

Ease Matters: Perceived Ease of Use as a Catalyst for Online ICT Tool Adoption among University Teachers

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DOI: <https://doi.org/10.70670/sra.v3i4.628>

Abstract

This study aimed to explore the perceived ease of use (PEOU) of university teachers regarding online ICT tools. The study employed descriptive research design with quantitative approach. The stratified sampling method was applied to select 114 university teachers from the five faculties at the University of Sargodha. Researcher used a structured questionnaire that measured the Ease of Use of online ICT tools to analyze the research questions of the study. Descriptive statistics i.e. mean, standard deviation and inferential statistics, including t-test, ANOVA were used to analyze the data. This study found that majority of university teachers demonstrates moderate level of perceived ease of use of online ICT tools. The study's results indicated that there is no significant difference in perceived ease of use of University Teachers' regarding online ICT tools with respect to their gender, teaching faculty and teaching experiences. It is recommended that the university's human resources department design targeted training programs and workshops to enhance teachers' confidence in using various online ICT tools such as cloud storage, video platforms, Zoom and Google Forms to improve in their teaching and professional lives.

Keywords: Perceived Ease of Use, University Teachers, Online ICT Tools, Higher Education.

Introduction

Educational technology refers to the systematic application of scientific knowledge to improve learning and instruction (Njadat et al., 2021). According to Untari, 2020 higher educational technology is shifted to online digital resources (e.g. G drive, Zoom and Google forms). These online tools allowing University teachers to establish a collaborative learning environment and enhance content delivery (Onyebuchi, 2020). This research utilizes the Technology Acceptance Model (TAM), which focuses on two main factors 1. Perceived usefulness (PU): is the perception that the technology will enhances efficiency 2. Perceived ease of use (PEOU): is the belief that using certain technology will be easy (Gefen et al., 2000). University Teachers already aware of the value and usefulness of online ICT tools (Kazoka et al., 2019). Therefore, this research focuses on PEOU because it determines the willingness of teachers to implement ICT, and they are encouraged to implement innovative pedagogical approaches (Davis, 1989). In this study faculty, gender, and teaching experience are added as demographic variables since they can affect PEOU (Huang et al., 2019). A number of software applications and websites are commonly used across higher education, not as technologies for themselves but as services based on established internet standards. They encompass blogs, wikis, data-sharing sites, cloud storage, and video-sharing sites,

which are still developing with additional functions (Anderson, 2007). Cloud computing has increasingly gained significance in universities because it can facilitate teaching, learning, and collaboration. Users can contract data processing and storage to cloud providers, presenting flexible and economical solutions (Sadik, 2017). Dropbox and Google Drive are examples of tools that enable safe, synchronized access to collaborative documents, which support teamwork and management of course materials (Bommana, 2016). These online platforms facilitate collaboration between students and teachers, and so are used extensively in learning environments (Denton, 2012). Cloud computing also facilitates teacher professional development by facilitating collaborative course material creation and tracking (Rao et al., 2012; Al-Zoube et al., 2010). It aids distance learners as it enhances independent and collaborative learning (Zhao et al., 2014). Nonetheless, its effective application rests with teachers, many of whom might not be endowed with the due knowledge to effectively apply these technologies (Korucu, 2017).

