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Faculty Perceptions of E-Learning Within the Framework of the UTAUT Model

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Abstract

This study examines university faculty perceptions at a private university in Lima, aiming to explore their adaptation to and adoption of e-learning within a virtual environment. Using a case study approach and semi-structured interviews, the research applies the four categories of the Unified Theory of Acceptance and Use of Technology (UTAUT) model: performance expectancy, effort expectancy, social influence, and facilitating conditions. Data were analyzed using Atlas.ti 7 software, with key interview segments coded and categorized to identify patterns and relationships.

The findings indicate that faculty members do not show a strong preference for specific digital resources; however, they consider learning to use these tools as an integral part of their digital empowerment, enhancing their professional performance. Regarding effort expectancy, results suggest that faculty with prior experience in e-learning methodologies adapt more easily, while those with no prior knowledge demonstrate the competence and willingness to train themselves, facilitating their adaptation and adoption of e-learning. The study highlights the need to foster an organizational culture of faculty collaboration to strengthen the adoption and integration of e-learning within higher education in virtual environments.

Key words

E-learning, UTAUT, higher education, faculty

Introduction

Innovative technological advancements and the increasing demand for flexible learning modalities have significantly transformed education, establishing e-learning as a fundamental component of modern teaching. Initially regarded as a supplementary tool, e-learning has now become an essential pillar of academic instruction. There is a strong consensus in the scientific community regarding its positive impact on academic performance, largely due to digital methodologies and resources designed to enhance learning outcomes (Setiawan et al., 2024; Benkhalfallah et al., 2024).

The integration of e-learning in higher education has expanded online learning opportunities but has also presented challenges such as digital literacy and connectivity issues, which were already evident before the COVID-19 pandemic (Kumar et al., 2024; Barzman et al., 2020). The pandemic, however, accelerated the transition to digital education, making it the primary means of ensuring academic continuity (Comisión Europea, 2020). Today, the digitalization of higher education continues to progress and evolve (Aguilar et al., 2024a).

This shift has prompted universities to adopt new pedagogical frameworks that incorporate e-learning into teaching and learning processes (Dritsas & Trigka, 2025). By eliminating temporal and geographical constraints, e-learning has facilitated greater access to knowledge anytime and anywhere (Bashir & Lapshun, 2025). While its implementation has yielded positive outcomes in developed countries, in less developed regions such as South America, it has also widened the digital divide (Akpan et al., 2024).

Despite these challenges, e-learning remains a cornerstone of higher education, with its success depending on a combination of technological, psychological, and social factors that influence its adoption and adaptation (Al-Sayid & Kirkil, 2025). In Peru, this transition has been gradual, evolving through different stages. Initially, both students and faculty expressed dissatisfaction with e-learning; however, over time, perceptions have shifted as its implementation has led to continuous improvements in academic performance and satisfaction with digital learning (Huamán-Romani et al., 2023).

The impact of e-learning has been the subject of multiple studies in recent years, particularly concerning user satisfaction and its influence on teamwork, with long-term positive effects (Sayaf, 2023). In this regard, the Unified Theory of Acceptance and Use of Technology (UTAUT) model and related frameworks have been key tools in

analyzing user experiences during the process of adaptation to and adoption of new technologies, such as e-learning (Wang et al., 2022).

Previous research has identified various UTAUT model factors that drive the adoption of educational technologies, including usage intention and facilitating conditions, which directly influence the acceptance of e-learning (Idayani & Darmaningrat, 2024). Additional key elements of the model include performance expectancy, which assesses perceived usefulness, and social influence, which plays a crucial role in the adoption of these technologies (Oyetade et al., 2023).

Moreover, studies have demonstrated that university students exhibit intrinsic motivation to learn through e-learning, even when facing external challenges that impact their learning process (Oyetade et al., 2023). Harnadi et al. (2024) argue that student acceptance of e-learning increases when instructors and mentors provide them with relevant information tailored to their needs in a virtual environment. However, the lack of digital competencies remains a significant barrier to its adoption in higher education (Sharif-Nia et al., 2024).

From the faculty perspective, e-learning acceptance is higher among those who have received training in its use and have prior experience with digital methodologies in their teaching practice. Their positive attitude toward e-learning is influenced by effort expectancy, perceived performance, and the presence of facilitating conditions that enhance its implementation (García-Murillo et al., 2023). Additionally, performance expectancy remains one of the most critical factors in faculty members' intention to adopt new technologies (Vuckovic et al., 2023). In contrast, other studies have highlighted the importance of social influence in the use of e-learning within the UTAUT model (Alshehri et al., 2019).

While numerous studies have explored e-learning adoption under the UTAUT model, most have focused on students' perspectives. However, fewer studies have examined the factors that influence faculty adoption of e-learning in virtual teaching. This study aims to address this gap by exploring university faculty perceptions of e-learning and the challenges they encounter in virtual teaching environments.

The Unified Theory of Acceptance and Use of Technology (UTAUT) Model

The Unified Theory of Acceptance and Use of Technology (UTAUT) model is one of the most widely used frameworks for gaining a deeper understanding of the factors that drive users to adopt advanced technological resources and data analysis tools in education (Wang et al., 2022). Similarly, the findings of Sebastián et al., (2022) confirm that the UTAUT model effectively evaluates new technologies and the factors that influence the adoption of e-learning among students and faculty in higher education.

