemplified by initiatives like the National Education Policy (NEP) and accreditation and ranking bodies, has brought these issues to the forefront of academic discourse.

### **5.2 Practical Implications**

The study has the following practical implications:

**Faculty Members:** The study offers valuable practical implications for faculty members. Firstly, it enhances faculty members' awareness by providing insights into the prevailing perceptions surrounding digital pedagogy, enabling them to navigate the existing norms more effectively. Second, the study offers specific solutions to common problems encountered in the use of digital tools for teaching and learning. Third, the insights from the study foster collaboration among faculty members, promoting peer support and continuous learning in digital pedagogy.

**HEIs Management:** Management can identify areas where policy and infrastructural changes are needed to support the integration of digital tools into daily teaching practices. This understanding enables management to enact necessary reforms and provide the requisite resources to facilitate the effective implementation of digital pedagogy across the institution. HEIs can create an environment conducive to the smooth incorporation of digital tools into teaching methodologies, ultimately enhancing the quality of education and student learning outcomes.

**Quality Assurance Experts:** The study provides insights for quality assurance experts within Higher Education Institutions (HEIs) as well as freelance experts. By understanding the ground issues and challenges faced by faculty members in implementing digital tools in teaching and learning pedagogy, these experts can provide valuable guidance and support. The research elucidates both the resource-related challenges, such as access to technology and training, as well as the psychological factors, such as resistance to change and fear of technology. This could involve developing tailored training programs, providing access to necessary resources, and implementing support systems to assist faculty members in overcoming barriers to digital integration.

**Policymakers:** The academic research paper offers practical implications that extend to policymakers as well. The understanding of challenges in the adoption of digital pedagogy serves as a foundation for developing informed policies aimed at fostering a more conducive environment for digital pedagogy by developing more tailored and effective faculty refresher courses. By addressing faculty members' concerns and reservations about technology use, training programs can be designed to be more hands-on and practical, thereby enhancing faculty members' digital literacy and confidence in incorporating digital tools into their teaching practices.

## **6. Conclusion**

In conclusion, this study offers valuable insights into the multifaceted factors influencing university teachers' adoption of digital pedagogy within Indian higher education institutions, thereby addressing RQ1, which examined the institutional, technological, and personal factors shaping digital pedagogy adoption. Using Interpretative Phenomenological Analysis, and by foregrounding the lived experiences of faculty across diverse

domains, the study also addresses RQ2 by elucidating how teachers perceive, experience, and make sense of digital pedagogy in their teaching practices. Together, the findings presented in Section 4 and synthesized through the implications discussed in Section 5 highlight the interdependence of individual agency, institutional support, and systemic conditions in enabling meaningful digital integration.

However, several limitations must be acknowledged. First, the qualitative design and purposive sample of 18 university faculty members, while enabling in depth insight, may limit generalizability across the diverse higher education landscape in India. Second, reliance on self reported interview data may introduce subjective bias, despite measures such as reflexivity and member checking. Third, the study focuses primarily on faculty perspectives and does not incorporate views of other stakeholders such as students, administrators, or digital infrastructure teams, whose inclusion could enrich understanding of digital pedagogy adoption.

Future research may extend the findings related to RQ1 through larger scale, mixed method, or quantitative studies to validate and generalize the identified enabling and constraining factors. Similarly, further exploration of RQ2 through comparative or cross institutional studies may deepen understanding of how contextual and policy environments shape teachers' digital pedagogical experiences. Investigating emerging technologies such as artificial intelligence, immersive learning environments, and adaptive systems also represents a promising direction for future inquiry.

Ultimately, strengthening alignment between institutional strategies and teachers' lived experiences, as highlighted across Sections 4, 5, and 6, will be critical for designing inclusive, sustainable, and resilient digital transformation pathways in higher education.

**AI Statement:** The authors declare that AI tools were not used in this study for the paper's conception, revision, or the creation of figures and tables.

**Ethical Approval Statement:** This study was conducted in accordance with the Academic Integrity Code

**Funding:** This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

**Competing Interests:** The authors declare that there is no conflict of interest.

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