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Coping Competencies of Iranian Students in E-Learning: A Mixed-Methods Evaluation

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Abstract

The study evaluated the opportunities and challenges of e-learning for university students and investigated their experiences. A sequential exploratory mixed-methods approach (quantitative and qualitative) was used. In the quantitative phase, a survey was conducted to explore students' competencies in coping with e-learning attributes, involving 237 university students (46.9% male, 53.1% female). Descriptive and analytical tests were used to analyze the data. The results indicated the mean scores of students' perspectives on the opportunities and challenges of e-learning in university were 4.05 ± 0.49 out of 5. In the qualitative phase, data were collected through semi-structured interviews. To provide a richer context and better understanding and interpretation of the quantitative findings, the current research employed qualitative research methodologies, including focus group discussions with ten interviewees—five academic staff members and five students. Combining both student and academic staff perspectives provides a more comprehensive understanding of the research topic. Students and staff may have different viewpoints, experiences, and needs related to the subject matter. The qualitative analysis identified five significant themes: communication defects, technical challenges, personal-level challenges, curricular-level issues, and social challenges. The study's findings may be utilized to design better policies and strategies to enhance e-learning and address its issues among both instructors and students. Finally, the study provides implications for relevant stakeholders.

Keywords: Academic Staff, Coping Competencies, E-Learning, University Students

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Introduction

In January 2020, the world was thrust into an unprecedented global crisis with the outbreak of COVID-19 in Wuhan, China. The rapid spread of this new and unknown disease led to widespread concern, resulting in governments worldwide declaring public quarantines and closing various institutions, including schools, universities, and colleges (Zanin et al., 2020). The impact of the pandemic on the education sector has been profound, with nearly 6.1 billion students globally grappling with the consequences of the situation. The closure of educational institutions forced a paradigm shift in the delivery of education, prompting a swift transition to e-learning. In over 185 countries, including Iran, more than 90% of educational institutions closed due to the pandemic, necessitating the incorporation of e-learning into the education system. This transition led to new opportunities and challenges (Aldowah et al., 2019).

As the world embraced e-learning, concerns arose about its potential negative effects on students, such as increased anxiety, reduced motivation, and dissatisfaction with academic life (Fülöp et al., 2023). Moreover, the lack of quality standards and necessary infrastructure for e-learning raised questions about its long-term efficiency (Elumalai et al., 2021). Amidst this transformative landscape, the necessity for regular and systematic research to address the adverse effects of e-learning became evident. However, current e-learning programs often fall short of meeting essential quality standards, leading to lower efficiency and significant time wastage.

Although significant evidence exists regarding the importance of contextual and course-related issues in supporting e-learning technologies (Andersson & Grönlund, 2009), less is known about how these challenges contribute to the difficulties students and instructors face in implementing e-learning. Recently, the literature has begun discussing the link between obstacles to implementing e-learning in a university context (Almaiah et al., 2020). It is believed that examining these relationships may help identify key variables. This study seeks to explore the evolving role of e-learning in higher education, with a specific focus on the opportunities and challenges among Iranian university students. The study recognizes the significance of e-learning as a contemporary educational tool and employs a mixed-method approach to comprehensively investigate factors related to coping strategies used by Iranian students in response to e-learning challenges. By combining quantitative surveys with qualitative interviews, the research aims to provide valuable insights into the attitudes,

perceptions, and challenges faced by Iranian university students engaging with e-learning platforms.

As the findings unfold, this research is poised to contribute not only to the academic discourse surrounding e-learning but also to inform strategies and interventions that enhance the effectiveness of digital education in the Iranian higher education landscape. The current study aims to answer the following question: What are the main challenges of e-learning in Iran's higher education, and what are the most effective coping strategies for addressing these challenges among students and academics in Iran?

Literature Review

E-learning, encompassing various forms of digital technology used in educational processes, has been widely acknowledged for providing flexibility, expediency, and innovative teaching opportunities (Khan et al., 2021). Previous studies on user acceptance of e-learning emphasize the critical success factors for e-learning in higher education (Al-Fraihat et al., 2020). These factors span across categories such as lecturers, students, information technology, and institutional support, with considerations ranging from IT competency to reliable infrastructure. Researchers suggest that e-learning systems enhance student learning, leading to higher levels of engagement compared to face-to-face learning (Ratnawati & Idris, 2020).

While e-learning offers flexibility and accessibility, challenges such as psychological effects on student development must be addressed. More research is needed to understand the impact of e-learning on qualities such as social responsibility, interpersonal skills, civic engagement, and personal growth. E-learning can be implemented both online and offline, each with its advantages and disadvantages. However, the lack of physical presence, limited instructor control, and high dropout rates warrant thorough examination. Quality assurance plans specifically tailored to e-learning programs are necessary to address concerns about quality.

Individual, course, contextual, and technological challenges can hinder the effectiveness of e-learning. The role of individual instructors is crucial in determining the success of e-learning systems. Andersson and Grönlund (2009) identified thirty challenges related to e-learning implementation, categorized into individual, course-related, contextual, and technological challenges (see Figure 1). Specific challenges in e-learning implementation, particularly in developing countries, include inadequate ICT infrastructure, financial constraints, and a lack of technical skills (Zarei & Mohammadi, 2022). These challenges vary among stakeholders, highlighting the importance of understanding the perspectives of students, lecturers, and institutions.

