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Research Article

A Systematic Review of E-Learning in the Context of Iran: Where Does English Language Teaching Stand?

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ABSTRACT

The first traces of e-learning in Iran dates to 2004, although this was not implemented until 2005. The present systematic review aimed at finding out where e-learning stands within the field of English language education also referred to as Teaching English as a Foreign Language (TEFL). Data were collected through two main sources. The first source was MetSearch (Cardiff Metropolitan University's e-library) which covers several reputable databases, yet we specifically looked into ProQuest Central, Scopus, PubMed, and ScienceDirect. The second source was Google Scholar which includes more publications but is less structured. Our search terms were e-learning OR elearning AND Iran OR problems OR challenges OR opportunities. We investigated a period of 15 years (i.e., between 2008 and 2022). Only peer-reviewed original articles written in English and addressing the challenges, problems, or opportunities related to e-learning in Iran were included. Our final search led to 12 original articles focusing on the aforementioned areas of e-learning. The findings revealed that the literature highly lacked studies related to e-learning in the area of TEFL in Iran. The included studies were mostly related to medicine and medical sciences, nursing, agriculture, technology, and sciences. With the increasing usage of e-learning among TEFL students and educators, especially after the strike of the COVID-19 pandemic, researchers need to fill the huge gap that exists in the literature.

Introduction

Electronic Learning (e-learning) has recently gained significance among researchers worldwide (Holmes & Gardner, 2006). Although e-learning has long been used in parallel with traditional learning styles, it is still known to be in its infancy (Tavangarian *et al.*, 2004). With the strike of the COVID-19 pandemic, nearly all higher education institutions in the world were forced to utilize e-learning, as it seemed to be the only available alternative. In Iran, some universities started utilizing dedicated online teaching and learning platforms. As an example, the Islamic Azad University, one of the largest universities in Iran started utilizing a platform called Vadana. Payam-e-Noor University used Adobe Connect

to manage its online classes and assessments. Since the beginning of the pandemic, several challenges and problems have been reported by students and educators worldwide, although various opportunities and advantages associated with online education have also been reported. The focus of the present systematic review was to delve into the e-learning phenomenon in Iran, specifically targeting the field of English language education, widely referred to as Teaching English as a Foreign Language (TEFL). This study aimed to answer the following question:

Within the context of Iran, where does e-learning stand with special reference to the field of TEFL?

Literature Review

E-Learning Definitions

E-learning has been the topic of debate among several researchers. For Dalsgaard (2006), e-learning falls somewhere beyond learning management systems. On the contrary, Vovides *et al.* (2007) have considered e-learning and learning management systems as two identical concepts being closely interrelated. In addition, several strategies have been presented as to how e-learning should be dealt with (e.g., MacKeogh & Fox, 2009; Morrison, 2003; Rosenberg & Foshay, 2002). The success of e-learning in organizations depends upon several variables. Some examples may include how the platform is designed, delivered, and evaluated (Derouin *et al.*, 2005).

Depending on the context, e-learning might be defined in various ways (Nicholson, 2007). To Rosenberg (2001), e-learning is using Internet-based technologies to deliver solutions with the primary objective of knowledge and performance enhancement. Masie (2008) had a similar definition of e-learning, where network technologies are used for the design, delivery, and administration of learning. Wentling *et al.* (2000), however, had a broader definition of e-learning by defining it as the acquisition and use of knowledge that is distributed and facilitated through electronic means.

E-Learning Research

To date, several categories have been presented with reference to e-learning research. Conole and Oliver (2007) have categorized e-learning research under four possible themes. These include a) pedagogical research, b) technical research, c) organizational research, and d) socio-cultural research. As the names suggest, pedagogical research covers the pedagogy of e-learning and deals with the development of the models used in implementing e-learning. Technical research deals with the notion of technical platforms and tools used to support teaching and learning. Organizational research focuses on the implementation and effective development of learning at an organizational level. Finally, the broader category of socio-cultural research was presented to go beyond the three existing levels, where policies, funding, agendas, and initiatives would determine the effectiveness of e-learning implementation (Conole & Oliver, 2007).