Online communication platforms have transformed higher education by filling the middle ground between conventional and distance learning, promoting accessibility and teaching effectiveness for university instructors (Sun et al., 2016). Tools like Zoom, Google Meet, and Microsoft Teams facilitate real-time video meetings, screen sharing, and simultaneous discussion, allowing flexible and interactive instruction on devices such as laptops, tablets, and smartphones. Zoom, specifically, enables mass virtual classes with functionalities like breakout rooms, recording of sessions, and an educator-centric interface constantly improved via user feedback (Sutterlin, 2018; König, 2020). Google Meet and Microsoft Teams also enable teaching in universities well through integration with digital resources like Google Workspace and Microsoft Office, making the delivery of courses and academic communication more efficient. These platforms are available to increase global reach, enabling university students and instructors to interact irrespective of geographical locations. Studies show that with effective learning strategies, video conferencing technology enhances learning results, enhances student participation, and enables active engagement (García & Vidal, 2019, Del Rio-Chillice et al., 2021). They also assist in the breakdown of shyness among students and encourage coactive, reflective learning as envisaged under constructivist approaches (Sufyan et al., 2020; César et al., 2020; Ling, 2024). Internet survey and data collection tools like Google Forms also aid in evaluation, by providing simple creation of quizzes and surveys, automated scoring, and instant feedback, enhancing efficiency of university teachers and student engagement (Anderson et al., 2011; Nguyen et al., 2018; Lim et al., 2023). It is an easy-to-use, browser-based tool that accommodates multiple question types and customizable features such as themes and pictures, with which teachers can easily generate interactive quizzes and surveys (Wiemken et al., 2018). It automatically grades responses into spreadsheets, making grading and analysis easier and features such as required fields and answer randomization maintain data accuracy (Lim et al., 2023; Wiemken et al., 2018). Instant feedback encourages student motivation through immediate identification of strengths and weaknesses (Nguyen et al., 2018; Jamian et al., 2020), while teachers enjoy simplified, data-based formative assessments (Lim et al., 2023). Blogs are also useful in higher education, promoting reflective learning, collaboration, and the development of digital literacy skills to support learner-centered and constructivist pedagogies (Namwar, 2008; Richardson, 2010; Chawinga, 2017). Blogs integrating text, images, audio, and video, have gained widespread use in higher education as ways to facilitate teacher-student communication by allowing teachers to post announcements, comments, resources, and gauge learning over space and time (Namwar, 2008; Rao, 2012; Richardson, 2010). Blogs enable interactive, "weighted discussions" that enable collaboration outside the classroom, enabling interaction with worldwide experts and encouraging collaborative learning, which enhances performance, teamwork, self-esteem, and comprehension (Benkler, 2006, McConnell, 2000). Video sharing tools like YouTube is a common tool for numerous university teachers, so incorporating it into the classroom comes easily to them as part of their

daily use of technology. As an instructional aide, YouTube helps teachers in engaging students who find digital learning settings preferable to conventional ones, like video blogging and web interaction, as opposed to traditional instructional methods (Burke, S.C. et al., 2009). Teachers can also use YouTube to present content that is relevant and meaningful to students, making learning more engaging. Cost-effectiveness is also a benefit, especially working with limited educational budgets. University teachers can conveniently embed YouTube videos into presentations, research work, or websites by simply copying and pasting video URLs (Burke, S.C. et al., 2009). It is also being utilized by some teachers to post recorded lectures, for both on-campus and online students, broadening their audience and facilitating flexible learning. YouTube provides access to many scholarly sources, practical examples, and demonstrations of skills, enhancing lectures and making them more relevant to professional situations (Burke, S.C. et al., 2009).