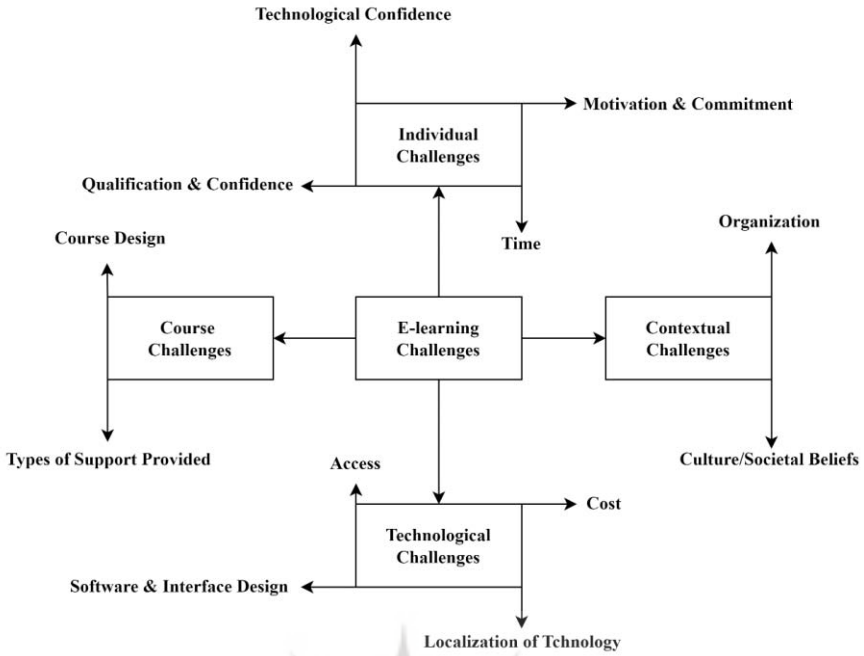

Figure 1. E-leaning Challenges (Andersson & Grönlund, 2009).

In the contemporary landscape of higher education, a significant shift is observed from delivery-centered to learner-centered approaches and from traditional "showing-telling" methods to more dynamic "learning-by-doing" environments. This evolution aligns with the principles of constructivist educational theory, providing a robust foundation for creating learning environments suitable for the twenty-first century (Wu et al., 2022). The constructivist approach emphasizes an individualized approach to knowledge construction, where learners actively engage in constructing knowledge through interaction with both peers and the natural world (Young & Paterson, 2007). In contrast to the instructivism approach, e-learning involves active participation in the pedagogical process, utilizing cognitive and social tools for problem-solving and knowledge transfer (Chelliq et al., 2023). The principles of constructivist educational theory have become central to e-learning, influencing e-pedagogy and providing the foundational principles for constructivist learning theory and best practices in e-teaching (Mehrpouyan, 2023). In essence, the infusion of constructivist thought into e-pedagogy not only shapes the theoretical underpinnings of e-learning but also contributes to the development of effective models for the learning and teaching process in virtual environments.

Coping with the challenges of e-learning in higher education requires the implementation of competencies and strategic approaches to enhance the overall effectiveness of virtual education. One key coping strategy involves promoting digital literacy among both instructors and students (Tomczyk et al., 2020). Providing comprehensive training on the use of online platforms, collaborative tools, and digital resources helps individuals navigate the virtual learning environment more adeptly. Similarly, educators equipped with advanced digital skills can create more interactive and engaging online content, facilitating a smoother transition to

e-learning. Additionally, institutions can establish support systems, such as virtual help desks and online tutorials, to assist both students and educators in overcoming technical challenges promptly.

Another crucial coping strategy involves fostering a sense of community and collaboration in the virtual learning space. E-learning can sometimes lead to feelings of isolation and detachment, especially when students lack face-to-face interactions with peers and instructors (Kaufmann & Vallade, 2022). To address this, educators can implement collaborative activities, group projects, and virtual discussions to create a sense of community within the digital realm. Social presence in e-learning environments can be enhanced through regular communication, feedback, and the use of video conferencing tools. Additionally, fostering a supportive online community allows students to share experiences, exchange ideas, and collaborate on problem-solving, mitigating the sense of isolation that can be a challenge in virtual education (Koh & Kan, 2021). Institutions can further support this strategy by promoting virtual student clubs, forums, and peer-to-peer mentoring programs, creating an inclusive and collaborative e-learning ecosystem in higher education. Thus, based on the previous literature, the authors propose the following hypotheses (Figure 2):

H1: There is a relationship between the strength of e-learning and the coping strategies among Iranian university students.

H2: There is a relationship between the weaknesses of e-learning and the coping strategies among Iranian university students.

H3: There is a relationship between opportunities for e-learning and the coping strategies among Iranian university students.

H4: There is a relationship between threats related to e-learning and the coping strategies among Iranian university students.