Venkatesh et al., (2003) developed the UTAUT model based on the most essential elements of eight previously established models. In its original version, the UTAUT model examines four key factors that influence user acceptance and use of technology:

1. Performance Expectancy (PE): The extent to which a user believes that using a new technology will improve their performance in their professional or academic activities. This concept aligns with the perceived usefulness construct in the Technology Acceptance Model (TAM), which suggests that users are more likely to adopt a technology if they perceive it as an effective tool for enhancing efficiency in their respective fields (Myeong-Jun & Lee, 2021).

2. Effort Expectancy (EE): The degree to which users perceive the new technology as easy to use. This factor corresponds to the perceived ease of use in TAM and highlights that technology should not only be intuitive but should also provide a smooth and accessible learning process (Myeong-Jun & Lee, 2021).

3. Social Influence (SI): The extent to which users feel that important individuals in their social or professional circles expect them to adopt the new technology. This factor underscores the role of social expectations and peer influence in shaping users' willingness to integrate new digital tools into their routines (Myeong-Jun & Lee, 2021).

4. Facilitating Conditions (FC): The degree to which users perceive that the necessary resources and institutional support are available to help them effectively use the new technology. When users find these resources to be accessible and well-structured, they are more inclined to adopt and integrate the technology into their daily practices (Miah et al., 2023).

Methodology

This study employs a qualitative research approach. A case study was conducted to explore university faculty experiences and perceptions of e-learning (Creswell, 2014). Semi-structured interviews were used as the primary data collection technique (Yadav, 2022). This method is particularly advantageous as it enables researchers to explore aspects that may not have been initially considered, with open-ended questions facilitating an evolving and in-depth understanding of the phenomenon under investigation.

To ensure methodological rigor, this research adhered to scientific standards of credibility and reliability. In this regard, theoretical saturation was applied, allowing researchers to continue data collection until participants' responses became repetitive, indicating that no new insights could be generated and that all relevant aspects of the phenomenon had been comprehensively addressed (Hennink & Kaiser, 2022). Finally, data triangulation was conducted to identify and validate the most significant themes emerging from all

participant responses, utilizing the C Coefficient as an analytical tool (Bans-Akutey & Tiimub, 2021).

Participants

The study involved 10 university faculty members who teach in a fully virtual modality at a private university in Lima. This sample size was deemed appropriate for category analysis (Guest et al., 2006). All participants had at least one year of full-time experience teaching in virtual environments and were proficient in the use of e-learning platforms. Additionally, they demonstrated an intermediate level of digital literacy, particularly in office productivity tools, and were experts in their respective fields.

The study was approved by the Ethics Committee of Universidad Peruana Union and informed consent was obtained from all participants. Participation in the study was entirely voluntary.

Data Collection Techniques and Information Processing

The primary data collection technique used in this study was interviews, conducted with all voluntary participants. These interviews were carried out individually, at a flexible schedule agreed upon by both participants and researchers. The instrument utilized was a semi-structured interview guide (Creswell, 2014), designed based on four subcategories: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC).

For data processing, a broad spectrum of qualitative analysis techniques was employed to ensure the rigor and reliability of the study, thereby validating the findings within the specific research context (Creswell, 2014). The collected data were coded, resulting in a total of 266 codes and 658 citations, which provide the theoretical foundation for the four main categories and ten subcategories included in this study, referred to using the abbreviation "CI."

Table 1: Analytical Categories of E-Learning Under the UTAUT Model

Category	Subcategory	Codes
1. PERFORMANCE EXPECTANCY (PE)	1.1. E-learning as a Teaching Method	1. TYPES OF TEACHING RESOURCES 2. PROFESSIONAL DEVELOPMENT 3. TEACHING PERFORMANCE
	1.2. Academic Performance through E-learning	4. ACADEMIC OBJECTIVES
2. EFFORT EXPECTANCY (EE)	2.1. Ease of Use of the E-learning Platform	1. EASE OF THE USE OF THE PLATFORM 2. PLATFORM CHALLENGES FOR FACULTY 3. PLATFORM LIMITATIONS 4. PLATFORM SUITABILITY FOR TEACHING

	2.2. Amount of Time Required	5. EFFORT IN VIRTUAL TEACHING
	2.3. Digital competencies	6. EASE OF LEARNING DIGITAL TOOLS (Digital competencies)
	3.1. Colleagues	1. INFLUENCE OF COLLEAGUES ON THE WILLINGNESS TO USE TOOLS
3. SOCIAL INFLUENCE (SI)	3.2. Other influences	2. INFLUENCE ON THE USE OF DIGITAL TOOLS
		3. PROFESSIONAL COMMUNITIES FOR DIGITAL TOOL USAGE
4. FACILITATING CONDITIONS (FC)	4.1. Availability and Equity	1. PROMOTION OF COLLABORATION AND EXCHANGE
	4.2. Access to Training	2. FACULTY TRAINING
		3. ORGANIZATIONAL CULTURE
		4. TECHNICAL SUPPORT FOR FACULTY
	4.3. Technical Support	5. INSTITUTIONAL TECHNICAL SUPPORT
		6. SOLUTIONS IN CASE OF LACK TECHNICAL SUPPORT

Results

Performance Expectancy (PE)

Faculty members reported using a variety of e-learning tools to facilitate their virtual classes, including: "Google Classroom" (C7:29), "Meet" (CI 7:2; 7:31), "Microsoft Teams" (CI 9:16), "Kahoot o Quizz" (CI 1:2; 2:2; 3:5; 6:2; 8:12; 8:35), "Digital Whiteboards" (CI 1:2; 8:14), "Wordwall" (CI 2:2), "ChatGPT" (CI 1:20; 1:35; 1:36; 1:37; 1:39; 2:2), "Podcasts" (CI 4:1), "Zoom" (CI 2:70; 4:3; 6:1; 7:3; 9:11; 9:15) and several others (CI 3:4; 8:5; 8:41; 8:7; 9:14). Findings indicate that faculty members do not rely on a single tool but rather adapt their technological toolkit over time to meet course demands. Initially, they were "not accustomed" (CI 1:25), to these resources, but the COVID-19 pandemic significantly accelerated their adoption. As one faculty member noted, "It taught us a lot about how to, uh... become familiar with these resources" (CI 1:1) while another explained that the transition to virtual education (CI 9:20) helped them integrate these tools as "assistants" in their teaching practice (CI 1:36; 1:37).

