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Research Paper

## Investigating the Integration of E-Learning in Higher Education: Challenges and Opportunities Through the Eyes of German vs. Iranian Students

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### Abstract

The present study explored the challenges and opportunities of integrating e-learning in teaching and learning English as a Foreign Language (TEFL). It employed a cross-cultural study through a concurrent mixed-methods research paradigm to investigate the perceptions of 58 German and 146 Iranian EFL students in two educational settings based on convenience sampling. The data collection methods were (a) administering two researcher-made questionnaires on the challenges and opportunities of integrating e-learning via Google Forms, (b) conducting semi-structured interviews with volunteer participants in Germany and Iran, either in person or via online platforms like Zoom, and (c) observing some classes by one of the authors to compare students' behaviours and feedbacks in both onsite and online settings. Triangulation of these three methods was employed to enhance the validity of the methodology and findings. The data collected through different methods supported each other, showing that German and Iranian students recognised challenges and opportunities in different academic, technological, and administrative domains. The findings highlighted cross-cultural differences in the perceptions of both groups, showing that Iranian students typically considered greater opportunities in areas such as creativity, interaction with instructors, improved technological skills, higher motivation, and participation. At the same time, Germans were more appreciative of access to applications and software and showed higher significance in organisational aspects and autonomy. The findings of this study have implications for policy-makers in promoting e-learning techniques and strategies to match the needs of the new generation of learners.

**Keywords:** Challenges; Cross-Cultural Study; Higher Education; E-Learning Integration; Iranian EFL Learners; Language Education; Opportunities.

### 1. Introduction

With the rapid progress in technology, teaching methods, and reliance on electronic devices such as smartphones, tablets, laptops, and PCs, electronic learning (e-learning) has revolutionized educational settings worldwide. Accordingly, e-learning and online teaching have become essential to higher education, similar to other contexts. E-learning, defined as the use of digital devices to enhance learning and teaching methods, has gradually gained the attention of both educators and learners. For instance, Osadcha et al. (2023) reported that approximately one-third of individuals in the European Union aged 16-74 had completed a virtual course or utilized online resources in 2021. E-learning tools and digital technologies have also enabled universities to enrol more diverse students from different countries (Alyouseff, 2023). However, e-learning integration has created many challenges and opportunities for teachers, students, and administrators.

Since e-learning is ever-evolving, the need to adapt an innovative and effective method of delivering materials and courses in educational contexts to meet the needs of the new generation of learners and teachers has increased. The present study explored the integration of e-learning in higher education by focusing on the challenges and opportunities of utilising e-learning in teaching and learning English as a Foreign Language (TEFL) in two English departments in Germany and Iran. Cross-cultural comparison of perceptions and viewpoints of the students in the two educational settings



through the distinct regulations, cultural, and academic features could enhance understanding of e-learning integration in TEFL and help to develop contextually tailored policies and tactics to improve learning and teaching in the two contexts. It could also provide information at micro and macro levels for the teachers and educators, as well as policy-makers, professional developers, and syllabus designers, to adopt and promote e-learning in EFL institutions.

A cross-cultural perspective on TEFL and educational settings can reveal how different contexts influence the adaptation of e-learning based on institutional frameworks, protocols, approaches, and cultural standards. It could highlight how cultural norms, attitudes towards technology, and educational practices affect e-learning integration. Cross-cultural comparisons could also support the exchange of best practices to promote global cooperation, expertise, and collaboration in academic settings and develop educational outcomes.

## 2. Literature Review

The definition of e-learning varies by context; for example, Wheeler (2012) perceives it as learning through electronic media, while Arkorful and Abaidoo (2015) emphasise Information and Communication Technology (ICT) for online learning, and Clark and Mayer (2023) define it as instruction via digital devices. E-learning involves using digital tools and the Internet to provide educational materials and support learning processes beyond conventional classes. However, in the field of English as a Foreign Language (EFL), it refers to the utilisation of technology, digital sources, interactive sites and platforms, virtual classrooms and programmes, and Computer-Assisted Language learning (CALL) to teach English (Zakarneh, 2018).

### 2.1. Historical Background of E-learning in Germany and Iran

The evolution of e-learning was initiated in the 1960s by the emergence of newly introduced computer-based instructions and developed afterwards due to the emergence of the Internet and web-based developments (Corbeil & Corbeil, 2015). The rapid progress and modification in the Internet and the delivery of materials by multimedia software and tools, as well as platforms such as Learning Management Systems (LMS), have changed many students and teachers' learning and teaching experiences. As Alone (2017) stated, different educational organisations worldwide have adopted e-learning integration, including virtual classrooms, LMS, interactive lessons, online materials, and sources to meet the needs of the new generation. Integration of e-learning in German higher education has evolved gradually, influenced by educational paradigm shifts and technological advancements (Hesse et al., 2022). While the origin dates back to the 1970s-80s, significant progress started in the early 2000s with the rise of digital technologies and government support for university innovations (Bond et al., 2018; Sagafe & Wendebon, 2023). Universities started using digital tools and LMS to offer online courses, enhancing the learning experience and promoting access, creativity, and innovation in teaching (Zawacki-Richter, 2021). Today, e-learning remains integral to German higher education, addressing the diverse needs of learners in a digital landscape, though challenges remain.

The e-learning integration in the Iranian educational context began in the 2000s and gained importance when the government launched the National E-learning Project in 2003 to modernize the country's educational system (Yaghoubi et al., 2008). In 2004, the government started funding some universities, and the National Programme on Technology Enhanced Learning (NPTEL) was introduced (Omidinia et al., 2011). The same year, the E-campus of IAU was established to provide accessible online education to all students across Iran. With governmental support in recognising the potential of e-learning to overcome geographical barriers to reach a broader student population, many universities started developing infrastructure, training educators, and creating virtual platforms and digital content. However, as Mahmoodi-Shahreabaki and Yaghoubi-Notash (2014) claimed, despite significant investments, time, energy, and resources from private and governmental institutions, e-learning in Iran is still in the developmental stages. With the onset of the COVID-19 pandemic, like Germany and other countries, Iranian universities had to change to online systems and enhance their infrastructure to employ e-learning. They continue to actively invest in and improve their infrastructure and utilisation of technology to advance e-learning initiatives further.

### 2.2. Theoretical Background

This study borrowed some theories as its theoretical background. The Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) were the main theories employed as the theoretical background of this study (Davis, 1989; Venkatesh et al., 2003) emphasising factors affecting individuals'

acceptance, perceptions, attitudes, and utilisation of new technologies and integrating supplementary factors such as social influence and facilitating conditions. They emphasise different aspects, including learner-centredness, environmental differences, personal factors, acceptance, and students' attitudes towards adopting e-learning.