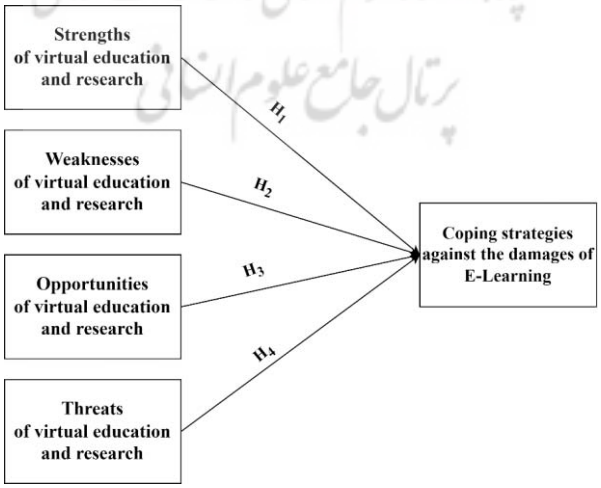

Figure 2. Conceptual Framework of Study.

Methodology

Study Design

To address the research questions and hypotheses, the authors employed a mixed-methods approach, combining quantitative data from a survey with qualitative insights from interviews. The increasing prominence of mixed-methods research in e-learning studies, as noted by Abduljabbar (2021), facilitates a comprehensive understanding of the phenomena under study. The quantitative phase utilized a survey method, while the qualitative phase followed a grounded theory approach based on Strauss and Corbin's (2014) paradigm.

Participants and Procedures

The study was conducted at Alzahra University. Before the pandemic, this institution and its faculties conducted all teaching, learning, and assessment in person, including lectures, tutorials, and laboratories. When the pandemic occurred, the institution rapidly transitioned to an online mode, and all teaching, learning, and evaluation were performed online following the outbreak.

In the quantitative component, the cluster sampling method was used. This method was chosen due to the known population size, and Cochran's (1977) formula was applied. A total of 250 questionnaires were sent to the participants via Google Forms, of which only 237 were usable for the study (94.8% return rate). First-year students and those without prior experience in e-learning were excluded.

A selected sample of ten faculty members and students participated in the focus group discussions (FGDs) during the qualitative phase. The students were initially council representatives from their respective batches; however, the faculty members who participated in the FGDs represented all academic departments. The primary reason for including academic staff in the qualitative study was to reduce the potential bias of the research findings. Both groups of participants were chosen based on the assumption that they could provide comprehensive and detailed insights regarding the study's objective.

Instruments

This study employed two instruments: researcher-designed questionnaires and semi-structured, in-depth interviews. The questionnaires, based on a conceptual framework by Nouraey et al. (2023), covered demographic information, e-learning challenges, threats, opportunities, and competencies in coping with e-learning challenges, as well as open-ended questions. The 5-point Likert scale was used, and a pilot study with 29 participants ensured the accuracy of the questionnaire. Content validity was confirmed by three field experts, with minor amendments made for grammar and clarity. The pilot study took place from November 4 to 21, 2023. Additionally, semi-structured, in-depth interviews gathered perspectives from university students and academics on e-learning challenges, opportunities, threats, and solutions.

Data Collection

The research team created a single survey for students to complete to gather quantitative data for this study. The survey was based on similar instruments and pertinent literature. The questionnaire was converted into an online form using Google Forms, and it included 67 statements in five areas on a 5-point Likert scale. Ten FGDs were conducted—five with academic staff and five with students—each lasting approximately 45 minutes. FGD guides, informed by quantitative findings, covered topics such as perceptions of face-to-face and online learning, preferences, benefits, and challenges. The guides were approved by the study team, recorded in English, and transcribed. Instructors and students were not mixed during the FGDs to minimize bias.

Data Analysis

Data analysis involved comparing qualitative and quantitative data simultaneously. Quantitative analysis, performed with SPSS (v, 27), presented variables as means and standard deviations, with a significance level of $p < 0.05$. For qualitative analysis, thematic analysis using QSR NVivo (v.12) was employed. Following Braun and Clarke's (2021) principles, a mixed deductive and inductive approach was used to interpret data, incorporating both predefined themes from FGD guides and emergent themes derived directly from the data.

Ethical issues

During this research, all legal procedures for participating in the research environment were observed. Verbal consent was obtained after informing the participants about the study's goal. They were also informed that they could access the research results if they wished. Ethical considerations, such as not disclosing participant information and obtaining permission for interview recording, were strictly followed.

Rigour

Multiple procedures were employed to ensure the reliability of the qualitative results. Initially, comprehensive transcriptions and field notes were reviewed, and codes, themes, and conclusions were shown to presenters on entrepreneurship study to check for biases (Adler, 2022). Data collection methods were further strengthened by triangulation, involving members checking with participants for content validity confirmation and peer review with a group of researchers to avoid bias (Creswell & Creswell, 2017). The results and emerging themes from data analysis are detailed in the following sections and discussed in the conclusion.

Results

Characteristics of Study Participants

In this study, 237 students participated with an average age of 24.6 (SD = 1.03). Of these, 152 were female (46.9%) and 83 were male (53.1%). The majority of students were from the engineering field (43.9%), followed by Humanities students. Seventy-three percent of students had 1-3 years of e-learning experience (Table 1).

