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Digital Self-Efficacy, Technology Adoption Practices and Technology Integration Skills: A Structural Equation Model Framework for Faculty Digital Competency Development

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Abstract: This study investigated the intricate interplay among digital self-efficacy, technology integration, and technology adoption practices within higher education institutions, examining their influence on faculty behaviors and overall productivity. Employing a quantitative approach utilizing Structural Equation Modeling (SEM), the research assessed various facets of digital competency. Findings revealed faculty possess a commendable level of digital self-efficacy, particularly in safety (composite mean=3.34) and communication. While strong confidence exists in technology's potential to enhance student learning (highest performance expectancy=3.67), significant barriers were identified in facilitating conditions, notably unreliable internet connectivity (lowest=2.35) and institutional support. Regarding technology integration, faculty generally demonstrate an agreeable level of skill, valuing its role in career advancement (highest=3.30), though expressing least contentment with digital content quality (lowest=2.75). Crucially, the analysis confirmed robust interconnections: digital self-efficacy directly and substantially influences both technology adoption practices (estimate=0.782) and technology integration skills (estimate=0.782). Furthermore, technology adoption practices directly and positively affect technology integration skills (estimate=0.252), establishing a significant mediating role for adoption in the self-efficacy-integration relationship (indirect effect=0.129). The proposed model demonstrated a good fit (cfi=0.938, tli=0.916). In conclusion, faculty digital self-efficacy is a pivotal driver of technology engagement and integration.

Keywords: Digital self-efficacy, Technology adoption, Technology integration

Introduction

Higher education stands at a crossroads, facing the urgent imperative to embrace sustainable practices while simultaneously navigating a period of rapid technological advancement. The introduction of digital technologies is no longer an option, it has become a reality and affects each aspect of life at the university, from learning and teaching to administration and science. However, this shift raises an important question: how can higher education institutions use technology more effectively to progress beyond operational efficiency and towards the kind of desired technology adoption practices that are a cornerstone of innovative societies?

A crucial skill from today's digital literacy is the concept of digital self-efficacy, which means to have believe in own ability to search through technology and take advantage of their benefits. This multi-faceted domain covers a range of dimensions which include information and data literacy, communication and collaboration, digital

content creation, safety problem-solving. (Aslan, 2020). In terms of media education, effective technology integration means using technological tools with educational goals; promoting skills related to digital literacy; and fostering critical thinking and creativity through activities mediated by technology. (Eden et al., 2024) This includes many facets, including comfort with simple digital tools; confidence to infuse technologies into instructional designs and procedures (e.g., technology-enhanced learning methodologies); troubleshooting capabilities These various dimensions, including information and data literacy, communication and collaboration, digital content creation, safety, health and wellbeing as well as problems solving are indicative of the multi-faceted nature of digital self-efficacy Secondly: Technology integration skills refer to practical abilities required for the effective use of technology in teaching and learning. The successful incorporation of digital tools and resources into teaching and learning is technology integration. The intentional use of technology to improve the quality and efficiency of educational programs. (Karkouti, 2021) Factors associated with the three skills – basic technology literacy, access to online channels and digital content, ability and comfort in using technology. In addition, the research covers technology adoption habits that present the behaviors and trends of using technology in teaching practice. Sits within The Unified Theory of Acceptance and Use of Technology (UTAUT) — a determinative model on the acceptance of technology based on the constructs such as performance expectancy, effort expectancy, social influence and facilitating conditions. (Marikyan and Papagiannidis, 2023). The endnote looks at how these aspects can influence faculty integrating technology.

This research focuses on the faculty members of provincial local colleges. While those colleges are committed to advancing technology adoption practices, variations in employees' digital self-efficacy and the effective integration of technology present potential challenges. Specific challenges that may be facing organizations, some of the main ones indicated in prior research include an employee digital divide with respect to technology proficiency between staff members, likely resistance to blend technologies into work groups and their practices, resource limitations related to accessing the necessary tools for driving technological adoption and how effectively this can be managed, differences in current levels of awareness with regard to tech integration among task groups. This study will approach these problems and investigate how they affect the bond amid digital self-efficacy, technology appropriation, as well as faculty-based levels involving the acceptance of various kinds of technologies.