### 2.3. Challenges and Opportunities of Integration of E-learning in Higher Education

The review of the relevant literature on challenges of e-learning integration in higher education presented a variety of topics, including technological deficiencies, infrastructural problems, bandwidth, Internet speed or connectivity, and compatibility challenges (Karimi et al., 2023; Zhang et al., 2020), security and privacy issues (Baldock et al., 2021). Challenges regarding faculty resistance to e-learning due to many reasons, such as workload, inadequate ICT skills, and complications or unfamiliarity with using some e-learning software and job security have received attention from many scholars (e.g., Dashtestani & Hojatpanah, 2020; Kim, 2021). Another topic investigated in the literature is providing professional development by offering workshops, courses, and technical and infrastructural support for learners and educators (Karimi et al., 2023; Zawacki-Richter, 2021). Assessment integrity and coping with quality assurance in avoidance of cheating and plagiarism to provide consistent standards for teachers and students are also challenging (Elzainy et al., 2020). Other challenges are designing effective and efficient online learning experiences, content presentations, course structures, and pedagogical and interactive designs (Barton & Dexter, 2020; Okoye et al., 2022). Addressing the diverse learning needs in an online environment and providing digital content with the inclusion of students' needs could also be challenging (Oktoma et al., 2023).

Finally, sociocultural and institutional factors, socioeconomic inequalities in access to the Internet and technology, an organisational culture, resistance to change, and the digital divide are all challenging issues. Educational policies and regulations can impose limitations and boundaries on e-learning integration (Mahmoudi-Dehaki et al., 2021). Addressing the challenges requires a multi-sided approach that needs faculty and administration support, technological investments, pedagogical innovation, quality assurance mechanisms, and attention to sociocultural and institutional contexts.

The review of related literature on opportunities for e-learning integration in higher education also emphasised different features and topics, including availability, flexibility, and enhanced learning experiences. As suggested by Ufuophu-Biri and Ijeh (2021), e-learning supports adaptive learning because it allows learners from different geographical backgrounds or with disability-related barriers to adopt online personalised learning. It provides flexibility regarding access at any time and anywhere and helps the students balance their commitments at personal or academic levels (Vanslambrouck et al., 2018). It also offers learning opportunities by providing collaborative networks, multimedia materials, and resources. Moreover, e-learning reduces infrastructure expenses and is cost-effective (Omidinia et al., 2021).

E-learning also provides internationalisation opportunities and expands global access. It facilitates increasing educational access beyond conventional restrictions, allowing institutions to reach international audiences, cross-border collaboration, and knowledge exchange. Literature also presents studies such as Alcaraz-Mármol (2020) and Lima et al. (2020), which emphasise the need of some learners for life-long learning by addressing global citizenship. E-learning facilitates extending educational access beyond conventional boundaries, letting universities reach international students. It could provide the opportunity for universities to employ innovative pedagogy and authentic, creative assessment through online or blended teaching by merging online and onsite teaching and enhancing learning competence and performance (García Laborda et al., 2024; Taghizadeh & Hajhosseini, 2021; Ortega et al., 2023; Vanslambrouck et al., 2018). It could boost deeper learning by employing innovative, alternative, and authentic assessment methods like e-portfolios, e-journals, and online project-based evaluation (Masaeli & Chalak, 2016; Torabi & Safdari, 2020). These methods with real-world contexts are more familiar to the new generation and could benefit educational systems. Finally, e-learning could empower individuals to upgrade their skills and traits to help professional development at preservice and in-service sections. It could help both teachers and learners to empower themselves through personalised online education and lead to educational quality and lifelong learning (Arrosagaray & Urreizti, 2024; Bobkina & Domínguez Romero, 2023.; Lim et al., 2024).

## 2.4. Empirical Studies on E-learning Integration

The integration of e-learning in higher education has been extensively studied across various topics, fields, and countries, emphasizing its importance and multifaceted role. During the Covid-19 Pandemic and after that, many studies investigated the attitudes and perceptions of teachers and students regarding opportunities, challenges, and effectiveness of e-learning (Aali et al., 2020; Arora & Chauhan, 2021; Chalak & Mair, 2024; Fonseca et al., 2023; Masalimova et al., 2024). Moreover, sociocultural and cross-cultural factors have been investigated to explore how institutional cultures and cultural norms might affect e-learning adoption by learners and students and at the macro level by policy-makers or society. Organisational change management processes are crucial for e-learning implementation in higher education, emphasising strategies to cultivate an innovative and collaborative culture (Kanno, 2020; Riwayatiningsih & Sulistyani, 2020). Such studies have highlighted the role of interdisciplinary collaboration in integrating e-learning across academic departments. They focus on how online collaborative platforms could foster peer support and knowledge exchange (Hariri Asl et al., 2021).

Other studies such as (Mahmoudi-Dehaki et al., 2021; Ufuophu-Biri & Ijeh, 2021; and Žmuk et al., 2023) have focused on socioeconomic factors and the place of digital nativity and digital immigration in Internet accessibility and acceptance by students and teachers. They have proposed strategies to bridge the digital divide, promoting equitable e-learning participation by addressing digital equity even for students with disabilities. It is important to provide training courses for educators who are mainly digital immigrants to gain e-skills and e-literacy in a bias-free environment without being judged by the younger generation and digital natives (Mahmoudi-Dehaki et al., 2021; Bannister, 2024). The importance of collaborative learning and interdisciplinary partnership to promote knowledge and cooperative learning through CALL, new tools, or media has also been investigated and suggested as a solution for realising virtual learning environments (Bocanegra-Valle, 2023; Hariri Asl et al., 2021).

Literature has also concentrated on faculty professional development, their resistance towards digital learning, technology adaptation and training, and the support necessary to adopt e-learning technologies. They emphasise the factors affecting teachers' resistance to adopting e-learning, such as workload and quality concerns (Putro et al., 2023; Rahim & Chandran, 2021). Rafiee and Abbasian-Naghneh (2021) focused on students' readiness by identifying the factors affecting EFL students' e-learning acceptance and readiness. In a similar vein, studies such as Taghizadeh and Hajhosseini (2021) and Yawson and Yamoah (2020) focused on student engagement, motivation, satisfaction, readiness, and preparedness for e-learning. They used a multi-generational cohort perspective to identify the students' satisfaction regarding e-learning integration.

The studies on e-learning integration are not limited to the challenges. Opportunities and effectiveness of e-learning integration in higher education and professional development have also received attention. Areas such as accessibility of digital tools, platforms, and sources for everyone, including students with disabilities and different learning needs, or e-learning, have attracted attention (Badi & Noor, 2024; Fenta et al., 2023; Kim, 2021). According to Fenta et al. (2023), utilising assisted technologies for students with disabilities or special needs at universities is highly recommended, and institutional policies and new legislation could provide an equal chance of education for everyone, leading to an inclusive education.