Table 1. Descriptive Results (n = 237)

Variable	Frequency	Per cent	Mean	SD
Age			24.6	1.03
30>	226	95.35		
30-40	6	2.54		
>40	5	2.11		
Gender				
Female	152	64.13		
Male	85	35.87		
Field of Study				
Humanities	58	24.48		
Science and Mathematics	51	21.51		
Engineering	104	43.89		
Service	24	10.12		
Experience with e-learning (years)				
1>	51	21.52		
1-3	173	72.99		
3-5	10	4.13		
>5	3	1.27		

Quantitative Results

As shown in Table 2, the results indicate that all study variables have a positive relationship with coping strategies, except the threats of e-learning (r = .108). Thus, H1 to H3 were supported.

Table 2. Correlation of study variables (N=237)

No.	Variables	1	2	3	4	5
1	Strength of e-learning	1				
2	Weakness of e-learning	.266**	1			
3	Opportunities of e-learning	.686**	.283**	1		
4	Threats of e-learning	.108	.628**	.283**	1	
5	Coping Strategies	.336**	.206**	.262**	.186**	1

Note. **. Correlation is significant at the 0.01 level (2-tailed).

The student t-test results revealed no statistically significant difference (P = 0.33) between the perspectives of male and female students. Additionally, the ANOVA findings demonstrated no significant difference in the students' viewpoints across fields of study (P = 0.85) or prior e-learning experience (P = 0.43).

Qualitative Results

Five full-time academic staff and five students were interviewed. Date saturation was reached after 5 interviews. Table 4 provides the demographic information of the interviewees.

Table 4. Interviewees' Demographic Information.

No.	Informant(s)	Age	Gender	Type of Respondent
1	Informant 1	43	Male	Senior Lecturer
2	Informant 2	40	Male	Assistant Professor
3	Informant 3	49	Female	Senior Lecturer
4	Informant 4	48	Male	Senior Lecturer
5	Informant 5	53	Male	Professor
6	Informant 6	28	Female	Student
7	Informant 7	25	Female	Student
8	Informant 8	27	Male	Student
9	Informant 9	24	Female	Student
10	Informant 10	22	Male	Student

As shown in Table 5, the experiences of the participants in the qualitative phase were categorized under the theme of "Communication defects," "Technical challenges," "Personal challenges," and "Curricular challenges".

Table 5. Emerged Themes and sub-themes.

No.	Themes	Sub-themes
1	Communication Defects	Lack of Control
		Limited feedback
		Inaccessible communication channels
2	Technical Defies	Lack of infrastructure preparation
		Insufficient technical support
3	Personal Challenges	Financial challenges
		Difficulties and fatigue
		Digital literacy gaps
4	Curricular Challenges	Practical lessons
		Group cooperation lessons
		Resistance to change
		Necessity for guidance
5	Social Challenges	Social roles & responsibilities

Theme (1): Communication Defects

In e-learning, "communication defects" refer to challenges related to ineffective communication within the online learning environment (Shahmoradi et al., 2018). Effective communication is vital for e-learning success, influencing student engagement, comprehension, and overall learning outcomes. While Islam et al. (2015) suggested daily online presence for e-tutors, our research found limited learner-learner and learner-tutor interactions. Two main challenges were identified: time constraints for e-tutors due to dual teaching roles and a lack of training in collaborative learning tools, hindering the benefits of constructivism and connectivism.

Lack of Control

The "Lack of control" in e-learning refers to challenges and concerns related to the limited ability of educators and institutions to manage certain aspects of the online learning environment. This lack of control can manifest in various ways, impacting the effectiveness of the e-learning experience. Informant 1 Said:

"The main professors used to rely on traditional education … However, it still had some shortcomings that prevented it from fully achieving its goals. It had specific reasons; one being the lack of close interaction, making it one-sided. An individual could potentially skip the education, be distracted, or be on the other side, like having a phone on and not paying attention."

Informant 2 added:

"Another issue is that the student who is behind the computer has nothing to do with him, we do not see him in what state. For example, I called him, but there was no news, and if the student is not in the class, the instructor has no control over it."

Informant 3 also noted:

"During the COVID-19 lockdown, children did not put much energy into their studies and I did not feel good because no one asked questions online, I did not know if they were in class or not."

Limited Feedback

Timely and constructive feedback is essential for student progress. Without it, students may struggle to understand their strengths and weaknesses, hindering improvement. Informant 9 Said:

"In face-to-face classes, we could directly tell the education department that the instructor is not teaching well, but during online classes, we don't know how to provide feedback."

Inaccessible Communication Channels

Limited communication channels can exclude students or make it difficult for them to express themselves. Offering multiple communication methods can help accommodate different learning styles and preferences.

Informant 10 said:

"Due to the filtering, I had to purchase a VPN to connect to Zoom, but the VPN didn't always work, and I would lose connection to the class altogether."

Theme (2): Technical Challenges

Unreliable internet connections, issues with video conference platforms, and restricted access to necessary hardware or software are common technical issues in e-learning (Turnbull et al., 2021). Three key technical issues were identified. First, some e-library links were non-

functional, leading learners to search for alternative resources online or seek assistance from ICT support centers. Second, despite favorable ratings for Learning Management Systems (LMSs), a text-based interface caused challenges for users who preferred a graphical user interface (GUI). They sought help from ICT support centers to navigate the LMS. Third, universities provided tablets to address accessibility issues, but the tablets presented challenges such as redundancy with 4G smartphones, slow performance of 3G tablets, and limitations in internal memory for STEM-oriented courses.