Furthermore, many faculty members associate their professional development with digital empowerment (C=0.23). Several faculty members expressed that engaging with digital strategies has been a transformative experience: "I think it has helped me a lot, a lot, because now, given that the world is globalized, we must use virtual learning, which is a wonderful resource" (CI 6:7). This ongoing engagement allows faculty members to keep pace with rapidly evolving technological trends (CI 7:27). They also emphasized that their primary motivation for adopting e-learning tools is to enhance student engagement and facilitate meaningful learning experiences. As one faculty member stated: "I want students to feel engaged with the class I have prepared for them" (CI 8:5). Thus, faculty members perceive e-learning strategies as contributing not only to

their professional growth but also to improving the student learning experience. Many described this transformation as "very, very good or fantastic" (CI 8:19). One faculty member highlighted the continuous discovery and adoption of digital tools, explaining: "I keep discovering new tools. I adopt them when I see that they are useful to me and my students, easily accessible, and easy to understand" (CI 10:20).

Findings suggest that Performance Expectancy plays a pivotal role in faculty adoption of e-learning tools, as it allows them to integrate multiple digital resources into their teaching in response to the pedagogical demands of contemporary higher education. The COVID-19 pandemic acted as a catalyst, pushing faculty members toward continuous exploration of digital strategies, which ultimately fostered a greater sense of digital empowerment. Additionally, faculty members adopted e-learning tools because they perceived them as effective teaching resources and valuable assets for their professional development in a rapidly evolving educational landscape.

Effort Expectancy (EE)

Regarding the ease of use of e-learning platforms, faculty members highlighted a culture of collaboration and mutual support among university instructors. However, their biggest challenge is the lack of time due to academic responsibilities, which prevents them from gathering at the same time: "Equity is important too, but we don't have the time to meet as study groups" (CI 1:47). Despite this limitation, they emphasized that sharing digital tools among colleagues "is another form of collaboration" (CI 3:43), making it an ongoing necessity.

Additionally, some faculty members had prior technological training, which allowed them to address emerging challenges in the virtual teaching process ($C=0.10$). As one faculty member explained: "...In my teaching career, I started around 10 years ago, so I was able to witness... the evolution of teaching and learning, along with technological strategies" (CI 4:32). Because of this background, some faculty members feel "very familiar" with technology (CI 8:26), enabling them to design their lessons "in the fastest and most meaningful way" (CI 9:62).

Regarding the challenges of the platform, many faculty members identified adaptation as the greatest challenge ($C=0.21$) due to the "novelty of digital platforms" (CI 6:7). They described their experiences adjusting to these tools: "Personally, it was difficult for me to adapt to this new platform, to upload resources" (CI 1:12). However, they also recognized this transition as an opportunity to unlearn and relearn: "We had to unlearn some things we had been doing and learn new ones, which would allow us to better interact with students" (CI 1:22). This process proved to be "more demanding" because they had to adjust to structured digital teaching models: Despite these challenges, some faculty members reported that their initial struggles with e-learning platforms gradually diminished: "At first, I wasn't very familiar with it, but as I continued using it, it became easier and more manageable" (CI 8:23).

These findings highlight the significant effort required for faculty members to develop digital competencies in an evolving educational environment. Faculty members often engaged in self-directed learning ($C=0.26$), *actively searching for ways to enhance their virtual classes: "I explored different websites to make my lessons more engaging"* (CI 1:1; 7:23). This process involved experimentation and discovery, where faculty members learned "how far they could go" (CI 2:37; 8:28; 10:4), tested new tools "through experience" (CI 3:29; 4:31), and "began practicing various digital techniques" (CI 6:30). It is important to note that not all faculty members received formal training on how to teach in a virtual environment (CI 2:72). Many had to adapt out of "necessity" (CI 7:44), except for those with prior experience in online teaching (CI 2:69; 4:33; 8:31; 10:16). In practice, faculty members combined knowledge from past virtual courses (CI 2:74) with ongoing self-training: "I keep learning new things... and then I apply them in my classes" (CI 9:74).

The findings indicate that e-learning platform usage presents a significant challenge for faculty members, requiring considerable effort in both adoption and adaptation. However, a culture of collaboration and prior technological experience have facilitated this transition. The need to establish structured training opportunities was particularly evident, as faculty members expressed interest in designated spaces and time for joint training, which would further strengthen e-learning integration in higher education.

Additionally, adaptive learning emerged as one of the main challenges for faculty members. They engaged in a continuous process of unlearning and relearning, which, while initially complex, became easier over time. The exploration and experimentation with digital tools not only helped faculty members adapt but also provided an opportunity to enhance their teaching strategies in virtual environments.

Furthermore, the acquisition of digital competencies was largely a self-directed process. Through online research and experimentation, faculty members sought to improve their instructional methods and optimize their e-learning practices. This self-learning approach fostered an experiential learning process, allowing them to identify and integrate the most effective digital tools to meet their students' academic needs.