Moreover, some studies have focused on new trends by highlighting the importance of utilizing virtual reality or augmented reality, internationalisation through virtual team collaboration, and the use of artificial intelligence to promote the effectiveness and acceptance of e-learning integration at the global level (Heidkamp & Kergel, 2018). Strategies to enhance student motivation and engagement, such as gamification and personalised learning along with students' digital literacy or access to technology, have also been investigated (Chalak & Ahmadi, 2017; Dashtestani & Hojatpanah, 2020; Panahandeh & Chalak, 2022; Lima et al., 2020). These studies have suggested that the utilisation of gamification is an effective method to improve students' learning performances and promote their digital literacy.

Furthermore, the role of digital learning and virtual content in supporting lifelong learning and continuing education has also been studied. For example, Jafary et al. (2024) have emphasised that appropriate pedagogical design and professional teacher training programmes could be effective lifelong instructional strategies for helping educators to promote their skills through e-learning platforms. These studies, in line with other studies, such as (Sagafe & Wendebon, 2023; Rafiee & Abbasian-Naghneh, 2021), have shown that acceptance of e-learning at universities also depends on governmental, institutional, and societal policies. The resistance of the older generation of teachers and administrators to

adopt and accept e-learning, along with the lack of enough technical support systems at universities, are debilitating factors demanding modification in bureaucracy and regulations at universities.

Finally, the integration of e-learning has brought attention to other issues, such as ethical issues and legal considerations, digital equity, academic integrity, as well as privacy and sociocultural concerns. Research studies have mainly focused on ethics related to data security collected from human sources, student privacy rights while publishing data, and ethical concerns (Ali & Zafar, 2017; Kim, 2021; Joseph et al., 2021). Due to its importance, legal considerations and ethical issues in designing a security and privacy framework for e-learning have also been emphasized. For example, Kim (2021) focused on motivators and concerns for e-learning regarding confidentiality and consent in using students' data for research, assessment, and statistical purposes.

In Germany, the integration of e-learning in education has received enough attention, reflecting the country's investments in technology and digital training in higher education. Many studies have scrutinized the effect of e-learning on teaching and learning practices, student engagement, satisfaction, and institutional readiness (Heidkamp & Kergel, 2018; Osadcha et al., 2023; Sagafe & Wendebon, 2023; Stolz, 2023; Zawacki-Richter, 2021). For example, Sagafe and Wendebon (2023) questioned the importance of e-learning as a tool for sustainable education in Germany and, through an in-depth quality analysis, investigated the effectiveness of tools and projects. They criticised the overall benefit of teacher training e-programmes in education as being rather low. Osadcha et al. (2023) conducted a content review analysis of research publications on e-learning in German higher education and showed that during the COVID-19 pandemic, there was a lot of interest in e-learning in the years 2019 and 2020, but there was an immediate decline during 2021 and 2023. Their study also showed that mobile applications, multimedia technologies, MOOCs, LMS, virtual platforms, laboratories, technologies, online courses, and simulations were the most commonly used tools at German universities.

However, in spite of the importance and investments in digital education in Germany, not everyone has welcomed the integration of digital technology, and there has always been an intense debate over utility and potential health effects, such as WLAN installation in educational settings. According to Kerres (2020), although Germany is very innovative in technological advancements in different fields, the educational system is lagging in the utilisation of digital technology for learning and teaching. Germany proudly has the world's possibly strictest privacy and information protection legislation. Its strict privacy laws, rooted in cultural and historical contexts, shape Germany's cautious approach to technology use in education. For Germans, misuse of information is not an imagined danger, but it is a vivid experience reported by older generations. For example, strict privacy standards prohibit German teachers from using certain social platforms, cloud services, and software hosted outside the European Union (EU). To observe EU data protection protocols, German universities have developed systems such as HIS University Information System.

E-learning integration in Iranian higher education has also received significant attention, reflecting its growing importance in Iranian educational contexts and research (Abbasi Kasani et al., 2020; Mahmoodi-Shahrehabaki & Yaghoubi-Notash, 2014; Mahmoudi-Dehaki et al., 2021; Omidinia et al., 2011; Yaghoubi et al., 2008). The variety of subjects in the area and the number of the study reflect Iranian investments in digital education. Abbasi Kasani et al. (2020) investigated the challenges of the Iranian e-learning system through a qualitative method. They identified some e-learning problems in the economic, educational, human, managerial-organizational, legal, technological, sociocultural, and support dimensions. Vahdani Asadi et al. (2023) focused on the effectiveness of e-learning platforms and courses in Iranian higher education institutions. They examined factors such as student satisfaction, engagement, and academic performance. Aali et al. (2020) investigated the readiness of universities and educators to adopt e-learning methodologies, assessing their technological competencies, attitudes, and training needs. Rafiee and Abbasian-Naghneh (2021) and Bocanegra-Valle (2023) investigated different aspects of e-learning integration, including its impact on education or promotion of some skills, effectiveness, challenges and opportunities, accessibility, and perceptions. Furthermore, the role of culture and governmental policies in the acceptance and application of e-learning at Iranian universities (Abbasi Kasani et al., 2020; Derakhshan & Shakki, 2024; Mahmoodi-Shahrehabaki & Yaghoubi-Notash, 2014) emphasise that despite significant governmental investments, e-learning in Iran is still in the developmental stages.

In conclusion, the extensive studies on different topics related to e-learning integration in higher education reflect the importance of digital education globally and specifically for both countries under investigation. This literature review tried to present some of the main topics explored in the literature to emphasise the cross-cultural nature of the study. It scrutinised the pedagogical approaches, tools, platforms, challenges, and opportunities of e-learning integration in higher



education in Germany and Iran to shed light on cultural, technological, and pedagogical factors influencing the successful implementation of e-learning from EFL students' lens. Based on the objectives of the study, the following research questions were posed:

1. What are the challenges of e-learning integration in higher education as perceived by German and Iranian students?
2. What are the opportunities for integrating e-learning in higher education as perceived by German and Iranian students?
3. To what extent can cross-cultural differences be observed in the students' perspectives about the challenges and opportunities of e-learning integration in higher education?

### 3. Methodology

#### 3.1. Design and Context of the Study

This study employed a Convergent Parallel Type concurrent mixed-methods research paradigm for investigating the perspectives of GSs vs. ISs towards e-learning integration in higher education. The study was conducted in the English Department of Albert Ludwig University, Freiburg, Germany, and the English Department of Islamic Azad University (IAU), Isfahan (Khorasgan) Branch, Iran. The reasons for choosing these two particular settings were because of availability and convenience. The researchers were faculty members of these universities, and it was more convenient to distribute the questionnaires, interview the participants, or observe some classes. The study duration was six months, from December 2023 to May 2024.

#### 3.2. Participants

The population was divided into two groups: German students (GSs) and Iranian students (ISs), and the target population was selected based on availability and convenience sampling selected from the English departments of the two universities. GSs consisted of 58 EFL students (46 females and 12 males) aged 18-48, living in Freiburg and completing their BA, MA, or PhD programmes. The second group consisted of 146 ISs (108 females and 38 males) aged 19-57, majoring in English studies at different levels. Their experience in teaching was not checked, although some students, especially PhD candidates, had experience in teaching even at the university level. Because at the time of the study, they were mainly students and only some were part-time teachers, they were asked to answer only student questionnaires. Table 1 presents their age range, proficiency level, and demographic background.