Lack of Infrastructure Preparation

This refers to the absence of the necessary technological support for effective online education. This deficiency can manifest in various ways, including insufficient access to technology, unreliable internet connections, outdated software or hardware, inadequate training for educators, and a lack of proper support systems. For instance, Informant 1 Said:

"The positive side is that it brings the professors into the same space. He should introduce new tools to them that if he had a good infrastructure, maybe he would have a good result, and I felt some…they did not receive any training from the students, they were harmed in this field because there was no face to face, some of them were able to use it well and with…getting to know technology more was generally positive because that traditional atmosphere was broken, but there were a series of deficiencies in some places."

Informant 5 added:

"…Some students didn't have good phones or reliable internet, and this affected their interest in studies."

Informant 3 noted:

"The most important thing was the Internet. The Adobe Connect environment is very good. It was the best environment for teaching. I have to use the blackboard for some of my lessons, but writing and the blackboard were not easy there. The Internet kept disconnecting …. Some students did not have access to laptops and smartphones. For example, a question was raised or they wanted to ask a question, they didn't have a voice, they had to type and we couldn't tell them that you should provide a better system, they really couldn't, there was a part related to the students that they couldn't access and the rest of the students were bothered."

Informant 9 stated that:

"… the university did not provide this platform so that we could communicate with students from other universities...Instagram virtually or period we connect with other students …but during the lockdown, these virtual associations generally depended on the sociability of people who could communicate well with the other people."

Insufficient Technical Support

This refers to a situation where users, such as students, teachers, or administrators, do not receive adequate assistance or guidance to address technical issues they encounter while participating in online education. This lack of support can manifest in various ways and negatively impact the overall e-learning experience. Informant 4 said:

"Many times when we had to have a troubleshooting class during the holidays, but … the technical officer of the university only worked on weekdays, I had to cancel the class because the communication problem could only be solved by the university administrator."

Theme (3): Personal Challenges

Personal-level challenges refer to individual obstacles learners may face in e-learning (Kamysbayeva et al., 2021). These challenges can vary from person to person and can impact the overall learning experience.

Difficulties and Fatigue

This refers to challenges and feelings of exhaustion that learners may experience while engaging in online education. These issues can arise from various factors and have implications for the effectiveness of the learning experience. Informant 4 said:

"Unlike face-to-face classes, virtual classes require full concentration, and the biggest problem is especially in classes that were long, for example, classes that are 4-5 hours long, the audience gets tired, and classes that are crowded."

Digital Literacy Gaps

Digital literacy gaps in the context of e-learning refer to disparities in the level of proficiency and competence that individuals possess in using digital technologies and navigating online environments. These gaps can affect learners' ability to fully engage in and benefit from e-learning experiences. Informant 7 said:

"One of the other problems was that the professors did not know how to work with virtual space. Maybe it was because of their age, that the professor could not connect his voice, it would have been much better if there had been support that would called or guided him in these situations, but at the end of the 2nd or 3rd semester, they had given training to the professors to learn how to work with virtual space."

Informant 1 also stated:

"Many professors could not fully use the technology... now because they do not know and have enough expertise in this field or because they are very slow to adapt."

Financial Challenges

Financial challenges in the context of e-learning refer to difficulties and obstacles that learners may face due to economic constraints when pursuing online education. These challenges can

impact various aspects of the e-learning experience and limit access to educational opportunities. Informant 1 said:

"…financial problem is one of the obstacles, so it was completely forgotten because it was difficult to solve this problem in different aspects of work."

Informant 2 Said:'

"The internet itself was very expensive. I had my internet usage statistics and I could see that I was using a lot. During the Covid-19 pandemic, the type of teaching changed...Plus printing …It costs a lot of money for the student."

Informant 3 stated:

"The students and many lecturers did not have proper equipment. Cyberspace is an environment where you have to communicate with a laptop and tablet. If there is no internet, we cannot communicate in any way. The children also did not have a suitable phone. If it was possible, the university would have provided cheaper products. The children could make an installment, even the professors, because, without it, this education would not be possible."

Theme (4): Curricular Challenges

Tutorials, essential face-to-face interactions between e-learners and e-tutors, aim to overcome physical and psychological distance, addressing challenges in solitary learning (Kee, 2020). These sessions occur either during weekdays or weekends, depending on the university. However, numerous e-learners face obstacles to attending due to work, family commitments, cost, and inflexible schedules. For those attending, time constraints turn tutorials into intensive sessions, causing undue pressure. Some e-tutors and e-learners argue that tutorial time is sufficient if both parties diligently contribute throughout the semester.

Practical Lessons

Practical lessons in e-learning pose specific challenges due to the nature of online education, where hands-on experiences and real-world applications are often crucial for a comprehensive understanding of certain subjects. Informant 1 said:

"Most of the lessons that I teach are theory-oriented, but many colleagues and students who have to take practical lessons and be in the lab were faced with many problems in this course."