The implementation of these online ICT tools is not only a matter of access also of teachers' capability and self-confidence to implement them. Motivation, experience, and self-efficacy play important roles in mastering new ICT skills (Korpipää et al., 2020). Highly self-efficacious teachers overcome obstacles and embed tools better, whereas low self-efficacy can prevent adoption (Ritchie, 2021; Guoyan et al., 2023). Training programs are thus critical to develop pedagogical and technological capability (Hammond et al., 2011; Sang et al., 2010). The Technology Acceptance Model (TAM) was employed in this research to examine university teachers' attitudes toward online ICT tools with a focus on perceived ease of use (PEOU). Researches confirms that PEOU significantly affects positive attitudes, educational quality, and student learning (Alharbi, 2020; Ishtaiwa & Aburezeq, 2015). University teachers are more probable to incorporate digital ICT tools when the interfaces are easy and user-friendly since this saves effort, increases confidence, and facilitates creative teaching methods (Ajjan & Hartshorne, 2008; Elisa et al., 2022). PEOU not only leads to adoption but also ensures long-term utilization, skill acquisition, and enhanced teaching efficiency (Tatli et al., 2016; Sánchez-Prieto et al., 2023). Finally, ICT adoption is influenced both by personal characteristics such as motivation and self-confidence and institutional assistance such as training and infrastructure (Inan et al., 2010), and hence PEOU emerges as a core component of understanding how teachers implement online ICT tools in higher education. Some researchers suggest that if the system is user friendly, users are more likely to be exposed to its functions and constant use (Chui & Wang, 2008; Hamid, Razak, Bakar & Abdullah, 2016). For instance, it was found by the study of Chong, Sharaf, & Jacob (2005) that the ease of use of online ICT tools of teacher would directly influence the use of technology in the teaching and learning functions of the teaching processes. Confirmatory research was conducted by the study of Askar, Usluel, & Mumcu (2006) which found that the ease of use of ICT exercised a strongly determining factor regarding the adoption of the Turkish tutors in the use of the preparation of teaching materials using ICT tools. Other researchers, including the study of Franklin (2007) have also show that the need for teacher to firstly view ICTs as being easy to use for the purpose of apply it successfully in carrying out work functions.

Research Questions

Following were the research questions of the study:

1. What is the level of perceived ease of use of university teachers regarding online ICT tools?
2. Is there any difference in perceived ease of use regarding online ICT tools among university teachers from different faculties?
3. Is there any difference between male and female university teachers about perceived ease of use of online ICT tools?
4. Is there any difference in perceived ease of use among university teachers regarding online ICT tools with respect to duration of their teaching experience?

Research Methodology

The research design employed for this study was Quantitative, descriptive, used to assess teachers' ease of use of online ICT tools. The population of the study was 378 university teachers from five teaching faculties working at the University of Sargodha. Disproportionate stratified sampling technique, was used to choose a representative sample from the population of university teachers. The strata were created based on faculties and departments and randomly selected from each stratum in the sample. Five departments were chosen from the faculties of Social Sciences, Sciences, and Arts and Humanities, three from the Faculty of Information Technology (IT), and one from the Faculty of Pharmacy. From each department, six teachers (three male and three female) were selected, resulting in a total sample size of 114 university teachers, comprising 57 males and 57 females, ensuring equal gender and faculty representation. Data for this study were collected using a survey method with a structured questionnaire. The demographic variable included name (optional), gender, teaching faculty and teaching experience and utilized a 5-point Likert scale, with responses ranging from "strongly agree" (5) to "strongly disagree" (1). The instrument included 21 statements, measuring five factors of this construct. I. Online ICT skills integration and proficiency II. Cloud based storage, III. Online data collection platforms, IV. Blogging V. Online video Sharing Platform. Pilot study of the instrument was conducted with 30 university teachers working at the University of Sargodha. The Cronbach's alpha was 0.834 which indicates "good reliability" (Tavakol & Dennick, 2011). The researcher physically visited the five faculties at the University of Sargodha: Social Sciences, Sciences, Arts and Humanities, Information Technology (IT), and Pharmacy to administer the survey. During these visits data were collected from selected sample of university teachers from each faculty and their respective departments at the University of Sargodha. Data were analyzed by using SPSS software. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the responses of university teachers. For inferential statistics, independent sample t-tests were used to analyze gender differences and one-way ANOVA was used to assess differences across faculties and teaching experience.

Results

This study reported the results using descriptive statistics, including mean, standard deviation, frequency and range. Further inferential statistical analysis was used for the independent sample t-tests and the one-way ANOVA.