Table 1. *Demographic Background of the German and Iranian Students*

Features		German Students		Iranian Students	
Percentage/Frequency		F	P %	F	P %
Level of Proficiency	N	4	6.9	0	0
	NN Intermediate	4	6.9	58	58.9
	NN Advanced	50	86.2	86	39.7
	NN Beginner	0	0	2	1.4
Gender	F	46	79.3	108	74
	M	12	20.7	38	26
Native Languages	Persian	----	----	141	96.5
	Armenian	----	----	2	1.4
	English	----	----	1	0.7
	Arabic	2	3.4	2	1.4
	German	34		----	----
	French	2	3.4	----	----
	Polish	2	3.4	----	----
	Ukrainian	2	3.4	----	----
	Spanish	2	3.4	----	----
	German-English	4	6.9	----	----
	German-Polish	2	3.4	----	----
German-Spanish	2	3.4	----	----	

	Ukrainian-Russian	2	3.4	----	----
	German-French	2	3.4	----	----
	Romanian-Russian	2	3.4	----	----
Programme Level	BA	46	79.3	58	39.7
	MA	12	20.7	52	35.6
	PhD	----	----	36	24.7
Country of Residence	Iran	----	----	144	98.6
	Iraq	----	----	2	1.4
	Germany	54	93.1	----	----
	Germany-UK	2	3.4	----	----
	France	2	3.4	----	----
Age Range		18-48		19-57	
Total		58		146	

It is important to note that participation in the study was entirely optional, and participants had the freedom to decline to complete questionnaires or answer interview questions at any point, resulting in their exclusion from the study. They were assured that their privacy would be protected and no personal information would be published. The differences in the number of GSs and ISs were due to two reasons: First, this Iranian university typically had a larger student population. Second, the participation rate among ISs was higher, possibly because of personal acquaintance with one of the authors, resulting in their immediate participation without additional encouragement. However, some students did not respond to or complete both questionnaires and were excluded from the dataset and the final statistical analysis. Most participants in both contexts were females because the predominant gender in the English departments of both universities was female, which does not reflect a bias towards female participation in the project.

### 3.3. Instruments

Three data collection methods were employed to explore GSs and ISs' perceptions towards integrating e-learning in higher education. These methods included (a) administering two questionnaires on the challenges and opportunities of e-learning integration via parallel Google Forms, (b) conducting semi-structured interviews with volunteer participants in both countries, either in person or via online platforms like Zoom, and (c) observing some classes by one of the authors to compare students' behaviours and feedbacks in both onsite and online settings. Triangulation of these three methods was employed to enhance the validity of the methodology and findings. The questionnaires consisted of three domains: (a) academic, (b) technological, and (c) administrative. Descriptive statistics, including mean scores, standard deviations, frequencies, and percentages, were utilised to provide a comprehensive overview of the data.

The questions for the questionnaires and interviews were meticulously created following an extensive review of relevant literature and a systematic examination of methods, instruments, and topics. Their linguistic complexities and content validity were also evaluated through expert opinions received from two university colleagues involved in online teaching. Opinions were collected and merged in the final draft. Then, a pilot study was conducted with a small group of volunteers. If further revisions were needed, they were incorporated, and the questionnaires were prepared in four Google Forms for GSs and ISs.

### 3.4. Data Collection and Analysis Procedures

Initial meetings were arranged with the administrative office of the English Department to collect data from the students at Albert Ludwig University of Freiburg and secure ethical issues and considerations. Then, arrangements were made with the university teachers and teaching staff to request permission to ask their students to participate in the interview and complete the questionnaires. Students received the questionnaires through their emails, and volunteers answered them. Moreover, volunteer students were invited to schedule interview times through Doodle (<http://doodle.com/en>) with options for either Zoom meetings (<https://zoom.us>) or face-to-face interviews. Additionally, one of the researchers attended some of the classes to observe students' behaviours in online and onsite classes. Most students favoured online interviews; permission was obtained to record only their voices, which were later transcribed using the Otter.ai (<https://otter.ai/>) application to identify the responses. The transcriptions were cross-checked to correct any probable errors or differences, and responses were used to discuss the findings.

As previously stated, students' consent was ensured, and the questionnaires did not request names or personal identifiers to address ethical considerations. Instead, they were prompted to provide background information such as age, gender, native language, and email addresses. Missing or incomplete questionnaires were excluded from the final analysis. To ensure the reproducibility and stability of the coding schemes and in order to minimise potential biases, a dual-check method of intra/rater-inter/rater reliabilities was employed by two raters, including the researcher and an experienced university professor. Cronbach's Alpha was used to compute both inter-rater ( $\alpha = 0.94$ ) and intra-rater reliability ( $\alpha = 0.97$ ) coefficients, demonstrating statistical significance at  $p \leq 0.000$ . The Mann-Whitney- U test was employed to compare the distributions of responses by GSs and ISs for each question. The domains of challenges and opportunities were presented, and the statistics were tabulated (Tables 2-7) accordingly. Tables report the conventional significance thresholds at levels of  $p < 0.05$  (\*),  $p < 0.005$  (\*\*), and  $p < 0.001$  (\*\*\*) and show similarities and differences in the GSs and ISs' perspectives on e-learning integration and adoption cross-culturally.

#### 4. Results

This study investigated the perspectives of GSs and ISs regarding the integration of e-learning in higher education through questionnaires, interviews, and observations. Tables 2-4 compare GSs vs. ISs' perspectives on domains of challenges. Table 2 illustrates academic challenges by showing that both groups agreed that online teaching was not suitable for practical subjects (Q 14). They reported similar challenges regarding unsuitable home environments, with slightly more variation among ISs (Q 5). Meanwhile, GSs were more concerned about limited direct interactions; ISs showed more variability in their responses (Q 11). ISs found the lack of body language, insufficient feedback, active participation, and difficulty with online exams more challenging than GSs (Q 4). They also rated the lack of feedback higher, showing more consistency in responses (Q 7). They supported the idea more than GSs that not all students participate actively in class, and only a few students dominate interactions (Q 15). Although ISs found online exams and tasks more difficult than GSs, the variation was almost similar in the two groups (Q 16). Generally, ISs received higher mean values for academic challenges, showing that they observed more challenges in their universities.