There has been a notable gap in the literature with respect to integrated models that investigate the relationships between the digital self-efficacy of higher education faculty, technology adoption practices and development of their technology integration skills. In the provinces, such as in Batangas, this gap is especially important where digital advancements are often not followed through on due to literal problems — facing issues with traditional class cards and non-functional equipment; they rely still on aged technology. This study directly addresses this gap by examining the nuanced intersections of these issues at the level of faculty members and suggests an evidence-based model to guide interventions made by institutions. The implications also provide tangible strategies, a practicality that is frequently absent in entirely theoretical explorations.

This research aims to improve the understanding on how promoting digital self-efficacy and increased communication skills can act as an agent of change in developing more successful, sustainable technology initiatives at a local college level. This study has potential to provide an empirical structural equation model that demonstrates a relationship between digital self-efficacy, technology integration skills and technology adoption best practices -all of which are needed by faculty. With this framework, local colleges in the province of Batangas and elsewhere can have access to a data-driven validated model for formulating specific digital competency programs — all leading to a stronger yet more inclusive digital transformation that is continuously actualized across their system.

Related Literature

Digital Self-Efficacy: A Foundational Belief

The review of the literature positions digital self-efficacy in the center of its conceptualization, and it is defined as an individual's self-assessment capability to use digital technologies for accomplishing particular purposes (Coles et al., 2020). This fundamental belief acts as a potent predictor of pre-service teacher educators and higher education instructors regarding how they see and consequently use technology in their teaching work (Aslan, 2020). It becomes a question of whether they perceive technology more of an empowering device or a producer of technostress. Aslan et., al (2020) have expanded this idea defining it as an independent core

competence; digital self-efficacy is essential for blundering through the digital landscape, and one element of one's professional growth.

This digital self-efficacy is no monolithic concept but rather is built up by a number of sub-dimensions. Literature disaggregates these elements to generate a better understanding of the digital competence of an individual. These factors are comprised of sub-dimensions found in information and data literacy, which is characteristic of the effective searching, evaluation, and use of digital information. Content generation is also a key element-comment which refers to the ability to create and develop digital content for teaching. Lastly, digital communication and collaboration skills include competency in using various digital tools to interact with students and peers (Adalar, 2021). These specific skills in combination together make the overall digital self-efficacy of an educator.

Technology Adoption Practices

The review includes an analysis of technology adoption practices as a separate, but related, variable. Adoption describes the decision and behavior that take place first and during the first few attempts to accept and adopt new digital tools (Marikyan & Papagiannidis, 2023). The paper focuses on the Unified Theory of Acceptance and Use of Technology (UTAUT) as a theoretical foundation to help unravel this process. According to the UTAUT model performance expectancy (perceived usefulness), effort expectancy (perceived ease of use), social influence, and facilitating conditions are the factors that directly impact individual's behavioral intention toward using the technology. Among faculty, digital self-efficacy has a significant positive effect on perceived usefulness and perceived ease of use of technology, which in turn determines their intention to use it. It's a critical first step that should come before assimilation.

Technology Integration Skills

Differently, technology integration competencies refer to the pedagogical utilization and deliberate use of digital resources within instructional processes, and this is different from adoption. It is more than just using, it is a set of sophisticated skills necessary to select, apply and to assess digital resources for the purpose of improving student learning (Karkouti, 2021). The need to distinguish the "what" of adoption from the "how" of integrated use (skilled and effective use in curriculum) is part of the point of the literature. Someone may be using the group but not really seeing themselves as using it (e.g., a teacher uses a learning management system but only a person who is already high on the integration scale would primarily use it to do a flipped classroom or collaborative projects). The literature clearly states that there is a strong and positive relationship between digital self-efficacy and technology integration (Warsen & Vandermolen, 2020), thus indicating that the confidence of an educator is essential to the competent and effective use of technology in teaching.

Effects of the Variables

The review of literature documents the important impacts of these variables on both students and faculty. The impact of strong digital self-efficacy on the student, pairing with right technology adoption and integration, will bring about favorable result (Wallace & Tovey, 2022). Faculty that feels proficient with technology can bring a more engaging and interactive learning experience to their students. For the faculty, the development of these competences highly contributes to the overall digital competence increase. This can lead to heightened professional fulfillment as teachers perceive themselves to be more effective. The literature indicates that the acquisition of these skills could also translate into vocational advantages, including job security, funding for "techie" projects, and recognition as an innovative leader in their own institution. Such variables are reciprocally related in a model where a positive system of beliefs triggers purposeful actions, resulting in better teaching practice and increased professional competence.