Informant 1 said:

"In the field of educational topics, there should be a difference between face-to-face and virtual education at present if it becomes virtual…It is problematic because, for example, if the courses were only theory, it would not have been different, but now part of our course is also practical."

Informant 6 said:

"Do virtually itself was discouraging and disappointing. But at that time we were able or all the difficulties that we were going to use this virtual part. Its presence is better than its absence. But unfortunately, our field was an art field. Virtual assistant … it was not and we were not satisfied with the way professors teach and interact with virtual space. It was good for public classes even now that it is a series The lessons are presented in a virtual form, we still like it, but it was annoying for specialized courses."

Informant 7 said:

"Handicrafts field it requires face-to-face training. The effective percentage for me was 10%. We had to work individually at home. We didn't see, for example, when we took the drawing course in person, we just realized how to hold a pen, maybe the children of the theory fields. They say that virtual is more useful for us, even in theory courses, the interaction between students and professors is very helpful."

Group Cooperation Lessons

Group cooperation lessons in e-learning can present unique challenges compared to traditional face-to-face settings. Collaborative learning is an integral part of many educational experiences, and when conducted online, it introduces several difficulties. Informant 2 said:

"The courses I teach are projects, students must do something in groups and class but because it was virtual and there was no access to them, it was very difficult."

Resistance to Change

Resistance to change in e-learning can be a significant hurdle, affecting both students and lecturers. The transition from traditional educational models to e-learning environments introduces new technologies, methodologies, and ways of teaching and learning. Informant 6 said:

"For example, if the lecturer did not change, the way of teaching would change very rarely, we would tell the teacher to change his teaching style. Most of the time, the teacher said that this is the only thing we can do, and since the interaction is one-way, you must be compatible."

Necessity for Guidance

Guidance in e-learning is essential to ensure a successful and meaningful educational experience for learners. Informant 8 said:

"…e-learning did not have certain standards, so we had to search on YouTube. If we knew what to search for, we wouldn't need training. We also made mistakes, and there might be questions we couldn't find answers to. In the virtual space, overall, we need someone with experience to guide us."

Theme (5): Social Challenges

Social challenges in e-learning refer to difficulties related to interpersonal interactions and community-building in online educational environments. While e-learning offers flexibility and accessibility, it also presents unique social challenges that can impact the overall learning experience.

Social Roles and Responsibilities

Social roles and responsibilities challenges in e-learning encompass difficulties related to the interactions, expectations, and ethical considerations within the online learning community. As e-learning environments lack the physical presence and dynamics of traditional classrooms, establishing and managing social roles and responsibilities can pose unique challenges. Informant 3 said:

"For instructors, especially women, who are busy at home… research activities are difficult …, and it is better to do these activities in the university. For me, both places were good. I wanted to spend the time I wanted to go back and forth at home. I was doing research."

Discussion

The results of the present mixed-method research indicate that there are no significant demographic differences in students' coping competencies in e-learning. University students often face similar challenges in e-learning, such as technology issues, time management, and adapting to a new learning environment. These challenges seem to affect all students, regardless of their demographic background. The current findings align with the results of Tabatabaei et al. (2022), who found no significant differences in terms of demographic variables in an Iranian sample.

The survey results showed that, despite the weaknesses of e-learning, students are still able to manage these problems. E-learning was viewed as an opportunity due to its low cost, increased access, and the removal of space and time limitations on learning. Maatuk et al. (2022) reported similar findings, demonstrating that, despite the challenges of e-learning, Libyan university students were also able to overcome them. However, e-learning threats did not show a significant relationship with students' coping competencies. This suggests that students do not perceive online learning as a threat. According to Ardiyanto et al. (2021), many students today have grown up in a digital era, surrounded by technology. As a result, e-learning platforms feel familiar and comfortable, leading them to see e-learning as a natural extension of their education rather than a challenge.

The qualitative findings, however, highlighted specific e-learning challenges. The first challenge is communication defects. Lin and Nguyen's (2021) findings also demonstrated that e-learning often relies on written or verbal communication through digital platforms, which can result in a loss of important non-verbal cues. This can lead to misunderstandings and a

lack of nuance in communication. Another issue identified by interviewees was technical challenges. Consistent with the findings of Almaiah et al. (2020), technical problems such as glitches, poor internet connectivity, and issues with the e-learning platform or apps can hinder effective communication. These problems disrupt the flow of information, leading to frustration and communication breakdowns, further emphasizing the need for a proper blend of face-to-face and e-learning.

In addition, personal challenges were found to hinder e-learning. Understanding these personal obstacles is essential for creating appropriate e-learning environments for teaching and learning (Mohammadyari & Singh, 2015). Another challenge of e-learning was curricular-related issues. Both academic staff and students expressed concerns that e-learning was not suitable for all types of courses. According to Milićević et al. (2021), certain practical lessons require specialized equipment or facilities that are difficult to access online. For example, science experiments, vocational training, or simulation exercises in healthcare often require physical resources that cannot be replicated in an online environment.