Table 1

Descriptive analysis of teachers' perceived ease of use (PEU) regarding online ICT tools

PEU in	Mean	Std. Deviation
Online ICT skills integration and proficiency	3.62	0.53
Cloud based storage	3.80	0.77
Online data collection platforms	3.73	0.64
Blogs	3.25	0.68
Online video sharing platform	3.90	0.92

The mean score for online ICT skills proficiency is $M=3.62$, with $SD= 0.53$, indicating a moderate level of ease of use in table 1.1. Cloud based storage using has a mean $M=3.80$, $SD=0.77$, showing it is easy for university teachers to use Cloud based storage platforms. Online data collection platforms have a mean $M= 3.74$, $SD=0.64$, indicating a moderate level of ease of use. Blogging or blog using have a lower mean score $M=3.25$, $SD=0.68$, showing university teachers have a low level of ease of use. Teachers are more comfortable using online video- sharing platforms, with a mean score $M= 3.90$, $SD 0.92$, showing they find these platforms ease to use.

Table 2*Level of Perceived Ease of Use Regarding Online ICT Tools by university teachers*

The data on university teachers' perceived ease of use regarding online ICT tools was divided into three levels: low (≤ 66.59), moderate (66.6-86.45), and high (≥ 86.46).

Level	Range	Frequency	Percentage %
Low	< 66.59	16	14.0%
Moderate	66.6-86.45	80	70.2%
High	> 86.46	18	15.8%
Total		114	100%

Majority of University teachers (70.2%) fall into moderate category, 15.8% fall into the high category and 14% fall into low category which mean the level of perceived ease of use regarding online ICT tools is moderate among university teachers.

*Factor wise level of perceived ease of use in university teachers regarding online ICT tool***Table 3***Factor wise level of perceived ease of use in university teachers regarding online ICT tool*

PEOU in	Low	Moderate	High
1. Online ICT skills integration and Proficiency	14 (12%)	82 (72%)	18 (16%)
2. Cloud based storage	21 (18.4%)	72 (63.2%)	21 (18.4%)
3. Online data collection platforms	14 (12.3%)	86 (75.4%)	14 (12.3%)
4. Blogs	24 (21.1%)	69 (60.5%)	21 (18.4%)
5. Online video sharing platform	15 (13.2%)	77 (67.5%)	22 (19.3%)

Majority of university teachers reported a moderate level of perceived ease of use for all online ICT tools. Specifically, 72% university teachers reported moderate level ease of use in online ICT skills integration and proficiency, for Cloud based storage 63.2% of university teachers reported moderate level of ease of use, 75.4% of them showed moderate level ease in online data collection platforms, and for online video sharing platforms 60.5% teachers reported moderate level of ease .

Table 4*T-test for comparing the mean of perceived ease of use regarding online ICT tools by gender*

Gender	N	Mean	Std. Deviation	T	Df	Sig.(2-tailed)
Male	57	77.228	9.816	0.762	112	0.45
Female	57	75.807	10.086			

Mean and standard deviation of male and female teachers have shown in this table. Males have a mean $M=77.23$ and $SD=9.8162$ while females have a mean $M= 75.80$ and $SD=10.08$. It is also shown that the t-value = 0.762, $df =112$, Sig. value (2-tailed) = 0.45, which is greater than the P-value =0.05. Hence there is no significance difference in perceived ease of use regarding online ICT tools between male and female teachers of university.

Table 1.5

One-way ANOVA on perceived ease of use regarding online ICT tools among university teachers' with teaching faculties and different length of teaching experiences.

	Levels	Sum of Squares	df	Mean Square	F	Sig.
Comparison within faculties	Between Groups	724.966	5	181.241	1.895	.116
	Within Groups	10425.499	109	95.647		
	Total	11150.465	114			
Comparison within teaching experience	Between Groups	724.966	4	181.241	1.895	.116
	Within Groups	10425.499	110	95.647		
	Total	11150.465	114			

The comparison of university teachers according to teaching faculties and their length of teaching experience have shown in this table. It is also shown that there is no significant difference in the perceived ease of use of online ICT tools among university teachers with respect to teaching faculties ($F=1.89$, sig $P= 0.116 > 0.05$) and length of teaching experience ($F = 1.708$, sig $P = 0.170 > 0.05$).