Social Influence (SI)

Many faculty members emphasized that colleagues' influence on their willingness to use digital tools is strongly shaped by the successful experiences of other faculty members ($C=0.13$). They stated: "More than anything, I rely on the experience they have in managing digital tools" (CI 1:31; 3:32; 4:20; 5:39; 6:40; 7:32; 9:93). (CI 1:31; 3:32; 4:20; 5:39; 6:40; 7:32; 9:93 This influence is "very significant" (CI 2:53) and "highly enriching" (CI 4:37). Faculty members tend to adopt new tools by "trying to learn them, attempting to master them, and constantly searching for new resources" (CI 1:32). This process fosters an environment of mutual feedback, where faculty members support

each other (CI 5:29) and exchange ideas (C=0.14). This mutual exchange allows those who have mastered certain tools to help colleagues facing challenges, reinforcing the notion that "someone teaches you what you don't know, while complementing what you already know. Then, you can teach others" (CI 6:55; 9:87). Faculty members described this dynamic as a collaborative learning ecosystem, stating: "We exchange a lot of ideas, share, collaborate, and learn together. It's a team where you learn at an accelerated pace" (CI 8:56).

A key insight from faculty members is that the digital divide among instructors is often reduced through the guidance provided by younger faculty members (C=0.16) to those who consider themselves "senior" (CI 5:32). Faculty members noted: "This gap can be narrowed because the younger generation of faculty members is willing to teach a generation of instructors with extensive experience" (CI 4:50). Younger faculty members, who tend to acquire digital skills more rapidly even during training sessions are often eager to assist colleagues who may not immediately adapt to new technologies (CI 5:30).

This finding highlights a notable aspect of social influence: it operates independently of age, fostering a reciprocal learning process in which younger faculty members benefit from the expertise of senior colleagues, while experienced instructors develop digital competencies with the help of younger faculty. This mutual exchange ultimately facilitates the development of meaningful intergenerational learning in higher education.

Another crucial aspect of social influence is the role of professional communities in shaping faculty members' experiences and teaching practices. Faculty members reported a notable impact (C=0.24) from their involvement in digital teaching communities. Many belong to at least one professional network (CI 1:39), while others participate in multiple communities (CI 2:54). These groups primarily communicate via WhatsApp, and later engage in discussions with specialists recognized in the field, such as experts from universities like UPC, Continental, and Católica (CI 9:77). Participation in these communities has allowed faculty members to build connections with peers from different institutions and countries, establish professional relationships, and enhance their knowledge of e-learning methodologies. As one faculty member explained: "I join these groups because they offer new insights. I register, download files, read them, and then apply them" (CI 10:1). Another faculty member highlighted the importance of exploring new resources across different platforms: "I'm subscribed to several pages, and I even research on Instagram. Since I navigate in that direction, I receive a lot of information on the subject" (CI 10:1).

Findings reveal that colleagues' influence plays a crucial role in encouraging faculty members to integrate e-learning platforms and digital tools into their teaching practices. The successful experiences of peers serve as powerful motivators, fostering greater confidence and competence in adopting ICT and e-learning technologies.

Furthermore, generational collaboration significantly reduces the digital divide. The teaching experience of senior faculty members and the technological expertise of younger instructors complement each other, leading to more productive and innovative teaching practices.

Additionally, professional digital communities—both within and beyond their institutions—play a key role in facilitating knowledge exchange and promoting e-learning methodologies. These interactions contribute to the adoption of new teaching strategies, leading to a knowledge-sharing culture among faculty members. This underscores the importance of social influence in the successful integration of e-learning into higher education teaching practices.

Facilitating Conditions (FC)

Regarding training, technical support, and other assistance resources, faculty members expressed a strong sense of collaboration and knowledge exchange ($C=0.29$). They highlighted the presence of equity in collaborative efforts (CI 1:47; 3:41; 8:54), often occurring within research groups where faculty members interact based on their individual experiences: "We collaborate to interact and share the experiences each of us has" (CI 1:48). These groups also serve as spaces for sharing teaching materials and mutual support: "They support us, they help us with everything" (CI 1:49). Faculty members described their colleagues as highly committed to collaboration (CI 6:51), with some even perceiving their professional network as a "family" (CI 5:47). However, time constraints remain a major challenge (CI 1:49; 3:42; 3:43), despite recognizing collaboration as "extremely important" (CI 9:97).

In contrast, faculty members noted a lack of structured institutional collaboration ($C=0.21$). They described a highly individualized culture, where each instructor is responsible for their own technological integration and innovation: "Each faculty member is literally on their own" (CI 2:78). The absence of a formal committee or institutional framework to foster collaborative initiatives was seen as a limitation: "There is no... how do I put it, a committee to promote this type of engagement" (CI 2:80). While informal peer-to-peer collaboration is common (CI 2:77), faculty members reported that at the organizational level, there is no structured culture to promote teamwork and knowledge sharing. As a result, they emphasized the need for improvement: "This needs to be enhanced" (CI 2:58). Some faculty members even described this gap as a "deficiency" (CI 2:79) that should be actively addressed by institutional leadership.

With regard to technical assistance, faculty members generally perceived the availability of support as positive ($C=0.26$). They reported that whenever they encountered difficulties with the university's e-learning platform (Lamb Learning) or any other virtual teaching tool, help was readily accessible in a variety of situations (CI 3:52; 5:25; 5:53; 6:57; 6:62; 8:59; 9:99; 10:22): "Whenever we have technical difficulties during class, I have noticed that support is always available" (CI 4:53).

