Examining the Facilitators and Barriers to E-Skills Adoption in Learning among University Students in Punjab

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Abstract
This quantitative study examined the facilitators and barriers influencing the adoption of E-skills among university students, with particular focus to their engagement with e-learning platforms. A sample of 300 students were selected through random sampling from various academic programs across three divisions of the University of Education, Lahore. These divisions were purposefully chosen for their reputation in fostering educational innovation and their diverse student body, which provided a rich context for exploring e-skills adoption. Data was collected using a structured survey questionnaire designed to investigate the enablers and obstacles affecting the effective use of e-skills in educational settings. The results identified key facilitators, including learning motivation, platform usability, institutional and technical support, and peer collaboration. In contrast, notable barriers included limited access to digital devices and reliable internet connectivity, low levels of digital literacy, insufficient training opportunities, and reduced motivation. The findings reveal that although students display moderate motivation to engage in e-learning, they frequently face challenges related to platform usability and inadequate technical support. The study highlights the critical role of institutional initiatives in expanding technology access, implementing comprehensive digital literacy programs, strengthening technical support systems, and fostering supportive learning environments. Addressing these challenges is essential for enhancing student engagement with e-learning tools, thereby improving educational outcomes and ensuring sustainable e-skills adoption in higher education. This research contributes to a deeper understanding of the complexities surrounding e-skills integration and offers practical insights for developing strategies to optimize online learning environments.
Key words: *E-skills, Barriers, Facilitators, Digital Literacy and University Students*

Introduction

The integration of digital technologies into education has redefined traditional pedagogical frameworks, marking a trans-formative shift toward digitization. This evolution, driven by tools such as computers, mobile devices, and internet-based platforms, aims to democratize access to education while enhancing flexibility, engagement, and learning outcomes (Ally, 2004; Selwyn 2016). Supporter of digital education argue that technology can exceed geographical and socioeconomic barriers, offering learners on under-served regions opportunities previously reserved for urban elects (Bozkurt et al., 2020). However, the global adoption of digital learning during the COVID-19 pandemic revealed a complete contrast between this idea and reality. Institutions worldwide turned remote teaching to ensure educational continuity, but in developing countries like Pakistan, infrastructural limitations and sociocultural barrier offered this transition full off with challenges (Khattak, 2020).

For instance, Khattak's (2020) study of 1,200 Pakistani university students found that 65% faced unreliable internet connectivity, while 48% lacked access to laptops or tablets, forcing many to rely on smartphones for coursework a device ill-suited for prolonged academic tasks like writing essays or analyzing data (p. 106). These disparities emphasize the dual-edged nature of digitization. while it promises exclusivity and innovation, its success depends on addressing contextual challenges that vary widely across socioeconomic and geographic lines.

E-learning platforms, despite their potential to revolutionize education, demand a paradigm shift in how students and educators engage with technology. The concept of e-skills encompassing digital literacy, self-regulation, and virtual collaboration has emerged as a basis of effective online learning. However, the gap between access to technology and the ability to use it meaningfully remains a critical hurdle. For example, Batool and Khurshid's (2025) mixed-methods study of 800 Pakistani students revealed that while 68% appreciated the flexibility of online classes, 52% struggled with technical issues such as navigating learning management systems like Moodle or participating in Zoom breakout rooms. Many reported feelings excited by the need to simultaneously manage software, internet instability, and course content a phenomenon termed "digital cognitive overload" by the researchers (p. 9). This gap between technological access and practical competency highlights a recurring theme in digital education tools alone cannot guarantee success without parallel investments in skill development and institutional support. Similarly, Jamil (2022) emphasizes that only 35% of Pakistani households have consistent internet access, with rural areas and marginalized groups, particularly women, disproportionately affected. In rural Sindh, for instance, Jamil (2022) documents how students often travel to nearby towns to access Wi-Fi hotpots, spending hours in crowded internet cafes to download lecture materials a practice that not only drains financial resources but also exposes them to security risks, especially for female learners (p. 53).