Proposed Hypotheses and SEM Framework

It states a few hypotheses for testing the relationships among these variables in relation to your research title. It proposes a positive significant correlation between lecturer digital self-efficacy and technological adoption behavior. A second hypothesis suggests such a positive association between faculty's digital self-efficacy and their technology integration abilities. These assumptions are central to the conceptual framework developed in

this paper, which posits that a teacher's self-efficacy of digital skills is a key influencer on how they use technology in their educational practice. The examination of these more intricately-ordered relationships, we concluded from the literature, may be testable using the broader SEM (Structural Equation Model) paradigm. Possibly, it is here that SEM is shown to be particularly well suited as a statistical model to assess direct and indirect associations amongst a range of multiple variables simultaneously. The framework permits analyzing how digital self-efficacy affects technology adoption and integration not just directly, but can go through other variables, such as professional development or institutional support (Zhao et al., 2025). This method is a good method that gives) you a great way to test if your variables are interconnected in any strong way.

Method

Research Design

Descriptive research was used to detect the characteristics, frequencies and the relationships between the variables without interferences. It used a mixed-methods design of integrating quantitative survey data with additional qualitative interviews in order to obtain fuller coverage of the faculty while delving deeper into their perspectives. The data were triangulated between the two techniques to increase the validity and reliability of the study results.

Participants of the Study

The subjects of the study were 309 faculty members of provincial Locally Funded City Colleges in Batangas Province out of the 334 total population. A priori power was calculated with G*Power software to determine the sample size required in order to have adequate power to avoid Type II error, and this recommended a sample size of 309. Stratified random sampling was applied in order to reflect equal weightage in each college and department. The participant profile indicated a female dominated faculty (54.4%), perhaps young (28-43 years), mostly Guest Lecturers/Part-Timers (77.7%) and Bachelor's (45.3%) degree qualifiers. An overwhelming 90.0% had received digital or computer-related training earlier.

Instruments

The main instrument used was a well-structured questionnaire survey that consisted of two sections: the demographic profile and the questions on the study's variables. Member checks were performed in the subsequent interviews to confirm and to enrich quantitative sources of information. The questionnaire's internal consistency and validity was tested in a pilot study (3o participants) and Cronbach's alpha was performed. The results showed that the internal consistency between the scales was very high for all the constructs, namely, Digital Self-Efficacy ($\alpha = 0.922$), Technology Integration ($\alpha = 0.908$), and Technology Adoption Practices ($\alpha = 0.963$), proving high reliability and reducing the measurement error.

Procedure

To develop the survey, we conducted a comprehensive literature review to inform data collection. It was tested in a pilot post-approval study following approval of both the expert and agency. The original intent to use Google Form to distribute the survey was unsuccessful as faculty response rate was low, and survey was skipped over as faculty were too busy. In turn, the researchers shifted tactics to an in-person, hand-delivered survey approach. This change permitted physically interacting with participants, which reduced initial reticence and allowed for a smoother collection of data. The printed questionnaires were collected at different days for the convenience of the faculty members' tight schedule.

Ethical Considerations

The research was performed in compliance with ethical guidelines. The investigator received formal permission with the use of letters of intent and a formal orientation. All participants were informed of the right not to answer any questions they were uncomfortable with, and all personally identifying data were treated as

nonmandatory for the purpose of privacy. Integrity of data collection and analysis was maintained, and no recordings or pictures were snapped during the process. Research was also presented to an Ethics Committee.

Data Analysis

Structural Equation Modeling (SEM) was used to analyze data (IBM SPSS Amos). This powerful multivariate technique was applied to examine the overall theoretical framework as a unified model. Path coefficients that measured the strength and significance of the relationships among the constructs were provided by the analysis. For instance, the direct impact of DSE to TIS is 0.87. The analysis also verified the important mediating effect of Technology Adoption Practices, showing an indirect effect of 0.129, and a p-value under 0.001. The approach offered a deep and sophisticated insight into the joint impact of faculty confidence and adoption behavior on their digital capabilities.

Results and Discussion

Digital Self-Efficacy: The overall level of digital self-efficacy among respondents was assessed as agreeable, with a composite mean of 3.13. Faculty demonstrated the highest confidence in Digital Self-Efficacy in terms of Safety, achieving a mean of 3.34 and interpreted as "Agree," specifically in protecting data and privacy with a mean of 3.45. Conversely, areas needing improvement included Problem-Solving, which had a mean of 3.00, with the lowest weighted mean for applying design thinking principles at 2.77. Additionally, within Communication and Collaboration, effectively using various institutional digital platforms showed lower confidence, with a mean of 2.80.