Discussion

Regarding the level of perceived ease of use of online ICT tools, the study revealed that most university teachers demonstrated a moderate level of ease in using them. This is supported by Ibrahim and Shiring (2021), who found that university teachers' perceived ease of use of instructional and web based technology was moderate, indicating that while teachers are open to integrate technology, they often encounter challenges that hinder seamless adoption. Ayanwale et al. (2024), found that security concerns, internet reliability issues, and negative social influence limit full adoption of online ICT tools, preventing ease of use from reaching a high level. Similarly, Karimi et.al. (2023) observed that teachers' attitudes toward online ICT tools are influenced by their experiences and the phase of online ICT tools implementation at their institutions, suggesting that without adequate support and training, university teachers may perceived these tools less intuitive to use. The study revealed that university teachers' perceived ease of use in online ICT skill integration and proficiency with tools like Zoom, Google Classroom, and Microsoft team was high. Online video sharing platforms are considered the easiest to use by university teachers, followed by cloud-based storage and online data collection platform, which are also relatively easy, while blogging is seen as less user friendly by university teachers. This preference for video-sharing platforms, such as YouTube, can be attribute to their simple interface and wide spread familiarity, making them highly accessible for university teachers (Ali & Ali, 2019). Similarly, Cloud based storage solution like Google Drive as well as online data collection platforms such as Google Forms and Microsoft Teams, are perceived as relatively easy to use due to their integration in academic workflows and user friendly design (Behrend et al., 2011). However according to the study Deng (2011), blogging platforms are considered less used-friendly, possibly due to the additional effort required for content creation, formatting, and consistent engagement, which may discourage teachers from frequent use. The finding of this study indicate that there is no significant difference in teachers' perceived ease of use of online ICT tools based on teaching experience, gender and teaching faculty. This aligns with study of Çobanoğlu and Yucel (2017), who found that teaching experience does not significantly impact teachers' ability to use online ICT tools. Özerbaş and Mart (2017) and Soomro et al. (2015) reported that there is no significant gender-based differences, suggesting that both male and females university teachers interact with online

ICT tools at comparable levels. Furthermore, no Significant variation is observed based on teaching faculty, supporting by Abbasi et al., (2022), who highlighted that faculty members across disciplines perceive online Technology similarity due to standardized institutional resources and exposure. Additionally, Khan and Rehman (2021) emphasized that ease of use is primarily influenced by institutional ICT policies and self-learning rather than faculty specialization.

Conclusion

Majority of university teachers demonstrate a moderate level of perceived ease of use regarding online ICT tools while few of them demonstrate high and low level. Furthermore, teachers' perceived ease of use in online ICT skill integration and proficiency with tools like Zoom, Google Classroom, and Microsoft Team was high. Online video sharing platforms are considered the easiest to use by university teachers, followed by cloud-based storage and online data collection platforms, which are also relatively easy, while blogging is seen as less user- friendly by university teachers. Moreover, the teachers at university of Sargodha with the different gender, teaching faculty and the length of teaching experience have same level of perceived ease of use of online ICT tools.

Recommendations

1. The University human resources department may design strategies for psychological training to enhance university teachers' self-efficacy and digital resilience in using online ICT tools. Workshop sessions may be conducted to improve their perceived ease of use and promote better integration of online ICT tools in teaching and learning.
2. University may establish policies and guidelines to ensure that teachers integrate online ICT based teaching methodology into their instructional practices, i.e. Cloud storage tools like Dropbox for collaboration by sharing lecture materials, research documents, and academic resources with colleagues and students. Teachers may be encouraged to collect assignments, provide feedback, and organize course content online. This may promote teamwork, easy access to resources, and a more organized learning experiences.
3. Higher Education Department Punjab (HED) may introduce provincial level LMS training programs for university and colleges to ensure that university teachers can also shift to LMS-based teaching. The HED can establish regional LMS training centers that provide continuous professional development, practical workshops, and technical support to university teachers, enabling them to effectively adopt online ICT tools education.

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