Table 2. *German vs. Iranian Students' Perspectives on Academic Challenges*

No	Academic Challenges	German		Iranian		Sig.	
		Mean	St Deviation	Mean	St Deviation		
4	The lack of body language in virtual communication makes it difficult to understand a teacher's or student's tones and intentions accurately.	2.93	1.28	3.79	1.10	2.15E	***
5	The online environment at home might not be suitable for learning (because of the presence of children or family).	3.79	1.03	3.70	1.11	0.61	n.s.
7	Insufficient feedback from instructors or peers in online settings is a challenge.	3.38	1.19	3.74	0.94	0.06	n.s.
11	Online teaching limits the direct interaction among students and teaching staff.	4.21	0.96	3.86	1.09	0.03	*
14	Online teaching is not suitable for practical subjects.	4.17	0.95	4.07	1.13	0.76	n.s.
15	Not all the students participate actively in class (a few students dominate class interactions).	4.00	1.20	4.29	0.88	0.21	n.s.
16	Taking online exams and doing tasks are difficult.	2.59	1.03	3.49	1.11	6.12	***

As Table 3 shows, both groups found inadequate ICT infrastructure challenging, but for ISs, it was a slightly more prominent issue. Both groups reported similar levels of technical problems, with ISs showing slightly less variability. Both groups felt that too much time was spent on devices, with similar mean values and slightly less variability among ISs. They also reported similar complications with e-learning software, with marginally more variability among ISs. Both groups found the need to purchase equipment to be a significant issue, with ISs rating it slightly higher and showing more variability. They also had similar perceptions regarding the inadequacy of teachers' ICT skills, with slightly more variability among ISs, indicating that they were more dissatisfied with the teachers' ICT skills. With regard to Internet access and cost, ISs reported more significant problems. For them, cyber threats, decreased privacy, and excessive use of equipment were more problematic. Generally, ISs highlighted more technological challenges.



Table 3. *German vs. Iranian Students' Perspectives on Technological Challenges*

No	Technological Challenges	German		Iranian		Sig.
		Mean	St Deviation	Mean	St Deviation	
1	There are sometimes problems with Internet access.	3.48	1.25	4.38	0.80	3.45E ***
2	Inadequate ICT and E-learning infrastructure are always challenges for students and teachers	3.59	0.93	4.03	0.95	0.001 **
3	There are sometimes technical problems on the part of the teachers or students.	4.03	0.96	4.05	0.77	0.72 n.s.
6	The amount of time spent in front of a computer, smartphone, or other devices is too much.	3.76	1.12	3.88	1.03	0.52 n.s.
9	The cost of electricity and the Internet is high.	2.83	1.18	3.77	1.28	3.07E ***
10	Students' excessive use of their own technical equipment for learning is an issue.	2.72	1.34	3.56	0.96	1.81E ***
12	There might be complications in using some e-learning software.	3.90	0.80	3.86	0.90	0.89 n.s.
13	Learners' need to purchase equipment (a computer, laptop, smartphone, headphone, microphone, etc.) for their online learning is a big issue.	3.48	1.00	3.84	1.15	0.02 *
17	Teachers' knowledge of ICT skills or experience is inadequate.	3.28	0.94	3.38	1.03	0.56 n.s.
20	There are always cyber threats and decreased privacy.	3.03	0.96	3.42	1.10	0.008 **

Table 4 summarises the comparison of the perceptions of the two groups regarding administrative challenges. ISs reported a greater lack of administrative support for home access than GSs, but the variability in responses was higher among GSs. Both groups found the training courses provided by their institutions insufficient, but ISs rated them slightly higher. However, the variability was similar between the two.

Table 4. *German vs. Iranian Students' Perspectives on Administrative Challenges*

No	Administrative Challenges	German		Iranian		Sig.
		Mean	St Deviation	Mean	St Deviation	
8	There is not enough technology and administrative support required for home access.	2.72	1.26	3.62	1.03	3.74E ***
18	Training courses provided by the administration and the institution for the users are not enough.	3.31	0.88	3.68	0.99	0.007 **
19	Some administrative or teaching staff resist and have negative attitudes towards e-learning.	3.72	1.20	4.04	0.82	0.18 n.s.

Regarding resistance and negative attitudes towards e-learning, ISs perceived a higher level of resistance and negative attitudes towards e-learning from administrative or teaching staff than GSs. Overall, ISs reported higher mean values for all administrative challenges.

Table 5. *German vs. Iranian Students' Perspectives on Academic Opportunities in E-Learning*

No	Academic Opportunities	German		Iranian		Sig.
		Mean	St Deviation	Mean	St Deviation	
1	Online teaching makes it possible to learn from anywhere at any time (Flexibility in terms of time and location).	4.52	0.91	4.58	0.97	0.42 n.s.
2	It provides access to a variety of learning content and materials.	4.33	0.76	4.30	1.15	0.31 n.s.
4	It provides opportunities for recording and storing lectures for reviewing.	4.72	0.54	4.55	0.84	0.56 n.s.
5	It provides a more comfortable environment for some students (esp. introverts) to communicate	3.86	1.16	4.05	0.90	0.06 n.s.

6	It promotes positive attitudes towards learning and increases motivation.	2.41	1.31	3.52	1.01	9.41E	***
9	It increases the learner's effectiveness and engagement in activities.	2.21	1.27	3.16	1.04	0.000	***
11	Teachers can organise a library of sources and materials into online folders to share with different groups and students.	4.83	0.38	4.41	0.83	1.31E	***
13	Online teaching facilitates learner's participation in the educational process.	2.79	1.12	3.40	1.03	0.000	***
15	The availability of online sources to review before or during exams to answer questions is an advantage.	4.21	0.89	4.19	0.88	0.13	n.s.
17	It increases the sense of sharing materials among classmates	3.41	1.15	3.87	0.92	0.02	*
19	It increases students' autonomy to work independently	4.03	0.90	3.79	1.01	0.27	n.s.
20	It makes the students ready for unexpected disruptions to continue their education.	3.86	1.00	3.79	0.98	0.64	n.s.

Both groups strongly agreed on the flexibility of learning anytime and anywhere, with positive feedback on accessibility to diverse materials. Recording and reviewing lectures were highly valued, as were online resources for exam preparation. Both groups appreciated the role of e-learning in ensuring educational continuity during disruptions like pandemics. However, ISs found online environments more comfortable than GSs, reporting increased motivation and positive attitudes towards learning. ISs also showed greater engagement, effectiveness, and participation, with a stronger sense of sharing materials. In contrast, GSs found online material sharing and organization easier. Table 6 highlights GSs' and ISs' views on e-learning's technological opportunities.

Table 6. *German vs. Iranian Students' Perspectives on Technological Opportunities*

No	Technological Opportunities	German		Iranian		Sig.	
		Mean	St Deviation	Mean	St Deviation		
7	Technology gives the chance to share a variety of applications	3.83	1.00	4.03	0.88	0.06	n.s.
8	Technology makes it easier to have more contact with the teachers and teaching staff via online platforms.	3.17	1.27	3.57	0.96	0.007	**
12	Technology provides opportunities for students to enhance their creativity.	2.62	0.91	3.41	0.97	0.003	**
16	It provides free access to many useful applications and software supported by the university.	4.21	0.76	4.15	0.89	0.73	n.s.
18	It increases the self-empowerment of students by boosting their technological skills.	3.72	1.05	3.99	0.85	0.19	n.s.