The Malala Fund (2025) further notes that cultural norms often restrict girls' access to digital devices, with only 22% of female students in Pakistan owning smartphones compared to 56% of males. Families in conservative regions frequently prioritize sons' education, viewing technology as "inappropriate" or "distracting" for daughters, a bias rooted in dominant norms that combine digital access with moral sensitivity (para. 7). These findings illustrate how digital exclusion is not merely a technical issue but a reflection of deeper socioeconomic and cultural divides that

demand intersection solutions. Batool and Khurshid (2025) found that 60% of Pakistani university students felt unprepared to use basic e-learning tools, mentioned insufficient training and technical support as key barriers. Many reported feelings "neglected" by instructors who assumed digital proficiency, leading to frustration and disengagement (p. 11). The digital divide in Pakistan is further complicate by infrastructural shortcomings, such as irregular electricity supply and limited broadband coverage, which disproportionately affect rural and low-income communities. During the pandemic, these challenges left millions of students unable to participate in online classes, widening existing educational disparities. For example, Khattak (2020) highlights the case of Balochistan, where 89% of students reported missing online lectures due to power outages, compared to 34% in Punjab (p. 107). Compounding this issue is the lack of institutional readiness among universities. Many Pakistani higher education institutions lack the resources to provide faculty training, update curricula for digital delivery, or subsidize internet costs for students. A 2025 report by the Malala Fund revealed that only 22% of Pakistani universities offered formal training for instructors on using learning management systems during the pandemic, leading to widespread frustration among educators and learners alike (para. 6). This institutional inertia not only stifles academic performance but also limits students' career prospects in an increasingly digitized global economy.

Hew and Cheung's (2014) analysis of MOOC (Massive Open Online Course) adoption highlights that students without foundational e-skills struggle to engage with advanced digital platforms, perpetuating cycles of exclusion. They note that MOOC completion rates in low-income countries average 6%, compared to 15% in high-income regions, reflecting disparities in digital preparedness (Hew & Cheung, 2014, p. 54). Selwyn (2016) similarly argues that technological advancements in education often overlook the human and structural factors necessary for equitable implementation, a critique that resonates deeply in Pakistan's context, where top-down digital initiatives frequently neglect grassroots realities like gender norms and rural infrastructure (p. 89). In today's higher education landscape, digital learning tools have become central to students' academic experiences. However, many university students struggle to effectively embrace and apply the necessary electronic skills required to maximize these resources. Despite the widespread presence of online learning platforms and virtual educational materials, a significant number of learners encounter obstacles that prevent them from fully benefiting from these technologies. These issues range from restricted access to adequate devices and internet connectivity, to insufficient technical assistance, weak digital fluency, lack of proper training, and low enthusiasm for engaging with digital learning environments additionally, factors such as the specific academic discipline a student pursues and their year group may influence their interaction with digital education, yet these influences have not been fully examined. This research aims to explore what encourages and what hinders students' adoption of e-skills, as well as to analyze how support from institutions, technology services, and peer groups affects their online learning experiences. Understanding these dynamics is essential for crafting policies and practices that empower students to overcome these difficulties and make the most of digital learning. Successfully addressing these concerns will not only bolster students' academic outcomes but also prepare them for a workforce increasingly shaped by digital innovation.

Research Questions

Considering the aims of the study, the following research questions have been established.

1. What are the primary facilitators influencing the adoption of e-skills among university students?

2. What barriers prevent students from effectively using e-learning tools and platforms?

Methodology

Researchers used the positivist paradigm to answer the research questions. Positivist researchers believed in a single reality, which is, in fact, derived from natural science. This approach emphasizes structured, replicable research design, deductive hypothesis testing, and statistical validation as foundations for knowledge integrity. These features reflect the positivist belief in universal causality and the pursuit of objective truth through rigorous, quantifiable inquiry (Ernest, 1994). A descriptive quantitative research design was employed, as it allowed for the systematic collection and analysis of numerical data to identify patterns, trends, and relationships among the variables. A sample of 300 students was selected through random sampling from various academic programs across three divisions of the University of Education, Lahore. These divisions were purposefully chosen for their reputation in fostering educational innovation and their diverse student body, which provided a rich context for exploring e-skills adoption. Data were collected using a structured survey questionnaire designed to investigate the enablers and obstacles affecting the effective use of e-skills in educational settings. To facilitate a quantitative analysis of the responses, a five-point Like scale was employed for each statement, ranging from "Strongly Agree" to "Strongly Disagree." This scale allowed for a nuanced understanding of students' perceptions. The questionnaire was subjected to a thorough review by experts in the field to ensure its validity and clarity, thereby enhancing the reliability of the data collected. Upon completion of the data collection, the responses from the questionnaires were compiled and tabulated for analysis. The study yielded quantitative data, which was analyzed using SPSS. Descriptive statistics, including mean response values and standard deviations, were employed to investigate the factors influencing the adoption of e-skills among students. This analysis focused on identifying both the enablers and barriers to the effective use of digital learning tools, providing valuable insights into the current state of e-skills adoption in the educational context.