Finally, the results also revealed social challenges within e-learning. Unlike traditional learning, e-learning, especially when conducted in isolation, may lead to a lack of face-to-face interactions, potentially hindering the development of social skills and a sense of community. This lack of interaction can impact the overall learning experience (Marinucci et al., 2022).

Conclusion

The research results suggest that university students are receptive to e-learning and demonstrate the ability to navigate its challenges and side effects by leveraging their competencies, viewing it as a valuable opportunity. They express positive views on the acceptability and usefulness of e-learning in courses. The study suggests incorporating instructional design for the purposeful integration of face-to-face and e-learning, establishing suitable infrastructure, and empowering human resources as prerequisites for developing e-learning in universities. In conclusion, the research highlights the acceptance and challenges associated with e-learning among Iranian university students.

It is imperative to engage in scholarly discourse regarding the influence of cultural and contextual factors on the acceptance of e-learning in countries such as Iran. The distinct socio-cultural context of the country can shape students' perceptions and attitudes toward online education. A more in-depth investigation into these factors could guide the development of culturally relevant interventions in the realm of e-learning. The outcomes of this study bear significance for the formulation of educational policies in Iran. Addressing a range of issues, including cultural nuances, technological considerations, quality standards, and fostering engagement, is essential for establishing a conducive e-learning environment. These insights not only serve as a foundation for future academic inquiries but also provide valuable input for crafting policies aimed at improving the efficacy of e-learning in Iranian higher education.

Limitations and Delimitations

The study's findings must be interpreted within the context of its limitations, which may impact the generalizability of results. Firstly, the constrained sample size and the chosen sampling method limit the broader applicability of the findings. The persistent efforts to elicit questionnaire responses, including reminders, might introduce biases that need to be acknowledged. Secondly, the study's exclusive focus on university students' perspectives narrows its scope and reduces the overall comprehensiveness of the research. While providing valuable insights, the qualitative component further limits generalizability. The practical alternatives of online interviews and surveys, necessitated by the restricted sample size, further constrain the study. Additionally, focusing on students from a specific university in Tehran adds another limitation to the study's generalizability. Future research could benefit from a more diverse participant pool to enhance the external validity of the findings. Going forward, there is a need for future longitudinal studies to examine the long-term effects of e-learning on student outcomes. This approach would provide a more comprehensive understanding of the sustained impact and evolution of e-learning experiences over time.

Conflict of interest

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

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References

Abduljabbar, J. (2021). *Mixed Method: Investigation of Flow in E-Learning during the Covid-19 Pandemic from Students' and Teachers' Perspectives* [PhD Thesis, Concordia University Chicago].

Adler, R. H. (2022). Trustworthiness in Qualitative Research. *Journal of Human Lactation*, *38*(4), 598–602. https://doi.org/10.1177/08903344221116620

Aldowah, H., Al-Samarraie, H., & Ghazal, S. (2019). How course, contextual, and technological challenges are associated with instructors' challenges to successfully implement E-learning: A developing country perspective. *IEEE Access*, *7*, 48792–48806.

Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior*, *102*, 67–86.

Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, *25*(6), 5261–5280. https://doi.org/10.1007/s10639-020-10219-y

Andersson, A., & Grönlund, Å. (2009). A Conceptual Framework for E-Learning in Developing Countries: A Critical Review of Research Challenges. *The Electronic Journal of Information Systems in Developing Countries*, *38*(1), 1–16. https://doi.org/10.1002/j.1681-4835.2009.tb00271.x

Ardiyanto, J., Handayani, O. W. K., Raharjo, T. J., & Pujiastuti, R. S. E. (2021). *Does Learning Motivation Essential? Examining Readiness on Self-Directed Learning and Technology towards Cognitive Presence*. *7*(1), 788–792. https://proceeding.unnes.ac.id/index.php/ISET/article/view/2046

Braun, V., & Clarke, V. (2021). Thematic analysis. *Analysing Qualitative Data in Psychology. London: Sage Publications Ltd*, 128–47.

Chelliq, I., Anoir, L., Erradi, M., & Khaldi, M. (2023). Transition from Face-to-Face to E-Learning and Pedagogical Model. In *Emerging Trends and Historical Perspectives Surrounding Digital Transformation in Education: Achieving Open and Blended Learning Environments* (pp. 52–77). IGI Global.

Cochran, W. G. (1977). The estimation of sample size. *Sampling Techniques*, *3*, 72–90.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Elumalai, K. V., Sankar, J. P., Kalaichelvi, R., John, J. A., Menon, N., Alqahtani, M. S. M., & Abumelha, M. A. (2021). Factors affecting the quality of e-learning during the COVID-19 pandemic from the perspective of higher education students. In *COVID-19 and Education: Learning and Teaching in a Pandemic-Constrained Environment* (Vol. 189). Santa Rosa, CA.

Fülöp, M. T., Breaz, T. O., Topor, I. D., Ionescu, C. A., & Dragolea, L.-L. (2023). Challenges and perceptions of e-learning for educational sustainability in the "new normality era." *Frontiers in Psychology*, *14*, 1104633.

Islam, N., Beer, M., & Slack, F. (2015). E-learning challenges faced by academics in higher education. *Journal of Education and Training Studies*, *3*(5), 102–112.