Technology Adoption Practices: The extent of technology adoption practices was strongly agreeable, indicated by a composite mean of 3.29. Faculty highly anticipated that technology would significantly improve student learning outcomes, reflected by the highest mean of 3.67 for Performance Expectancy, interpreted as "Strongly Agree." However, a critical area for development was facilitating conditions, where respondents disagreed on their ability to connect to the Internet reliably, with the lowest mean of 2.35. Perceived organizational support for technology use also presented a challenge, with a mean of 2.75.

Technology Integration Skills: The level of technology integration skills was agreeable, showing a composite mean of 3.23. Faculty expressed high agreement that technology integration skills are important for advancing their career in the institution, achieving the highest mean of 3.43. Despite this, areas needing improvement included contentment with the quality of available digital content resources, which had a mean of 2.75, and effectively using institutional online portals, with a mean of 2.71.

Direct Effect of Digital Self-Efficacy: A substantial and statistically significant direct positive effect of digital self-efficacy on technology adoption practices was found, with an estimate of 0.782. Similarly, digital self-efficacy exhibited a strong and statistically significant direct positive effect on technology integration skills, with an estimate of 0.782.

Direct Effect of Technology Adoption Practices: A statistically significant direct positive effect of technology adoption practices on technology integration skills was observed, with an estimate of 0.252.

Mediating Role of Technology Adoption Practices: The study confirmed a statistically significant indirect effect of digital self-efficacy on technology integration skills, indicating that technology adoption practices significantly mediate this relationship, with an estimate of 0.129.

Proposed Model for Faculty Digital Competency Development: The proposed Structural Equation Model Framework demonstrated a good fit with the collected data, as evidenced by acceptable fit indices such as CFI at 0.938, TLI at 0.916, and SRMR at 0.057. This confirms the model's validity in representing the interplay among the key constructs.

Proposed Model

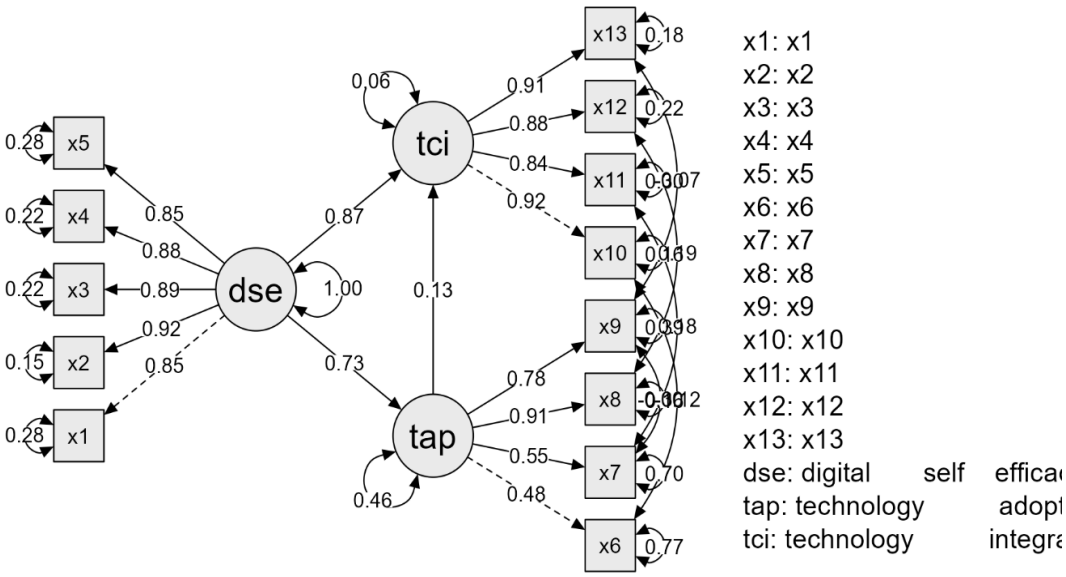

Figure 1. SEM path diagram of digital self-efficacy, technology adoption, and technology integration