The choice of SPSS was based on its robust capabilities in handling quantitative data and performing advanced statistical analyses. This analysis process involved several steps, including data cleaning, coding, and the application of statistical tests to determine the significance of the findings. The results of the analysis presented in the form of tables, and narratives, providing a clear and comprehensive understanding of the data. The interpretation of the results based on the research questions, ensuring that the findings are relevant and meaningful within the context of the study.

Data Presentation, Analysis and Findings

Data were collected from students on the survey questionnaire to identifying challenges and enablers for e-skills adoption. The survey questionnaire for students yielded data on a five-point Likert type scale. This questionnaire has three parts one is demographic including semesters,

programs and level of e-skills adoption, second is challenges and enablers for e-skills adoption in university student learning.

Demographic Information

Table 1

Students Responses across Different Semesters

Semester	Frequency (N)	Percentage (%)
First	27.2	27.3
Third	17.9	18.0
Fifth	20.2	20.3
Seventh	13.2	13.3

Data were collected from students across different semesters, revealing that the largest group of respondents participated from the first semester (27.3%), followed by the fifth semester (20.3%), the third semester (18.0%), and the seventh semester (13.3%). This distribution highlights a balanced representation across semesters, with slightly more responses from students in the earlier stages of their academic journey.

Table 2

Students Responses on E-skill levels of adoption in students

Program	Frequency (N)	Percentage (%)
Beginner level	72	23.8
Intermediate level	149	49.3
Advanced level	77	25.5

The table provides data on the skill levels of students, categorized as beginner, intermediate, and advanced, along with a few anomalies in the data. The majority of students are at the intermediate level (49.7%), followed by advanced level (25.7%) and beginner level (24.0%), indicating a well-distributed skill progression with a focus on intermediate proficiency.

Table 3

Students Responses across Different Academic Programs

Program	Frequency (N)	Percentage (%)
Education	15	5.0
Special Education	29	9.6
Math	14	4.6
IT	45	14.9
Physics	66	21.9
Zoology	55	18.2
Botany	52	17.2
Chemistry	8	2.6
History	16	5.3

The survey data shows students from different academic programs participated. Most responses came from the Physics program (21.9%), followed by Zoology (18.2%) and Botany (17.2%), and

IT (14.9%). Special Education students made up 9.6%, History 5.3%, Education 5.0%, Math (4.6%) and Chemistry 2.6%. This shows a good mix of students from various fields, with the highest number from Physics.

Facilitators to E-Skills Adoption:

Table 4

Mean Value of Students responses regarding learning motivation and engagement

Sr no	Learning Motivation and Engagement	Mean	SD
1.	I am motivated to engage in e-learning activities.	2.69	1.66
2.	E-learning tools increase my interest in studying.	2.70	1.37
3.	I feel motivated to complete tasks on e-learning platforms.	2.90	1.43
4.	E-learning tools help me stay engaged in my studies.	2.91	1.42
5.	My motivation for learning increases with e-learning.	2.78	1.47
6.	E-learning enhances my overall academic motivation.	2.84	1.38

The table shows how students feel about e-learning and its effect on their motivation and engagement. Each row represents a different statement, with the mean showing the Students reported relatively low motivation to engage in e-learning activities (M = 2.69, SD = 1.66) and indicated that e-learning tools only moderately increased their interest in studying (M = 2.70, SD = 1.37). Similarly, motivation to complete tasks on e-learning platforms was modest (M = 2.90, SD = 1.43), as was the perception that such tools help students remain engaged in their studies (M = 2.91, SD = 1.42). Participants also noted that e-learning contributed only slightly to enhancing their learning motivation (M = 2.78, SD = 1.47) and overall academic motivation (M = 2.84, SD = 1.38). These findings suggest that while e-learning tools provide some level of engagement, their overall impact on student motivation remains limited.