This support includes assistance with troubleshooting, resolving doubts, and ensuring seamless virtual teaching experiences (CI 10:22). Faculty members recognized the indispensable role of technical staff, stating that: "They have assisted me whenever I needed help" (CI 4:58). Some faculty members also described their collaboration with IT professionals and engineers as an essential part of their teaching process: "We work hand in hand with IT staff and engineers" (CI 5:17). Faculty members reported that both in face-to-face and virtual settings, they received real-time support through online consultations: "We held teleconferences, shared our screens, and resolved our doubts or any issues we needed help with" (CI 7:33). Additionally, faculty members noted that technical support services not only assist instructors but also benefit students, ensuring a smoother e-learning experience for all users (CI 10:25).

The findings indicate that Facilitating Conditions in e-learning, understood as the institutional resources and support available to university faculty, encompass the following aspects: First, promotion of collaboration and knowledge Exchange in which faculty members demonstrate a strong willingness to share experiences, materials, and mutual support. However, time constraints present a challenge to fully establishing and maintaining these collaborative spaces. Second, the institutional culture is perceived as lacking a clearly defined strategy for fostering innovation and teamwork among faculty members. The absence of an institutional framework limits the promotion of structured collaborative initiatives. Finally, faculty members evaluate technical support positively, as they consistently receive assistance when encountering difficulties with the e-learning platform or other aspects of the virtual environment.

Discussion

Regarding Performance Expectancy (PE), the findings indicate that the incorporation of new and diverse e-learning resources into the virtual teaching-learning process has contributed to the digital empowerment of university faculty members. This shift required them to move beyond traditional teaching methods and adapt to e-learning environments, as they recognized its benefits and practical utility. These results align with previous studies that have highlighted the advantages of e-learning integration in higher education (Patil & Undale, 2023; Singh & Alshammari, 2023; Martinez-Garcia et al., 2023; Taole, 2023).

Faculty members also recognized and perceived the use of technological resources as a significant opportunity for their professional development, allowing them to align with the current demands of virtual education (Ibrahim & Ibrahim, 2024; Martínez-Cerdá & Torrent-Sellens, 2017). This adaptation occurred despite generational differences or pre-existing gaps in technological competencies among some faculty members (Lisenbee, 2016). As a result of their experience with e-learning teaching methods, faculty members acknowledged that these tools play a key role in achieving the academic objectives of meaningful virtual learning. These findings further confirm that Performance Expectancy (PE) is a crucial factor in the adoption of e-learning resources, consistent with previous studies (Vuckovic et al., 2023; Al-Harazneh et al., 2022).

In this regard, Performance Expectancy (PE) emerges as a key determinant, exerting the strongest direct impact on e-learning acceptance (Yang et al., 2025). Additionally, these findings reveal that faculty members are more inclined to adopt e-learning when they perceive that it enhances their performance and improves their teaching quality. This aligns with the results of Madani et al. (2024), who found that positive e-learning adoption is driven by faculty members' perception that it effectively enhances their teaching performance, even in a post-COVID-19 educational context. Furthermore, concerning PE, the findings indicate that university faculty members agree that higher education institutions should implement programs that promote faculty digital empowerment and encourage the integration of e-learning as part of their professional training. This is consistent with the conclusions of Utomo, et. al (2024) , who suggest that perceived usefulness, along with self-efficacy, serves as a strong predictor of long-term e-learning adoption, rather than adoption driven by temporary or circumstantial needs. Therefore, universities should actively strengthen both self-efficacy and perceived usefulness to foster sustained e-learning engagement among faculty members.

Regarding Effort Expectancy (EE), faculty members indicated that technological training within their teaching careers, as well as previously acquired digital skills, have facilitated the effective integration of technological resources into the teaching-learning process (García-Murillo et al., 2023). Furthermore, this study reveals that, despite the progressive updates of e-learning platforms, faculty members have successfully adapted and learned to use them with ease (Neves et al., 2025).

Additionally, the findings indicate that for another group of university faculty members, the use of e-learning platforms has not been an easy transition, primarily due to a lack of motivation to adopt these technologies immediately. According to the studies by Oraif (2024) and Weng & Wei (2024) , the easier and more intuitive a platform is to use, the higher the motivation of users to adopt it and engage with e-learning. These findings suggest that e-learning platform designers should invest significant time in enhancing usability, particularly for non-tech-savvy users (Abdekhoda et al., 2022).

Another notable aspect highlighted by faculty members was their self-directed learning of e-learning platforms and digital tools, which significantly contributed to reinforcing their confidence in Effort Expectancy (EE). These findings differ from previous studies, such as those by Zhang et al. (2024), which suggest that satisfaction with e-learning platforms indirectly increases faculty members' willingness to continue using them. Therefore, the results of this study, which emphasize the role of self-directed learning within EE, hold considerable value, as they reflect a perspective rarely addressed in statistical research. Moreover, the experiences of faculty members highlight a persistent challenge in developing countries, where low levels of digital literacy remain a significant barrier to the widespread adoption of e-learning technologies.

Regarding Social Influence (SI), previous studies, such as those conducted by Ngampornchai & Adams (2016), and Tzimas & Demetriadis (2025) have demonstrated that SI positively affects users' perceptions and attitudes toward adopting e-learning, either as a result of peer approval or as a means to enhance their professional profile.

However, the findings of this study diverge from these previous works, as they indicate that faculty members adopt e-learning primarily when they observe successful experiences from colleagues using e-learning methodologies, rather than due to external approval or social expectations. This suggests that faculty members undergoing the process of e-learning adaptation prefer to utilize proven tools and methods rather than explore and experiment with unfamiliar technologies (Shonn, 2024).