Figure 1 shows SEM Path Diagram of Digital Self-Efficacy, Technology Adoption, and Technology Integration. The above-described Structural Equation Model (SEM) diagram is a representation of the study´s empirical results, i.e., it tested whether the theoretical blueprint was supported by collected data or not. The circles (dse, tap, tci) represent the 'big ideas' of Digital Self-Efficacy, Technology Adoption Practices and Technology Integration Skills in this model. The squares (x1 through x13) and the observed variables, which are questions on a specific survey that is used to operationalize each of those latent variables. The arrows point from circles to squares and their values represent the factor loadings, which describing the degree with which each survey question believes it is measuring its latent variable (the ellipsoid) The SEM Diagram (Structural Equation Model) describes the empirical output of our study where the theoretical blueprint is confronted with our data. The small circles in the common factor model represents the latent variables. Circles that are DSE, TAP and TCI was in our model. The latent variables are the 'big ideas' of Digital Self-Efficacy, Technology Adoption Practices, and Technology Integration Skills. The squares for instance when I say x1 through x13 the observed variables these are the specific survey questions that were used to measure those latent variables. Factor loadings — The values on the arrows pointing from the circles to the squares are factor loadings, which show how well each survey question measured its corresponding latent variable

Most crucial findings are the direct causal effects itself (denoted between latent variables below) expressed by the single-headed arrows The next strongest direct effect in our model was a positive one from DSE to tci, of value 0.87. However, the level of fear of failure seems to be one of the highest predictors that caused a professor to say he was not using technology (p. 11). There was also a remarkably strong positive direct effect of Digit Self-Efficacy (dse) on Technology Adoption Practices (tap), having insect 0.73. More confidence = better faculty adoption of new tech. A positive, albeit weak path from TAP to TCI ($\beta = 0.13$) indicated that adopting new tools slightly catalyzed the learning of integration skills but had a much smaller effect than self-efficacy.

The small circles on TCI and TAP stand for the residual variances of the latent variables themselves. A residual variance of 0.06 on TCI is very low, which means that our model explains 94% of the variance faculty's Technology Integration Skills. This indicates that the joint impact of Digital Self-Efficacy and Technology Adoption Practices powerfully account for why faculty members use technology. By contrast, the 0.46 residual variance of TAP implies that our model explains only 54% of the variance in Technology Adoption Practices, and unspecified other determinants are likely to be important. The double-headed arrows linking the error terms of certain manifest variables (x6 and x10, as well as x7 and x11) indicate that those two survey questions have disturbed some amount of unspecific variance over which most empirical models do not adequately fit to.

The mediation analysis using SEM diagram has shown that Technology Adoption Practices (TAP) mediate the relationship between Digital Self-Efficacy (DSE) and Technology Integration (TCI-Partial Mediation). Results reveal a high and direct effect of DSE on TCI with a beta coefficient standardized at 0.87, meaning that participants showing higher scores for computer self-efficacy cope significantly better in the use of technologies within their professional practices. Another important fact is that DSE is also influencing TCI indirectly throughout the mediating role of TAP, with an indirect effect of 0.0949 (through multiplication by: 0.73×0.13).

This indirect effect is small in magnitude at a statistical level, but still demonstrates that TAP works to bolster the influence of DSE on technology integration. Taken together, the overall effect of DSE on TCI is 0.965 and only approximately 9.8% of this effect is mediated through TAP. These results reflect a moderate mediation, with TAP enhancing the DSE-TCI effect somewhat, but most of the influence occurring as a direct effect. This suggests that while promoting behaviors of technology adoption is good, building digital self-efficacy individually contributes more in fostering the successful integration of technologies in organizations or educational sectors.

Proposed Framework

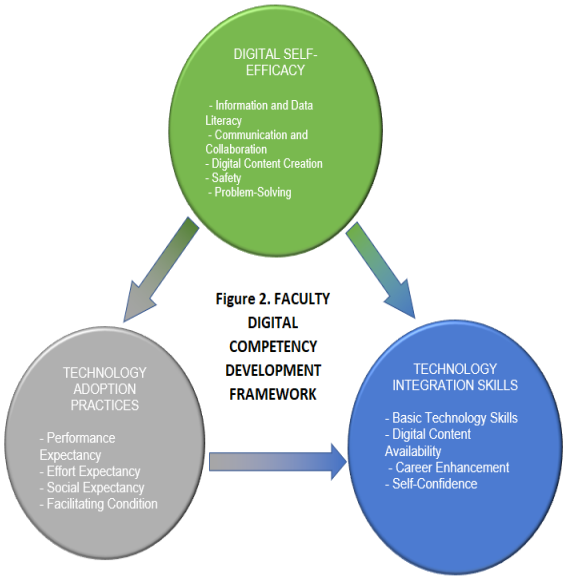

Figure 2. Shows structural equation model framework of faculty digital competency development