Table 5

Mean Value of Students responses regarding ease of use and usability

Sr no	Ease of Use and Usability	Mean	SD
1.	The e-learning platforms are easy to navigate.	2.78	1.45
2.	I find it simple to use the digital tools required for my courses.	2.81	1.36
3.	E-learning systems are user-friendly.	2.66	1.26
4.	The usability of e-learning tools enhances my learning.	2.92	1.33
5.	I experience minimal difficulty using online learning platforms.	2.91	1.38
6.	E-learning systems are intuitive and straightforward.	2.94	1.42

This table shows how easy students find e-learning platforms and digital tools to use. Students reported that navigating e-learning platforms was moderately manageable (M = 2.78, SD = 1.45) and that using digital tools required for courses was somewhat simple (M = 2.81, SD = 1.36). Perceptions of e-learning systems being user-friendly were slightly lower (M = 2.66, SD = 1.26). However, participants acknowledged that the usability of e-learning tools contributed to their learning (M = 2.92, SD = 1.33) and noted experiencing relatively minimal difficulty when using online platforms (M = 2.91, SD = 1.38). Similarly, students found e-learning systems to be moderately intuitive and straightforward (M = 2.94, SD = 1.42). Overall, the results suggest that

while students faced some challenges, e-learning systems were generally regarded as usable and supportive of their learning.

Table 6

Mean Value of Students responses regarding technical and institutional support

Sr no	Technical and Institutional Support	Mean	SD
1.	I have access to technical support when needed.	3.03	1.45
2.	My institution provides reliable support for e-learning issues.	2.99	1.39
3.	Technical assistance for e-learning is readily available.	2.94	1.28
4.	Institutional support helps me succeed in online learning.	2.89	1.39
5.	I feel supported by my university in using digital tools.	2.73	1.39
6.	My institution provides sufficient resources for e-learning.	2.82	1.35

This table shows students' opinions on technical and institutional support for e-learning. Students reported moderate access to technical support (M = 3.03, SD = 1.45) and institutional assistance for e-learning issues (M = 2.99, SD = 1.39). While technical help was somewhat available (M = 2.94, SD = 1.28), perceptions of institutional support for success in online learning were lower (M = 2.89, SD = 1.39). Students also felt less supported in using digital tools (M = 2.73, SD = 1.39), and resources provided for e-learning were considered limited (M = 2.82, SD = 1.35). Overall, findings indicate that although some technical support is available, institutional support and resources remain inadequate.

Table 7

Mean Value of Students responses regarding social influence and peer collaboration

Sr no	Social Influence and Peer Collaboration	Mean	SD
1.	I feel encouraged by peers to engage in e-learning.	2.97	1.39
2.	My classmates support each other in e-learning activities.	3.08	1.34
3.	Social interaction in online classes enhances my learning.	2.92	1.34
4.	Peer collaboration makes e-learning more enjoyable.	2.94	1.31
5.	E-learning facilitates meaningful collaboration with others.	2.97	1.29
6.	My peers positively influence my use of e-learning tools.	2.97	1.32

As shown in table 7, students reported moderate encouragement from peers to engage in e-learning (M = 2.97, SD = 1.39) and perceived some support from classmates in e-learning activities (M = 3.08, SD = 1.34). Social interaction was viewed as somewhat enhancing learning (M = 2.92, SD = 1.34), and peer collaboration was seen as moderately enjoyable (M = 2.94, SD = 1.31). Students also noted that e-learning provided opportunities for meaningful collaboration (M = 2.97, SD = 1.29) and that peers positively influenced their use of e-learning tools (M = 2.97,

SD = 1.32). Overall, the results indicate that peer collaboration and social influence play a moderate role in supporting students' e-learning engagement.

Table 8

Mean Value of Students responses regarding availability of digital training programs

Sr no	Availability of Digital Training Programs	Mean	SD
1.	My university offers training for e-learning tools.	2.94	2.90
2.	I have access to programs that improve my digital skills.	2.85	2.56
3.	Training programs help me navigate e-learning platforms.	2.79	1.32
4.	Digital training programs enhance my confidence in e-learning.	2.75	1.23
5.	I am well-prepared for e-learning due to available training.	2.78	1.24

As presented in table 8, students reported limited access to digital training opportunities. While some noted that their university offers training for e-learning tools (M = 2.94, SD = 2.90) and programs to improve digital skills (M = 2.85, SD = 2.56), overall ratings were modest. Training was seen as somewhat helpful for navigating platforms (M = 2.79, SD = 1.32) and boosting confidence in e-learning (M = 2.75, SD = 1.23). Similarly, students felt only moderately prepared for e-learning through available training programs (M = 2.78, SD = 1.24). These findings suggest that while training opportunities exist, their effectiveness and accessibility remain limited.