In addition, this study revealed that professional communities and intergenerational learning among faculty members have a profound impact on their behavior, facilitating the adoption of e-learning methodologies and fostering professional and personal connections within e-learning environments. These findings align with Abdekhoda et al. (2022), who argue that social behaviors influence e-learning adoption. However, there remains a research gap regarding the role of friendship ties formed through social influence in e-learning adoption, which requires further investigation. Moreover, the findings of this study were limited to analyzing external social influence factors, while internal factors were not examined. This represents a notable limitation, as previous studies suggest that internal factors are essential for a comprehensive understanding of e-learning adoption (Oyetade et al., 2023; Özbek et al., 2024).

This study revealed that Facilitating Conditions (FC) encourage the use of e-learning through faculty collaboration, rather than as a consciously driven institutional initiative. These findings align with those of Karasneh et al. (2021), who found that faculty members' intention to use e-learning is less influenced by institutional initiatives and more by peer-driven efforts.

Additionally, the findings confirm that technical support, which is also considered a component of FC, is essential for virtual teaching (Ibrahim & Ibrahim, 2024; M. Kumar & Kumar, 2023; Ly et al., 2024). Many faculty members emphasized that technical support plays a crucial role in fostering positive attitudes toward e-learning and motivating its implementation in the classroom. Although FC remains somewhat limited, its current applications could be expanded through Artificial Intelligence and comprehensive models, which were not explored in depth in this study (Wang et al., 2022).

Conclusions

The findings of this study demonstrate that the adoption and adaptation of e-learning among university faculty members are strongly influenced by Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC), in accordance with the UTAUT model.

PE emerges as the most influential factor in e-learning acceptance, as faculty members perceive that its implementation enhances their performance and teaching quality. Additionally, the findings highlight the need for higher education institutions to strengthen faculty digital empowerment and increase the perceived usefulness of e-learning to ensure its long-term adoption.

Regarding EE, previous experience with technology and technological training has facilitated the integration of e-learning into university teaching. However, some faculty members have encountered difficulties due to the complexity of e-learning platforms, underscoring the importance of developing more accessible and intuitive tools. Additionally, self-directed learning has been a key resource in the adaptation to e-learning, suggesting that faculty training programs should emphasize self-learning strategies.

SI plays a crucial role; however, this study found that e-learning adoption is not necessarily driven by peer approval, but rather by evidence of successful prior experiences. Moreover, professional communities and intergenerational learning have contributed to e-learning integration, though a research gap remains regarding the impact of internal factors on social influence.

Finally, FC has facilitated e-learning implementation through faculty collaboration and technical support. Nevertheless, the findings indicate a lack of institutional initiatives aimed at structurally promoting the integration of e-learning tools. Additionally, the study suggests that artificial intelligence and other emerging technologies could play a pivotal role in the evolution of e-learning, yet their impact has not been thoroughly explored.

In conclusion, this study underscores the importance of enhancing faculty digital empowerment, improving the accessibility of e-learning platforms, and promoting a culture of institutional collaboration to ensure the sustainable adoption of e-learning in higher education. Future research should expand the analysis of internal factors influencing e-learning acceptance and explore the role of emerging technologies in this process.

Disclosure statement

The authors report there are no competing interests to declare.

Disclosure statement

Referencias

- Abdekhoda, M., Dehnad, A., & Zarei, J. (2022). "Factors influencing adoption of e-learning in healthcare: Integration of UTAUT and TTF model". *BMC Medical Informatics and Decision Making*, 22(1), 1–9. <https://doi.org/10.1186/s12911-022-02060-9>
- Akpan, I. J., Offodile, O. F., Akpanobong, A. C., & Kobara, Y. M. (2024). "A comparative analysis of virtual education technology, e-learning systems research advances, and digital divide in the Global South". *In Informatics*, 11(3), 53. <https://doi.org/10.3390/informatics11030053>
- Al-Harazneh, Y. M., Alobeytha, F. L., & Alodwan, T. A. A. (2022). "Students' Perceptions of E-Learning Systems at the Jordanian Universities Through the Lens of E-Business Booming During the Coronavirus Pandemic". *International Journal of Distance Education Technologies*, 20(1), 1–18. <https://doi.org/10.4018/IJDET.295981>
- Al-Sayid, F., & Kirkil, G. (2025). "Integrating Technology Acceptance Model with UTAUT to Increase the Explanatory Power of the Effect of HCI on Students' Intention to Use E-Learning System and Perceive Success". *IEEE Access*. <https://doi.org/10.1109/ACCESS.2025.3534740>
- Alshehri, A., Rutter, M., & Smith, S. (2019). "The Effects of Utaut and Usability Qualities on Students' Use of Learning Management Systems in Saudi Tertiary Education". *Journal of Information Technology Education: Research*, 19, 891–930. <https://doi.org/10.28945/4659>
- Bans-Akutey, A., & Tiimub, B. M. (2021). *Triangulation in Research*. Academia Letters. <https://doi.org/10.20935/al3392>
- Barzman, M., Gerphagnon, M., Aubin-Houzelstein, G., Baron, G.-L., Benard, A., "Bouchet, F., Dibie-Barthelemy, J., Gibrat, J.-F., Hodson, S., & Lhoste, E. (2020). Exploring Digital Transformation in Higher Education and Research via Scenarios". *Journal of Futures Studies*, 2021(3), 65–78. [https://doi.org/10.6531/JFS.202103_25\(3\).0006i](https://doi.org/10.6531/JFS.202103_25(3).0006i)
- Bashir, S., & Lapshun, A. L. (2025). "E-learning future trends in higher education in the 2020s and beyond". *In Cogent Education*, 12(1). Taylor and Francis Ltd. <https://doi.org/10.1080/2331186X.2024.2445331>
- Benkhalfallah, F., Laouar, M. R., & Benkhalfallah, M. S. (2024). "Examining Adaptive E-Learning Approaches to Enhance Learning and Individual Experiences". *Acta Informatica Pragensia*, 13(2), 327–339. <https://doi.org/10.18267/j.aip.240>
- Comisión Europea. (2020). Plan de Acción de Educación Digital 2021-2027: Adaptar la educación y la formación a la era digital (Issue 2020). <https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:52020DC0624>
- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Chosing Among Five Traditions*. Sage Publications. United States of America.