As shown in Table 6, both GSs and ISs similarly appreciated the free access to many applications and software supported by the university. For sharing various applications and boosting technological skills, ISs slightly valued the chance to share applications and increase self-empowerment through boosted technological skills compared to GSs. Regarding contact with teachers and teaching staff, ISs perceived technology as making it easier to have more contact with teachers via online platforms. They also rated the opportunity to enhance creativity higher than GSs.

Table 7 shows that in all three domains presenting the opportunity of providing innovative syllabi, educational activities, and tasks, promoting collaborative learning, and creating less mental and physical stress via online teaching, ISs presented a greater opportunity related to the administrative domain. They strongly believed the administration could help students and teachers to reduce mental and physical pressures during epidemics or pandemics.

Table 7. *German vs. Iranian Students' Perspectives on Administrative Opportunities*

No	Administrative Opportunities	German		Iranian		Sig.	
		Mean	St Deviation	Mean	St Deviation		
3	It helps administration to provide innovative syllabi, educational activities and tasks.	2.62	0.89	4.17	0.89	1.61E	***

10	Administrative could promote collaborative learning	2.55	1.11	3.34	1.01	0.0001	***
14	At the time of pandemics, the administration could help create less mental and physical stress via online teaching.	3.76	0.93	4.15	0.83	0.002	**

Figure 1 highlights the most obvious differences and similarities between the perspectives of GSs and ISs on the challenges and opportunities of integrating e-learning in higher education. The most apparent challenge difference between GSs and ISs was the perception that the lack of body language in virtual communication makes it difficult to accurately understand a teacher's or student's tones and intentions (Question 4). While ISs believed communication was difficult for them due to a lack of body language, GSs did not consider it a serious issue. Both groups had similar opinions regarding the amount of time spent in front of a computer, smartphone, or other devices and considered it too much (Question 6). However, item 13 of the questionnaire reading that online teaching facilitates learners' participation in the educational process received the most different opportunity feedback (Question 13). However, both similarly agreed that online education makes it possible to learn from anywhere at any time and flexibility (Question 1).

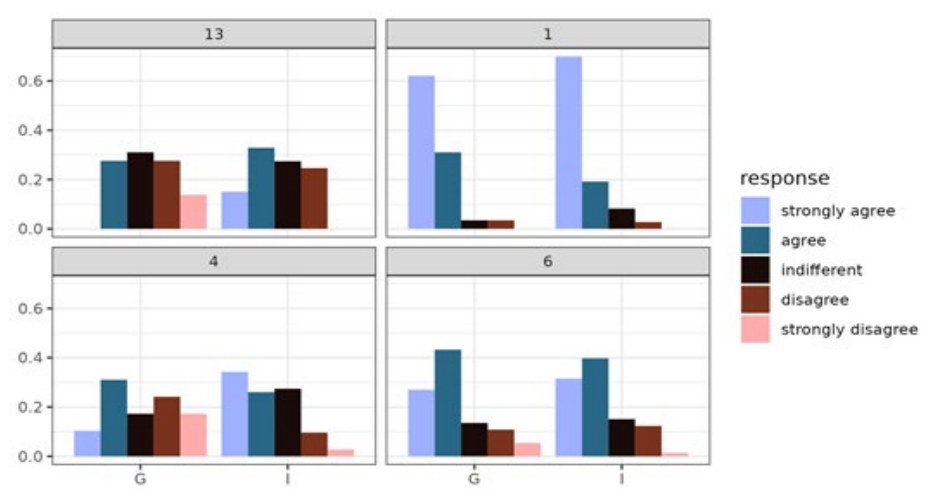


Figure 1. Challenges and Opportunities (Differences and Similarities Between GSs and ISs)

The interview findings revealed that all GSs and ISs had experience with online university classes. While all students strongly preferred face-to-face learning, none held strongly negative views of online sessions. ISs faced greater challenges with Internet infrastructure and device costs. Younger ISs showed a more positive attitude towards online learning in specific situations, highlighting the need for improved infrastructure and ICT training for both teachers and learners. They favoured blended teaching during challenges like air pollution or bad weather, reflecting a flexible approach to flipped classrooms. Older students generally preferred onsite classes in both academic settings.

This section summarises responses from volunteer GSs and ISs to interview questions, with participants anonymised for confidentiality. Answers were randomly chosen to reflect varied perspectives without bias. On the first question about online session experiences, both groups initially found them frustrating (particularly during COVID-19) but noted improvement with increased preparation.

GS2:

*Yes, I had experience with online class this semester. I didn't have any serious problems and I was quite happy with it. I like the fact that I'm flexible. I don't have to get up as early or have to go somewhere. I simply can attend from my desk at home. I can also do other things, such as clean up, because sometimes it's difficult to listen to someone and be focused all the time.*

IS6:

*I had experiences with online classes at the time of Pandemy, and this semester, I attended some online sessions but most of them were lectures or online workshops. It was ok, but still you were not able to see your teacher, or lecturer.*

*Interaction was limited. I prefer to see the face and gestures of the teacher. If the camera was on, it was much better, and of course, the connection was not good always.*

GSs and ISs differed in their use of tools, software, and platforms. GSs primarily used university platforms for online classes, file sharing, and presentations. In contrast, ISs mainly attended classes via university platforms but relied on social media like WhatsApp and Telegram for file and presentation sharing by professors. Here are some responses from GSs and ISs:

GS9:

*Usually Zoom, and Microsoft Teams! Website of the University ILIAS for sharing the files and having access to the class material through university account and email.*

IS2:

*We use different platforms regarding the access to the net, mainly classes are on university platforms through BBB or Adobe Connect, but for some courses or some sessions, we even used Skype, Shatel, or some social media like WhatsApp or Telegram for sharing the files, Powerpoints, and sources.*

Regarding challenges in attending online classes, ISs had more challenging issues with technical problems. The online classes were not running smoothly because of the speed and infrastructure.

GS11:

*The whole programme was online. I didn't really have many challenges. As I said, sometimes the audio stops for a couple of seconds. And then it's normal again. But other than that, I didn't really have many challenges. There was some some time when something didn't work...But we had to wait for a few minutes. And then we could start. It works quite well, ... but you have to participate and talk with others. I think in online sometimes, it's more difficult to have this direct communication.*

IS5:

*The connection can be very, very bad. Yes. Sometimes, the teacher has issues sharing their screen. Yes. And because they're on their own, it's difficult to help. Sometimes, there are technical problems, Internet disconnects...the classes stop from time to time for such disconnections, and it has an impact on the teaching material... in the class, you also don't see the teacher or the students because cameras are off.*

Culturally, ISs found the lack of direct access to teachers more challenging, as they value seeking consent and guidance on various issues. Therefore, unable to visit teachers, they relied on social media platforms like WhatsApp, sending messages or voice notes to ask questions. However, teachers often complained about privacy being disrupted by messages sent at all hours.