Barriers to E-Skills Adoption:

Table 9

Mean Value of Students responses regarding limited access to technology

Sr no	Limited Access to Technology	Mean	SD
1.	I have regular access to a computer for online learning.	2.93	3.71
2.	Internet issues limit my online learning participation.	2.63	1.30
3.	I have the necessary digital tools for e-learning.	2.71	1.29
4.	Lack of device access impacts my online studies.	2.76	1.28
5.	I have adequate internet connectivity for e-learning.	2.69	1.29
6.	Technology access affects my online learning experience.	2.63	1.36

As shown in table 9, students reported challenges related to technology access for e-learning. While some had regular access to a computer (M = 2.93, SD = 3.71), many indicated that internet issues limited their participation (M = 2.63, SD = 1.30). Access to necessary digital tools was rated as modest (M = 2.71, SD = 1.29), and lack of devices was seen as affecting studies (M = 2.76, SD = 1.28). Similarly, internet connectivity was considered inadequate (M = 2.69, SD = 1.29), and overall, technology access was found to impact the online learning experience (M = 2.63, SD = 1.36). These findings suggest that limited access to reliable devices and internet remains a significant barrier to effective e-learning.

Table 10

Mean Value of Students responses regarding Lack of Technical Support

Sr no	Lack of Technical Support	Mean	SD
1.	I rarely encounter technical issues with e-learning.	3.12	4.37
2.	I get enough technical help when needed.	2.74	1.27
3.	Technical support delays disrupt my learning.	2.82	1.31
4.	I know whom to contact for tech issues.	2.77	1.24
5.	Lack of tech skills limits my e-learning participation.	2.80	1.31
6.	I easily manage technical aspects of online learning.	3.04	1.46

This table shows students' opinions on the lack of technical support as a barrier to e-skills adoption. Students reported mixed experiences with technical support in e-learning. Some indicated that they rarely encountered technical issues (M = 3.12, SD = 4.37) and could manage technical aspects of online learning (M = 3.04, SD = 1.46). However, access to adequate technical help was rated lower (M = 2.74, SD = 1.27), and delays in support were seen as disruptive (M = 2.82, SD = 1.31). Students also expressed uncertainty about whom to contact for technical issues (M = 2.77, SD = 1.24) and noted that limited technical skills hindered participation (M = 2.80, SD = 1.31). Overall, while some students felt capable of handling technical tasks, the lack of timely and effective support remained a challenge for many.

Table 11

Mean Value of Students responses regarding low digital literacy

The findings regarding digital literacy are presented in table 11. Students expressed moderate

Sr no	Low Digital Literacy	Mean	SD
1.	I am confident using online learning tools.	2.82	1.40
2.	I need more training in digital skills.	2.90	1.34
3.	My digital skills are enough for e-learning.	2.88	1.32
4.	Lack of digital knowledge hinders my learning.	2.86	1.28
5.	I can easily navigate online platforms.	2.83	1.28
6.	I struggle with digital assignments.	2.73	1.35

confidence in using online learning tools (M = 2.82, SD = 1.40) and highlighted a need for additional training in digital skills (M = 2.90, SD = 1.34). While some students considered their digital skills sufficient for e-learning (M = 2.88, SD = 1.32), others reported that a lack of digital knowledge hindered their learning (M = 2.86, SD = 1.28). Responses further showed that navigating online platforms was only moderately easy (M = 2.83, SD = 1.28), and difficulties with digital assignments were also noted (M = 2.73, SD = 1.35). These results indicate that although students possess some level of digital competence, gaps in skills and confidence remain, which may limit their effectiveness in online learning environments.