This framework is a visual representation of the key causal pathways supported by the statistical analysis. It is drawn with a top-down flow to illustrate the hierarchy of influence found in the model. This has the main three pillars highlighted as circles in color, colored due to a conceptual analogy. The top logo, which is the green circle represents Digital Self-Efficacy (the center core existence of faculty as if they are sustained or energized with) Technology Adoption Practices (The grey circle, lower left): this represents an unthreatening and practical approach to adopting new tools. The broader, thicker, farther to the right blue circle on the bottom represents Technology Integration Skills because it shows a greater depth of technology skills as well.

Each panel depicts single-headed arrows to indicate the direct causal relationships among the pillars. From the center green circle (Digital Self-Efficacy) to the grey one (Technology Adoption Practices), a single-headed arrow is used to indicate how a faculty member's confidence influences adoption behaviors directly. In this figure, we also see the second single-headed arrow from the Digital Self-Efficacy (green) circle to Technology Integration Skills (blue), that indicates a high direct effect from self-efficacy on technology integration ability. The third single-headed arrow is drawn pointing from the Technology Adoption Practices (grey) circle to the Technology Integration Skills (blue) circle, illustrating that practice itself contributes directly to skill development. This elegant model, displaying as it does a hierarchy of stretchability and its one-way progression via single-headed arrows is statistically significant.

In a nutshell and according to the exhaustive examination of SEM, we have strong evidence that digital Self-Efficacy acts as a powerful driver in supporting faculty adoption of technology. In online safety and communication at least, and faculty typically are confident in their digital skills based on a pretty solid understanding. A greater fleece enters into how colleges approach change, though: confidence — both in technology and their ability to learn how to use it. Nevertheless, one of the key obstacles remains to be hidden in facilitating conditions — a powerful practical force in perceived lack of reliable internet connectivity and perceived sufficiency of institutional support.

But though they find difficulty, technology skills are seen as critical to their professional careers and career and personal development, which contributes to the generally high levels of actual integration. Even within

integration, however, and especially towards higher quality in digital content, additional confidence to navigate specific institutional online portals and real-time troubleshooting during class. In the end, this model provides strong evidence that digital self-efficacy both pushes faculty to adopt new technologies and, more significantly still, hoists them up another level in terms of their integration with these tools — with adoption itself further cementing this deeper connection. To truly enable faculty and to fully realize the potential of technology, therefore, it is necessary that we do not only hand tools over to a user group but accompany them with capacity building efforts (confidence), an adoption model build upon usable and reliable infrastructure (stability), interesting use cases with high-quality resources (resource stability) as well as targeted follow-up on institutional solutions/platforms and requests by faculty for shared problem solving.

Conclusion

Findings revealed that faculty demonstrate a solid foundation in digital self-efficacy, particularly concerning digital safety, which bodes well for their continued engagement with technology. However, there's a clear opportunity for targeted development to boost their confidence in complex digital problem-solving and in maximizing the utility of institutional platforms.

Faculty exhibit a high propensity for technology adoption, driven by a strong belief in its benefits for student learning. However, pervasive practical barriers, notably unreliable internet connectivity and inadequate perceived organizational support, significantly hinder the comprehensive implementation of these adoption practices. Faculty exhibit an agreeable level of technology integration skills, primarily driven by its perceived importance for career advancement. To foster deeper and more effective integration, it is crucial to enhance the quality of available digital content and improve the usability and support for institutional online portals.

Findings revealed that digital self-efficacy serves as a powerful and direct catalyst, substantially influencing both the adoption of new technologies and their deeper integration into faculty's professional practices. The statistical analysis showed that active engagement in technology adoption practices directly and positively contributes to enhancing faculty's technology integration skills. The results imply that technology adoption practices play a crucial mediating role, signifying that digital self-efficacy not only directly fosters technology integration but also significantly influences it by first promoting greater technology adoption. The developed Structural Equation Model effectively and reliably depicts the intricate, interconnected relationships between digital self-efficacy, technology adoption practices, and technology integration skills, validating its utility as a robust framework for understanding faculty digital competency development.