GS8:

*I think some tools can be very useful online for learning... Some teachers may need a bit more knowledge about the software and ICT. But from my experience, it's definitely like that, professor has some difficulties, technical issues, and may have someone in the lecture hall to help them, too. Taking care of probable technical problems is very helpful. And, of course, having good devices.*

IS12:

*For me, the most important problem has always been technological issues. If they are controlled by the university and some staff support, I don't mind attending online classes, especially for the lectures. In a big city like Isfahan, traffic, distance, pollution, and other problems always are preventing me from being as organized as I like... but we need laptops, microphones, good, fast Internet and some user-friendly websites .... I think, also it would be helpful for teachers to get some kind of input or information on how to operate computers and technical software.*

The next question investigated students' preferences for using online learning opportunities in the future and whether they preferred face-to-face, online, or hybrid programmes. The interviews showed that most of the students in both groups still prefer onsite classes over online settings.

GS6:

*So yeah, I prefer face-to-face. Because yeah, I think that makes communication easier and, and I think our teachers also still prefer face-to-face teaching because online teaching is not as effective as in-person teaching because of poor social interaction and difficulty in engaging students in discussions.*

IS14:

*With the current conditions and facilities... I prefer face-to-face classes or some blended classes, but I can't deny the importance of having new technology in education despite financial limitations. If the situations at our university improves, I think I will go for more online classes.... I spend a lot of time coming to the university from a far city. Online classes will save a lot of my time.*

Both GSs and ISs acknowledged the inevitability of e-learning in the future of higher education. They emphasized that due to technological advancements, the presence of VR, AI, and similar technological progress, flexible learning environments are going to appear. They also believed that some online learning would become an integral part of higher education very soon, even if it had not been there yet. The consensus was that blended learning models would combine the best aspects of online and onsite teaching.

The final interview question explored students' views on e-learning in higher education, comparing perspectives across the two countries. The findings revealed cultural differences. GSs felt that while Germany is industrially advanced, its education system lags in adopting digital technology, with attitudes towards it being somewhat negative. Conversely, ISs expressed a highly positive attitude towards technological advancements despite challenges such as sanctions and limited infrastructure.

GS13:

*Well, I think it is my impression generally, and I feel like this. This is a general consensus that German and digitalization ... are not always hand in hand, or, you know, something's happened here slower than, again, I don't feel that I have the authority to give an objective reply, because I'm not familiar with many of the systems elsewhere, right. But yeah, Germany is a bit slow to change and very bureaucratic.*

IS6:

*Future of e-learning in Iran depends on different perspectives...because we can't talk about technical infrastructure or support economically. I mean, I don't know about technology, but I think we are far from technological facilities and Internet speed, bandwidth, etc. But, I think universities are moving in the direction to use more online teaching. This semester many general courses have been offered to us online. I don't know, perhaps because they don't have enough classes or teachers, but that is different. If government supports it, I think ... the general attitude is positive. I think!*

The findings regarding the observation of some classes in the educational settings showed that students in both groups had almost the same attitude towards the type of classes. They preferred face-to-face classes to virtual ones and had no objection to a hybrid system, but their definition of hybrid classes was not the same. For GSs, hybrid meant the classes were held onsite, but some students could join via Zoom, and they could attend the class through a laptop or an electronic device. For ISs, hybrid meant some sessions were online, and some sessions were face-to-face. However, both groups believed that a hybrid system could be a better choice for the future of higher education.

The observation of the classes, along with feedback from ISs, indicated that ISs were more passive in online sessions, with only some students actively participating. In contrast, GSs participated more often in verbal interaction and communication. The students' responses suggested that this difference might be due to factors such as lack of access to cameras, infrastructural issues, slower internet speeds, or disrupted learning. Feedback by ISs was mainly given through chat messages rather than verbal responses. Therefore, the teachers had to check the chat messages frequently to respond to them. It was damaging the flow of conversation and teaching in the Iranian context. Moreover, Iranian teachers could not use YouTube, online videos, or interactive presentations a lot due to limitations regarding the Internet or availability issues.

For ISs, breakout rooms were rarely used, unlike in the German context, where they engaged shy students effectively. Distractions from the home environment often disrupted ISs' engagement and focus. Teachers in Iran



struggled to ensure students' attentiveness, unlike German teachers, who trusted students to take responsibility for their learning, even if cameras were off. This reflects a cultural difference, as Iranian teachers followed a teacher-centred approach, keeping students actively engaged, while GSs were more autonomous. ISs frequently interrupted teachers for clarification, whereas GSs worked more independently. Teamwork, common in German classes with small groups collaborating for 5–10 minutes, was entirely absent in Iranian online and onsite settings.

Moreover, technical interruptions were more frequent in the Iranian context, causing disruptions in the flow of online teaching. In both contexts, teachers were sharing files with the students, but the method of sharing was not the same. GSs used ILIAS as an academic platform to have access to the materials and files shared by their teachers, while ISs relied mostly on email, WhatsApp, Telegram, or similar online media to get the files. The variations could highlight the cross-cultural differences in the educational systems of the two contexts.

## 5. Discussion and Conclusion

To answer the first question regarding the challenges of e-learning integration, the results showed that both groups recognised several academic, technological, and administrative challenges. The findings on academic challenges demonstrated similarities and differences in the views of GSs and ISs. ISs had higher mean values for most items, meaning that they faced more academic challenges compared to GSs. They were more consistent in their responses than GSs. The results also showed that, generally, ISs had higher mean values for many technological problems and found them more challenging than GSs. The standard deviations indicated that the ISs' responses were usually more homogenous, reflecting a greater consistency of opinions among them. In some areas, such as the cost of electricity, Internet, or the use of personal technical devices for learning, GSs showed much greater variability compared to other criteria. The findings highlighted the common challenges that both groups faced. However, ISs reported encountering more difficulties in all technological domains than GSs. The findings related to administrative challenges showed that ISs had higher average scores for all administrative issues, meaning that they found these challenges more problematic than the GSs did. GSs' answers were less consistent concerning the absence of technology and administrative support and resistance to e-learning. Conversely, ISs were more consistent in their responses. Although ISs rated this problem a little higher than their counterparts did, both groups agreed on the inadequacy of training courses for users. The findings are in line with studies such as Abbasi Kasani et al. (2020), Arora and Chauhan (2021), Badi and Noor (2024), Chalak and Mair (2024).

The second research question investigated the opportunities for e-learning integration in higher education. The findings indicated that both groups reported different academic, technological, and administrative opportunities. They recognised a number of academic opportunities facilitated by e-learning. In particular, when it came to motivation, engagement, and participation, ISs agreed more than the GSs did, while GSs showed higher significance in organisational aspects and autonomy. These observations could be used in formulating strategies for enhancing experience directed at meeting individual needs based on cultural differences and different levels of education. The findings are in line with studies such as Abbasi Kasani et al. (2020), Jafary et al. (2024), and Mahmoodi-Shahrehabaki and Yaghoubi-Notash (2014) in the context of Iran.