Table 12

Mean Value of Students responses regarding lack of institutional support and strategy

Sr no	Lack of Institutional Support and Strategy	Mean	SD
1.	My university supports digital learning.	2.82	1.28
2.	I feel unsupported in digital skill-building.	2.76	1.27
3.	E-learning resources are accessible to me.	2.81	1.33
4.	Lack of institutional support affects my e-learning.	2.88	2.70
5.	My university encourages digital skills.	2.72	1.37
6.	Clear e-learning guidelines are provided.	2.82	1.28

The results concerning institutional support and strategy for e-learning are shown in Table 12. Students reported relatively low perceptions of university support for digital learning (M = 2.82, SD = 1.28) and indicated feeling unsupported in developing digital skills (M = 2.76, SD = 1.27). Accessibility of e-learning resources was rated moderately low (M = 2.81, SD = 1.33), while students noted that a lack of institutional support negatively influenced their e-learning experiences (M = 2.88, SD = 2.70). Furthermore, participants expressed limited agreement that their universities encouraged digital skill development (M = 2.72, SD = 1.37) or provided clear e-learning guidelines (M = 2.82, SD = 1.28). Overall, these findings suggest that institutional support and strategic guidance for digital learning remain insufficient, which may hinder students' ability to fully benefit from e-learning opportunities.

Table 13

Mean Value of Students responses regarding lack of motivation and training

Sr no	Lack of Motivation and Training	Mean	SD
1.	I feel motivated to engage in e-learning activities.	2.77	1.30
2.	Lack of training affects my use of e-learning tools.	3.04	2.93
3.	I have received adequate e-learning training.	2.78	1.26
4.	Lack of motivation limits my online learning efforts.	2.83	1.35
5.	Training programs help improve my digital skills.	2.78	1.28

This table shows students' views on the lack of motivation and training as barriers to e-skills adoption. Overall, students reported relatively low motivation to engage in e-learning activities (M = 2.77, SD = 1.30), and many agreed that a lack of training negatively affected their ability to use e-learning tools (M = 3.04, SD = 2.93). Perceptions of receiving adequate e-learning training were also low (M = 2.78, SD = 1.26). Similarly, students indicated that low motivation limited their online learning efforts (M = 2.83, SD = 1.35). However, responses suggested that training programs were viewed as beneficial in improving digital skills (M = 2.78, SD = 1.28). These results highlight that insufficient training and low motivation are key barriers to effective e-learning, underscoring the need for stronger institutional support and structured training programs.

Findings

The key findings of the study are as follows:

1. **Demographic Influence**: Students from technical fields like IT, Physics, and Zoology were more engaged with e-learning platforms, whereas those from disciplines such as Chemistry and History reported fewer opportunities for digital engagement. The digital

skill level also varied across the students, with many identifying themselves as intermediate users, but still requiring further training.

2. **Facilitators to e-skills adoption:** Students expressed moderate levels of motivation to engage in e-learning, with tools that helped maintain interest and engagement. However, the findings revealed a need for greater encouragement and motivation strategies to enhance student participation and task completion on e-learning platforms. The usability of digital tools varied across students, with many reporting ease of navigation. However, some students struggled with the tools, indicating the need for improved training and user-friendly interfaces. While technical support was available to some extent, students reported delays and inefficiencies in addressing issues. Moreover, the support provided by institutions in terms of digital resources and assistance was not universally felt, suggesting room for improvement in institutional strategies for e-learning.

3. **Barriers to E-Skills Adoption**: The primary barriers included limited access to technology, such as internet connectivity and device availability, which significantly impacted students' ability to fully engage in e-learning. Additionally, a lack of digital literacy and motivation were identified as hindrances, as many students felt inadequately trained in using digital tools for their studies.

Conclusions

The study concluded that while there are several facilitators to e-skills adoption, such as the availability of digital tools and some institutional support, significant barriers exist, particularly in terms of access to technology, lack of motivation, and insufficient training. Despite these challenges, students in technical programs are more engaged with digital tools, indicating that e-learning is more successfully integrated into certain disciplines. The lack of sufficient institutional support and unclear e-learning strategies further hinders the widespread adoption of e-skills. Moreover, the variation in student engagement, based on their level of digital skills and access to resources, suggests that universities need to offer more personalized support and resources tailored to the needs of different student groups.