- Dritsas, E., & Trigka, M. (2025). "Methodological and Technological Advancements in E-Learning". *In Information*, 16(1). Multidisciplinary Digital Publishing Institute (MDPI). <https://doi.org/10.3390/info16010056>
- García-Murillo, G., Novoa-Hernández, P., & Serrano Rodríguez, R. (2023). "On the Technological Acceptance of Moodle by Higher Education Faculty—A Nationwide Study Based on UTAUT2". *Behavioral Sciences*, 13(5). <https://doi.org/10.3390/bs13050419>
- Guest, G., Bunce, A., & Johnson, L. (2006). "How many Interviews are enough?: An Experiment with Data Saturation and Variability". *Field Methods*, 18(1), 59–82. <https://doi.org/10.1177/1525822X05279903>
- Harnadi, B., Widianoro, A. D., & Prasetya, F. X. H. (2024). "Investigating the behavioral differences in the acceptance of MOOCs and E-learning technology". *Computers in Human Behavior Reports*, 14, 100403. <https://doi.org/10.1016/J.CHBR.2024.100403>
- Hennink, M., & Kaiser, B. N. (2022). "Sample sizes for saturation in qualitative research: A systematic review of empirical tests". *Social Science and Medicine*, 292. <https://doi.org/10.1016/j.socscimed.2021.114523>
- Ibrahim, A., & Ibrahim, H. (2024). "Impact of Digital Empowerment on University Performance: Evidence from Northern Border University in Saudi Arabia". 296–310. <https://doi.org/10.14207/ejsd.2024.v13n3p296>
- Idayani, R. W., & Darmaningrat, E. W. T. (2024). "Evaluation of factors affecting student acceptance of Zedemy using the Unified Theory of Acceptance and Use of Technology (UTAUT)". *Procedia Computer Science*, 234, 1276–1287. <https://doi.org/10.1016/j.procs.2024.03.125>
- Karasneh, R., Al-Azzam, S., Muflih, S., Hawamdeh, S., Muflih, M., & Khader, Y. (2021). "Attitudes and practices of educators towards e-learning during the covid-19 pandemic". *Electronic Journal of E-Learning*, 19(4), 252–261. <https://doi.org/10.34190/ejel.19.4.2350>
- Kumar, M., & Kumar, S. (2023). "Understanding technology acceptance in higher education: An application of the Utaut model". *GYANODAYA - The Journal of Progressive Education*, 16(1and2), 44–55. <https://doi.org/10.5958/2229-4422.2023.00005.1>
- Kumar, N., Cook, E. J., Fayda-Kinik, F. S., & Maisuradze, L. (2024). "ICTs Influence on Knowledge Sharing in Higher Education: A Pre-AI Systematic Literature Review". *European Journal of Education*, 59(4), e12803. <https://doi.org/10.1111/ejed.12803>
- Lisenbee, P. S. (2016). "Generation Gap Between Students' Needs and Teachers' Use of Technology in Classrooms". *Journal of Literacy & Technology*, 17(1), 3/4, p. 99–123.
- Ly, B., Doeur, B., & nat, S. (2024). "Key factors influencing digital learning adoption among cambodian university students: An integrated theoretical approach". *Computers in Human Behavior Reports*, 15. <https://doi.org/10.1016/j.chbr.2024.100460>