For Winn (2002), the e-learning research evolved into four stages, including a) the instructional design stage, b) the message design stage, c) the simulation stage, and d) the research stage. While the first stage focused on the content, the second one paid more attention to the format of e-learning. The simulation stage focused on the interactions involved in an e-learning environment. Finally, the last stage (i.e., the research stage) stressed the significance of learning environments within the context of e-learning (Winn, 2002).

The History of E-Learning

It is not clear when the term e-learning came into existence. According to Aparicio *et al.* (2016), this term was first coined by White (1983) in a journal article entitled "Synthesis of Research on Electronic Learning" where e-learning was defined as "learning via electronic sources, such as television, computer, videodisk, teletext, and videotext" (p. 13). However, there is solid proof that the term e-learning was first coined by Masie in a seminar in 1999, although history goes far behind that (Masie, 2007). Many people consider e-learning as a relatively new area; however, the first traces of e-learning go back to the 1920s, when a commercial radio delivered classroom lessons to the children of farmers in rural areas (Masie, 2007). Later, in 1944, an admiral predicted that computers would someday teach sailors how to do their jobs (Masie, 2007).

The very beginning uses of e-learning date to the 1990s. According to Cross (2008, as cited in Dron & Anderson, 2016), the term e-learning was independently used several times during the mid-1990s. An example dates to 1999, when China began to utilize e-learning as part of a ministerial decision to enhance the quality of education and support innovation (Wang *et al.*, 2018). Similarly, Hubackova (2015) mentioned the year 1999 as when e-learning came into existence. Hubackova (2015) linked the creation of e-learning to computer and technological advances by then. According to Hung (2012), the e-learning trend suggests a significant difference in approaches to e-learning implementation in different countries, mainly due to the importance of government policies in shaping the e-learning environment.

Based on the statistics available in the literature, until 1999, around 53% of educational methods included using CDs; however, in 2004, e-learning won first place in education in terms of usage (Kombod, 2006, as cited in Mousazadeh *et al.*, 2016). In the first decade of the 21st century, few institutions around the world were still conducting their research, teaching, and other educational tasks without the use of the Internet; however, at the beginning of the following decade, such institutions had to shift toward the utilization of Information Technology to compete and prevent the isolation of their institutions (Mitchell & Batorski, 2009).

Similar Concepts

There are various concepts related to the term e-learning. *Mobile learning* (*m-learning)*, *digital learning* (*d-learning*; Kumar Basak *et al.*, 2018), *distance learning* (Danchikov *et al.*, 2021), and *virtual learning* (Torres Martin *et al.*, 2021) are some examples, to name but a few. These concepts are sometimes used interchangeably. However, they might vary in terms of the purpose they serve and their nature. For instance, e-learning and m-learning are both known to be the subsets of d-learning (Kumar Basak *et al.*, 2018). Among all these concepts, e-learning seems to be a more generic term and is more frequently used by the public (Paulsen, 2002). In fact, m-learning is a platform that enables students to access pedagogical materials through their mobile phones which is a sub-type of e-learning that has recently gained popularity due to its wide availability and accessibility among community members in general, and students and teachers in particular (Kearney *et al.*, 2012). While e-learning mostly focuses on functionality, m-learning accounts for mobility (Georgiev *et al.*, 2004). D-learning is another term closely associated with e-learning which has been defined as a broader area covering e-learning and its related learning domains (Georgiev *et al.*, 2004). Distance Learning, Computer-Assisted Learning, Computer-Based Education, and Computer-Assisted Education are only a few of the terms used to refer to e-learning. Although these terms are interrelated, they must not be used interchangeably, as each would represent a self-standing notion.