Discussion: The discussion is structured around key themes that emerged from the data, including learning motivation and engagement, ease of use and usability, technical and institutional support, and barriers to adoption, such as access to technology, technical support, and digital literacy. Learning Motivation and Engagement: The results from the survey indicate that students have moderate levels of motivation to engage in e-learning activities, as reflected by the average responses regarding their willingness to engage with e-learning tools and platforms. This finding aligns with research by Muilenburg and Berge (2005), which suggests that learner motivation plays a crucial role in the success of e-learning. Motivation can either facilitate or hinder the adoption of e-skills, with intrinsically motivated students likely to engage more effectively with e-learning platforms. According to Self-Determination Theory (Ryan & Deci, 2000), motivation that stems from personal interest or enjoyment significantly boosts student engagement. In the context of this study, while students reported some degree of motivation, their engagement was relatively low, particularly in tasks requiring sustained effort. Ease of Use and Usability : The ease of use of e-learning platforms was another significant theme in this study. Students reported that while the e-learning platforms were generally user-friendly, many still

faced challenges in navigating the systems and utilizing the digital tools effectively. These findings are consistent with the Technology Acceptance Model (TAM), which asserts that the perceived ease of use of technology is a major factor in its acceptance (Davis, 1989). While many students found e-learning systems intuitive, others struggled with the technical aspects of online learning, indicating that the platforms' design may not be optimal for all users. Technical and Institutional Support: The study revealed that technical and institutional support played a significant role in students' experiences with e-learning. While some students reported adequate access to technical assistance, others experienced delays or challenges in getting their issues resolved. This finding reflects previous research indicating that effective technical support is essential for successful e-learning adoption (Garrison, Anderson, & Archer, 2001). The lack of timely support can significantly disrupt the learning process, as students may encounter technical issues that hinder their ability to engage with the course content. Moreover, institutional support in the form of clear guidelines for e-learning, digital resources, and training programs was found to be insufficient for many students. This aligns with the findings of Harris and McCulloch (2020), who argue that universities need to provide robust support structures to ensure the success of digital learning initiatives. Many students in this study reported that they were not adequately supported by their institutions in using digital tools, which negatively impacted their learning experiences. This suggests that universities need to implement comprehensive strategies for providing both technical and instructional support for e-learning. Barriers to E-Skills Adoption: The study also identified several barriers to e-skills adoption that are critical to understanding the challenges faced by students in engaging with e-learning platforms. These barriers include limited access to technology, low digital literacy, and lack of motivation and training. Limited Access to Technology: Access to technology is one of the most significant barriers to e-skills adoption. Many students in this study reported issues with limited access to computers and reliable internet connectivity, which prevented them from fully engaging in e-learning. This finding is consistent with previous studies, which highlight that students in resource-limited settings often face significant barriers to accessing the necessary tools for online learning (Harris & McCulloch, 2020). The digital divide, particularly in underprivileged regions, continues to be a major obstacle to equitable access to education. Low Digital Literacy: Many students reported low levels of digital literacy, which hindered their ability to navigate online platforms and use digital tools effectively. Low digital literacy remains a significant barrier to the widespread adoption of e-skills, especially for students who are not familiar with technology (Veletsianos & Kimmons, 2016). This study found that students often struggled with digital assignments and needed more training to build their technical skills. Universities must address this gap by offering targeted digital literacy programs and integrating digital skills development into the curriculum. Providing students with foundational training in digital tools—such as using learning management systems (LMS), conducting research online, and engaging in digital communication—would improve their overall e-skills proficiency and enable them to navigate e-learning platforms with ease. Lack of Motivation and Training: The lack of training and motivation was another significant barrier identified in the study. Many students felt that they did not receive adequate training to use e-learning tools, and some cited low motivation as a barrier to engaging in online learning. This reflects findings from other

studies that show the importance of ongoing training and the need for universities to invest in developing students' digital competencies (Ally, 2004). Furthermore, the lack of motivation to engage in e-learning tasks could be attributed to the absence of personalized learning experiences and clear rewards or incentives. Therefore, universities should develop comprehensive e-learning training programs that cater to students' varying levels of digital proficiency. Additionally, fostering a learning environment that emphasizes intrinsic motivation and provides tangible incentives for digital engagement could improve students' attitudes toward e-learning.

Recommendations

Based on the findings and conclusions, several recommendations are proposed to enhance e-skills adoption in university settings:

1. **Strengthening Institutional Support:** Universities should provide comprehensive technical assistance, accessible digital tools, and clear e-learning guidelines for all students.
2. **Expand Digital Literacy:** Universities must offer training programs to improve students' proficiency with e-learning platforms and tools.
3. **Boost Motivation:** Use gamification, interactive content, social interaction, and regular feedback to keep students engaged.
4. **Increase Technology Access:** Ensure affordable devices and reliable internet, especially for students from disadvantaged backgrounds.
5. **Promote Collaboration:** Build online communities and collaborative platforms to support peer interaction and knowledge sharing.

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