- Madani, H., Adhikari, A., & Hodgdon, C. (2024). Lessons from business education's online transition: A Saudi Arabian case study. *The International Journal of Management Education*, 22(3), 101026. <https://doi.org/10.1016/J.IJME.2024.101026>
- Martínez-Cerdá, J. F., & Torrent-Sellens, J. (2017). "Media empowerment through e-learning. Design and validation of a scale". *Profesional de La Informacion*, 26(1), 43–54. <https://doi.org/10.3145/epi.2017.ene.05>
- Martinez-Garcia, A., Horrach-Rosselló, P., & Mulet-Forteza, C. (2023). "Evolution and current state of research into E-learning". *Heliyon*, 9(10), e21016. <https://doi.org/10.1016/J.HELİYON.2023.E21016>
- Miah, M. S., Singh, J. S. K., & Rahman, M. A. (2023). "Factors Influencing Technology Adoption in Online Learning among Private University Students in Bangladesh Post COVID-19 Pandemic". *Sustainability*, 15(4). <https://doi.org/10.3390/su15043543>
- Myeong-Jun, P., & Lee, J.-K. (2021). Investigation of College Students' Intention to Accept Online Education Services: An Application of the UTAUT Model in Korea. *Journal of Asian Finance*, 8(6), 327–0336. <https://doi.org/10.13106/jafeb.2021.vol8.no6.0327>
- Neves, C., Oliveira, T., Cruz-Jesus, F., & Venkatesh, V. (2025). Extending the unified theory of acceptance and use of technology for sustainable technologies context. *International Journal of Information Management*, 80, 102838. <https://doi.org/10.1016/J.IJINFOMGT.2024.102838>
- Ngampornchai, A., & Adams, J. (2016). "Students' acceptance and readiness for E-learning in Northeastern Thailand". *International Journal of Educational Technology in Higher Education*, 13(1). <https://doi.org/10.1186/s41239-016-0034-x>
- Oraif, I. (2024). "Attitudes of EFL Learners to the Implementation of the Area9 Lyceum Online Platform Based on the UTAUT Model". *Applied Sciences*, 14(21). <https://doi.org/10.3390/app14219769>
- Oyetade, K., Harmse, A., & Zuva, T. (2023). "Factors Influencing Students' Use of e-Learning Technologies". *International Journal of Learning, Teaching and Educational Research*, 22(9), 617–632. <https://doi.org/10.26803/ijlter.22.9.33>
- Özbek, T., Daumiller, M., Roshany-Tabrizi, A., Mömke, T., & Kollar, I. (2024). "Friendship or feedback? – Relations between computer science students' goals, technology acceptance, use of an online peer feedback tool, and learning". *Computers in Human Behavior Reports*, 16. <https://doi.org/10.1016/j.chbr.2024.100540>
- Patil, H., & Undale, S. (2023). "Willingness of university students to continue using e-Learning platforms after compelled adoption of technology: Test of an extended UTAUT model". *Education and Information Technologies*, 28(11), 14943–14965. <https://doi.org/10.1007/s10639-023-11778-6>
- Sayaf, A. M. (2023). "Adoption of E-learning systems: An integration of ISSM and constructivism theories in higher education". *Heliyon*, 9(2). <https://doi.org/10.1016/j.heliyon.2023.e13014>
- Sebastián, M. G. D. B., Guede, J. R. S., & Antonovica, A. (2022). "Tam Versus Utaut Models: A Contrasting Study Of Scholarly Production and Its Bibliometric Analysis.

- Techno Review". *International Technology, Science and Society Review / Revista Internacional de Tecnología, Ciencia y Sociedad*, 11.
<https://doi.org/10.37467/revtechno.v11.4445>
- Sharif-Nia, H., Allen, K. A., Arslan, G., Reardon, J., She, L., Ghahrani, N., Rahmatpour, P., & Fomani, F. K. (2024). "E-learning Acceptance: The Mediating Role of Student Computer Competency in the Relationship Between the Instructor and the Educational Content". *Teaching and Learning in Nursing*, 19(1), e5–e10.
<https://doi.org/10.1016/J.TELN.2023.08.001>
- Shonn Cheng. (2024). "Teaching with Technology Requires High Expectancies and High Values". *Education and Information Technologies*, 29(17), p. 23415–23439.
- Singh, A., & Alshammari, M. (2023). "Advancing, empowering, and reshaping Saudi society through integrating e-learning technology into higher education". *International Journal of Advanced and Applied Sciences*, 10(7), 178–187.
<https://doi.org/10.21833/ijaas.2023.07.019>
- Taole, M. J. (2023). "Teaching Practice Supervisors' Experiences of Being Involved in Mobile App Development at an ODe-L Institution". *International Journal of Online Pedagogy and Course Design*, 13(1), 1–14. <https://doi.org/10.4018/IJOPCD.323650>
- Tzimas, D., & Demetriadis, S. (2025). "K-12 Teachers' Acceptance and Resistance Perceptions of Learning Analytics Adoption: A Mixed-Methods Approach". *TechTrends*. <https://doi.org/10.1007/s11528-025-01045-5>
- Utomo, S. M., Indriana, & Alamsyah, D. P. (2024). "Technology Adoption: Continuance Intention of E-Learning". *Procedia Computer Science*, 245(C), 1–7.
<https://doi.org/10.1016/j.procs.2024.10.223>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). "User Acceptance of Information Technology: Toward a Unified View". *In Source: MIS Quarterly*, 27(3).
<https://doi.org/10.2307/30036540>
- Vuckovic, T., Stefanovic, D., Ciric Lalic, D., Dionisio, R., Oliveira, Â., & Przulj, D. (2023). "The Extended Information Systems Success Measurement Model: e-Learning Perspective". *Applied Sciences*, 13(5).
<https://doi.org/10.3390/app13053258>
- Wang, J., Li, X., Wang, P., Liu, Q., Deng, Z., & Wang, J. (2022). "Research trend of the unified theory of acceptance and use of technology theory: A bibliometric analysis". *Sustainability*, 14(1). <https://doi.org/10.3390/su14010010>
- Weng, L., & Wei, Z. (2024). "Exploring virtual education: an example of factors influencing H&T students' participation in Virtual Tourism courses" In *Proceedings of the 2024 10th International Conference on Education and Training Technologies*. 56–62. <https://doi.org/10.1145/3661904.3661909>
- Yadav, D. (2022). "Criteria for Good Qualitative Research: A Comprehensive Review". *Asia-Pacific Education Researcher*, 31(6), 679–689. <https://doi.org/10.1007/s40299-021-00619-0>
- Zhang, Z., Lin, Y., Wang, X., & Zhang, X. (2024). "Pathways to Resilient and Sustainable Online Education in the New Normal: Interpreting University Teachers' Willingness to Use Online Teaching Platforms Consistently". *Sustainability (Switzerland)*, 16(23), 1–21. <https://doi.org/10.3390/su162310532>