Moreover, ISs mentioned more opportunities than GSs in terms of originality and technical proficiency. This could be due to the fact that more efforts were being made in Iran to make use of e-learning as a way of addressing infrastructural and pedagogical inadequacies, which might demand faster uptake of innovative strategies complying with global education standards (Abbasi Kasani et al., 2020; Hariri Asl et al., 2021). While ISs looked into innovation and creativity, communication with teachers, and the development of technology competencies as potential benefits of online learning, GSs paid more attention to the availability of applications and software access. This knowledge is significant in creating appropriate technological facilities necessary for students taking part in e-learning from diverse educational and cultural backgrounds. These findings are in line with those of Chalak and Mair (2024), Karimi et al. (2023), and Rafiee and Abbasian-Naghneh (2021) in which the use of technological tools and their opportunities in the universities have been explored.

The results also showed that ISs, in general, considered greater administrative advantages of integrating their learning experiences online than GSs. They particularly appreciated the possibility of having innovative syllabi, promoting group and collaborative work, and reducing stress during pandemics. This understanding could suggest strategies to improve e-learning acceptance and its effectiveness in various cultural and educational settings. On the other

hand, GSs often reported higher levels of satisfaction with respect to organizational aspects and autonomy offered by e-learning, thus possibly suggesting the need for more advanced technological infrastructure, along with stronger support mechanisms for higher learning in Germany. The findings support the findings of Bond et al. (2018) and Sagafe and Wendebon (2023), Oktoma et al. (2023) emphasising that diverse digital tools can enrich teaching and learning experiences.

To answer the third question regarding cross-cultural differences, the findings presented culture-specific features affecting the acceptance and adaptation of e-learning in different societies. The findings showed that cultural factors could play an important role in shaping attitudes and perceptions. For example, among ISs, greater emphasis was placed on innovative syllabi and educational tasks, representing the country's inclination towards considering education as a means for achieving social advancement opportunities as well as economic prospects. For Iranian families, getting a degree at the university level is very important. Even if you are not supposed to continue your career in a field, you are supposed to graduate from a university. GSs' preference for autonomous and self-paced learning methods might be attributed to their cultural norm for a self-directed teaching style and individualistic perspective that ensures effective results. The dependency on teachers and teacher-centred preferences were not observed as much compared to Iranian educational settings. The organization, distribution, and sharing of content and team working were totally different. This could be due to the cultural differences in dependency on the teaching staff or administration rather than autonomous activities in Iranian culture and the educational system. Usually, teachers are considered sources of knowledge, and the students are highly dependent on them. That was reflected in their preferences to attend more teacher-centred and lecture-based courses.

Another difference that was observed and reflected in their interviews was with regard to contact with professors and teaching staff. GSs were using official platforms such as WIKIS, university websites, or emails to contact their teachers or meet them only when needed, while ISs were using social to contact them. Meeting their professors without any arrangements was more common among ISs, leading to a higher level of imposition and inappropriateness. This might be because, culturally, ISs are more accepting of sharing personal phone numbers and being in touch via social media such as WhatsApp, Telegram, Instagram, and others. Their professors even share files, teaching materials, or sources through social media. For Germans, privacy is an unavoidable rule, and it has the world's possibly strictest privacy and information protection legislation. Its strict privacy laws, rooted in cultural and historical contexts, shape Germany's cautious approach to technology use in education (Keress, 2020). These findings are in line with Alcaraz-Mármol (2020), Bond et al. (2018), Chalak and Mair (2024), Hesse et al. (2022), Lima et al. (2020), and Mahmoudi-Dehaki et al. (2021) in which cultural differences and sociocultural factors have been investigated.

By considering these findings, it is possible to improve the quality of teaching for individuals from diverse cultural and educational backgrounds. Investigating these cross-cultural similarities and differences could tailor e-learning strategies to accommodate cultural norms, scripts, and preferences to improve the efficiency and acceptance of e-learning both by decision-makers and the public. These findings could help institutions to propose new frameworks compatible with the accepted norms, change the existing policies, revise teaching methods, and question the viability of existing regulations. The findings not only benefit the educational settings, but they could also suggest customised strategies, experiences, and treatments in facilitating the utilisation of e-learning across different cultures and contexts. Furthermore, such cross-cultural studies could enhance educational practices at a global level and offer educational opportunities by democratising learning on a global scale. They could support the exchange of best practices to promote global cooperation, expertise, and collaboration in educational settings and develop educational outcomes beneficial to different educational contexts. They could provide international opportunities and expand global access by focusing on cross-border and global partnerships and participation (Alcaraz-Mármol, 2020; Hesse et al., 2022; Lima et al., 2020).

While the study offers some implications and applications for educational contexts, it is not without flaws and has limitations that could impact its findings. The use of a convenience sample restricts generalisation, because variables such as gender, the field of study, level of education, and social factors were not fully explored. A broader inclusion of demographics, such as socioeconomic status, age, and location, would offer deeper insights into students' perceptions. Additionally, the small sample size from Germany and Iran may not represent the wider student population in the two countries. Future research should involve larger, more diverse samples across fields and demographics to achieve more generalisable results.

Conducting longitudinal studies to assess how students' attitudes and challenges related to e-learning evolve over time, particularly in response to changes in technology and educational policies. Some qualitative research methods, such as interviews and focus groups, to gain deeper insights into the personal experiences and nuanced views of students regarding e-learning are also highly recommended. Another venue for research is extending the research to include the perspectives of faculty and administrative staff to provide a holistic view of the e-learning platforms and identify potential areas for institutional improvement. This study was limited to German and Iranian English departments in two cities, Freiburg and Isfahan. Investigating more universities and different cities might show more geographical, sociocultural, and socioeconomic differences. Moreover, comparing students from different linguistic and cultural backgrounds and observing their unique regional challenges and opportunities in integrating e-learning could influence the findings obtained from the students' viewpoints regarding e-learning experiences. The impact of specific e-learning software, tools, or technological devices was not the main concern of this study. Adding such a topic to the scope of future studies might be beneficial in determining the effectiveness of future resources. Additionally, new topics and trends, such as the role of AI in developing new trends in e-learning and teaching, could be a prospective topic for further research.

Finally, examining the role of national, ideological, institutional policies and infrastructure in shaping the effectiveness of e-learning and identifying best practices that can be implemented across different educational systems is suggested because this study and similar studies show that the national norms, institutional policies, and infrastructure have an important role in the acceptance of e-learning. By addressing these areas in future research, a more comprehensive and detailed understanding of the factors influencing e-learning in higher education can be achieved, ultimately leading to more effective and inclusive educational practices.

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### Information on Informed Consent or any Data Privacy Statements

Informed consent was obtained from all the individual participants included in this study. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time without penalty.

### Data Availability

The datasets analyzed during the current study are available from the corresponding author upon reasonable request.

### Conflict of Interest

The authors declare no conflicts of interest.

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