Kamysbayeva, A., Koryakov, A., Garnova, N., Glushkov, S., & Klimenkova, S. (2021). E-learning challenge studying the COVID-19 pandemic. *International Journal of Educational Management*, *35*(7), 1492–1503.

Kaufmann, R., & Vallade, J. I. (2022). Exploring connections in the online learning environment: Student perceptions of rapport, climate, and loneliness. *Interactive Learning Environments*, *30*(10), 1794–1808.

Kee, C. L. (2020). Face-to-Face Tutorial, Learning Management System and WhatsApp Group: How Digital Immigrants Interact and Engage in E-Learning?. *Malaysian Online Journal of Educational Technology*, *8*(1), 18–35.

Khan, B. H., Affouneh, S., Hussein Salha, S., & Najee Khlaif, Z. (2021). *Challenges and Opportunities for the Global Implementation of E-learning Frameworks*. IGI Global.

Koh, J. H. L., & Kan, R. Y. P. (2021). Students' use of learning management systems and desired e-learning experiences: Are they ready for next generation digital learning environments? *Higher Education Research & Development*, *40*(5), 995–1010.

Lin, Y., & Nguyen, H. (2021). International students' perspectives on e-learning during COVID-19 in higher education in Australia: A study of an Asian student. *Electronic Journal of E-Learning*, *19*(4), 241–251.

Maatuk, A. M., Elberkawi, E. K., Aljawarneh, S., Rashaideh, H., & Alharbi, H. (2022). The COVID-19 pandemic and E-learning: Challenges and opportunities from the perspective of students and instructors. *Journal of Computing in Higher Education*, *34*(1), 21–38.

Marinucci, M., Pancani, L., Aureli, N., & Riva, P. (2022). Online social connections as surrogates of face-to-face interactions: A longitudinal study under Covid-19 isolation. *Computers in Human Behavior*, *128*, 107102.

Mehrpouyan, A. (2023). Enhancing online English language and literature classrooms: Effective and practical teaching strategies. *Education and Information Technologies*, *28*(4), 4127–4141.

Milićević, V., Denić, N., Milićević, Z., Arsić, L., Spasić-Stojković, M., Petković, D., Stojanović, J., Krkic, M., Milovančević, N. S., & Jovanović, A. (2021). E-learning perspectives in higher education institutions. *Technological Forecasting and Social Change*, *166*, 120618.

Mohammadyari, S., & Singh, H. (2015). Understanding the effect of e-learning on individual performance: The role of digital literacy. *Computers & Education*, *82*, 11–25.

Nouraey, P., Bavali, M., & Behjat, F. (2023). E-Learning in the Context of English Language Teaching and Learning: An Exploratory Sequential Mixed Methods Approach. *Journal of Studies in Learning and Teaching English*, *12*(4), 55–73.

Ratnawati, N., & Idris, I. (2020). Improving student capabilities through research-based learning innovation on e-learning system. *International Journal of Emerging Technologies in Learning (IJET)*, *15*(4), 195–205.

Shahmoradi, L., Changizi, V., Mehraeen, E., Bashiri, A., Jannat, B., & Hosseini, M. (2018). The challenges of E-learning system: Higher educational institutions perspective. *Journal of Education and Health Promotion*, *7*, 1–6.

Strauss, A. L., & Corbin, J. (2014). *Basics of qualitative research* (4th ed.). Sage.

Tabatabaei, S. H., Mirzaiean, A., & Keshmiri, F. (2022). Opportunities and threats of e-learning in dental education in viewpoints of faculty members: A Mixed method study. *Dental Research Journal*, *19*, 1–12.

Tomczyk, Ł., Potyrała, K., Włoch, A., Wnęk-Gozdek, J., & Demeshkant, N. (2020). Evaluation of the functionality of a new e-learning platform vs. Previous experiences in e-learning and the self-assessment of own digital literacy. *Sustainability*, *12*(23), 10219.

Turnbull, D., Chugh, R., & Luck, J. (2021). Transitioning to E-Learning during the COVID-19 pandemic: How have Higher Education Institutions responded to the challenge? *Education and Information Technologies*, *26*(5), 6401–6419. https://doi.org/10.1007/s10639-021-10633-w

Wu, L., Hsieh, P.-J., & Wu, S.-M. (2022). Developing effective e-learning environments through e-learning use mediating technology affordance and constructivist learning aspects for performance impacts: Moderator of learner involvement. *The Internet and Higher Education*, *55*, 100871.

Young, L. E., & Paterson, B. L. (2007). *Teaching nursing: Developing a student-centered learning environment*. Lippincott Williams & Wilkins.

Zanin, M., Xiao, C., Liang, T., Ling, S., Zhao, F., Huang, Z., Lin, F., Lin, X., Jiang, Z., & Wong, S.-S. (2020). The public health response to the COVID-19 outbreak in mainland China: A narrative review. *Journal of Thoracic Disease*, *12*(8), 4434–4449.

Zarei, S., & Mohammadi, S. (2022). Challenges of higher education related to e-learning in developing countries during COVID-19 spread: A review of the perspectives of students, instructors, policymakers, and ICT experts. *Environmental Science and Pollution Research*, *29*(57), 85562–85568.

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