Recommendations

To the Local Colleges Administration and IT Department: They may prioritize substantial investment in improving and ensuring highly reliable internet connectivity across all campus facilities and for remote access. The finding that faculty members disagree (mean 2.35) with their ability to connect to the internet reliably indicates this is the most critical practical barrier hindering effective technology adoption and integration.

To the IT Department, Library Services, and Academic Support Units: It is recommended that they may conduct a comprehensive usability review of all existing institutional digital platforms, including communication tools and online library resources. Also, they may provide targeted, hands-on training sessions and easily accessible, user-friendly support guides specifically for these platforms. This addresses the lower perceived effectiveness in using institutional communication platforms (mean 2.80) and finding/evaluating scholarly articles through institutional library resources (mean 2.50).

To the Academic Development Center and Curriculum Development Units: They may develop and curate a centralized repository of high-quality, pedagogically sound digital content tailored to various disciplines. Concurrently, they may offer specialized workshops focusing on advanced digital content creation skills such as digital storytelling and sophisticated multimedia integration. This directly responds to the lower satisfaction with the quality of available digital content (mean 2.75) and the lower self-efficacy in using digital tools for storytelling and narrative design (mean 2.70).

To Human Resources, Academic Affairs, and Professional Development Offices: They may establish clear pathways and dedicated professional development programs that explicitly link the development of technology integration skills to career advancement opportunities, promotions, and leadership roles within the institution.

This addresses the finding that while faculty strongly believe technology integration skills advance their careers, they report lower agreement regarding adequate institutional training and support specifically for career-driven technology skill development (mean 2.94).

To the Local Colleges Administration and Academic Planning Committee (Regarding Framework Adoption): They may formally adopt and systematically utilize the investigated framework, which encompasses Digital Self-Efficacy, Technology Adoption Practices (including Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions), and Technology Integration, as a guiding model for strategic planning, resource allocation, and continuous program development related to digital learning and faculty professional development. This framework provides a holistic, data-driven lens to understand and intervene across the multifaceted dimensions influencing faculty's engagement with educational technology

To Future Researchers: Future research may employ qualitative methodologies, such as in-depth interviews or focus group discussions, to further explore the specific underlying reasons for faculty's lower agreement with internet reliability and contentment with digital content quality. Additionally, subsequent studies may expand the current framework to investigate the influence of institutional culture, specific disciplinary needs, and the long-term impact of technology adoption on student learning outcomes and faculty well-being.

Scientific Ethics Declaration

* The authors declare that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the authors.

* This research has ethics committee approval: LPU-B-Research Ethics Review Committee RERC Code: A1-2025-144

Conflict of Interest

* The authors declare that they have no conflicts of interest

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References

Adalar, H. (2021). Social studies teacher candidates' self-efficacy beliefs for technological pedagogical content knowledge (TPACK). *International Journal of Education and Literacy Studies, 9*(3), 169.

Aslan, A. (2020). Digital literacy self-efficacy levels of pre-service teachers. *International Journal of Contemporary Educational Research, 7*(1), 11-20.

Coles, J., Mynott, G., & Dymott, S. (2020). Learning management systems in higher education: an investigation of academic staff perceptions. *International Journal of Educational Management, 34*(7), 1145–1160.

Karkouti, I. M. (2021). Integrating technology in Qatar's higher education settings: What helps faculty accomplish the job. *Technology Knowledge and Learning, 28,*279-305.

Marikyan, D., & Papagiannidis, S. (2023). Digital self-efficacy and technology adoption: A meta-analysis. *International Journal of Information Management, 68*, 102462.

Wallace, R., & Tovey, J. (2022). The influence of digital self-efficacy on student engagement in higher education. *Journal of Interactive Learning Research, 33*(3), 395–412.

Warsen, S., & Vandermolen, M. J. (2020). The relationship between technology self-efficacy and technology integration in the classroom. *Journal of Educational Technology & Society, 23*(1), 1–15.

Wilson-Menzfeld, E., Stringer, P., Miller, H., & Kitching, J. (2023). Digital self-efficacy of pre-service teachers: a systematic review. *International Journal of Educational Technology in Higher Education, 20*(1), 1–15.

Zhao, J., Li, S., & Zhang, J. (2025). Understanding teachers' adoption of AI technologies: An empirical study from Chinese Middle Schools. *Systems, 13*(4), 302.

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