E-learning systems are evolving concepts and they are all rooted in Computer-Assisted Instruction (CAI; Zinn, 2000). The term CIA first appeared in 1955 to serve the purpose of problem-solving in teaching contexts (Zinn, 2000). In a literature review carried out by Aparicio *et al.* (2016), it was stated that between 1960 and 2014, at least 23 concepts related to e-learning were found in the literature. These included Computer-Assisted Instruction (Anderson, 2008; Bernhardt, 1960; Kemeny & Kurtz, 1967), Computer-Based Education (Barson *et al.*, 1963; Zinn, 2000), Computer-Assisted Learning (Hart, 1981; Lanier, 1966; Levy, 1997; Zinn, 2000), Learning Management Systems (Becker, 1968; Ismail, 2001; Lee & Lee, 2008), Computer-Managed Instruction (Molnar & Sherman, 1969; Zinn, 2000), Computer-Assisted Education (Bitzer *et al.*, 1970; Zinn, 2000), Electronic Learning (Dorai *et al.*, 2001; Morri, 1997; Piccoli *et al.*, 2001; Rosenberg, 2001; White, 1983), Artificial Learning Environments (Fiol & Lyles, 1985), Mobile Learning (Darazsdi & May, 1989; Drumm & Groom, 1997; Pesanelli, 1993; Rushby, 1998), Self-Regulatory Efficacy (Bandura, 1994; Joo *et al.*, 2000), Computer Support for Collaborative Learning (Koschmann, 1994; Ludvigsen & Morch, 2010; Morch, 2013; Sthal *et al.*, 2006), Rich Environments for Active Learning (Grabinger & Dunlap, 1995), Mega-University (Daniel, 1996), Computer-Facilitated Learning (Bain *et al.*, 1998), Learning Content Management Systems (Ismail, 2001), Blended

Learning (Singh, 2003), Connective MOOC (Downes, 2006, 2008; Rodriguez, 2012, 2013; Siemens, 2005), Self-Directed Learning (Lee & Lee, 2008; Rovai, 2004), Internet-based Learning Medium (Lee *et al.*, 2005), Massive Open Online Course (Fini, 2009; Godwin-Jones, 2011; McAuley *et al.*, 2010; Peter & Deimann, 2013), MITx & EDX MOOC (Bates, 2012; Rodriguez, 2012, 2013), Little Open Online Course (Kolowich, 2012), and, Small Private Online Course (Fox, 2013). These terms, as highlighted by Aparicio *et al.* (2016), were the ones that only focused on the technology side of e-learning, and not the communication side.

E-Learning in Iran: A Brief History

The first traces of e-learning in Iran date to 2004, although this was not implemented until 2005 (Omidinia *et al.*, 2011). The Information and Communication Technology Application Program (TAKFA) is the first known policy initiative in Iran with the mission of promoting a knowledge-based economy through a set of objectives (Jahangard, 2003). To achieve these objectives, an action plan and a set of initiatives, objectives, and activities were developed as well.

The first significant attempt to develop e-learning in Iran was a project called the National Program on Technology Enhanced Learning (NPTEL) proposed in 1997 by the Ministry of Human Resource and Development (Omidinia *et al.*, 2011). In this project, 7 Iranian institutes of technology and the Iranian Institute of Science in Isfahan were funded with 160,000 USD to develop e-learning in Iran. As the project outcome, 116 web-courses in addition to 112 video courses related to undergraduate engineering topics were developed (Omidinia *et al.*, 2011), which were available to students, colleges (both government and private), and working professionals, either at no or a low cost (Kousha, 2004). Within the first 10 months of this project (i.e., from September 2006 to July 2007), there were 580,000 visitors to the website, out of which, 160,000 were registered users (Omidinia *et al.*, 2011).

Iran University of Science and Technology, Shiraz University, and Amirkabir University were the pioneers in e-learning (Omidinia *et al.*, 2011). This effort was later joined by some centers (e.g., Islamic Virtual Centers and the Faculty of the Science of Hadith; Omidinia *et al.*, 2011). Since then, several studies have been carried out to delve into the e-learning phenomenon and its relevant processes within the context of Iran. Similarly, a few review studies have been conducted with this aim. An example is Davoudi *et al.*'s (2018) systematic review of Iranian studies on e-learning and e-teaching which included 207 journal articles, books, book chapters, theses, and dissertations obtained from Google Scholar. Using the key terms "e-learning", "e-teaching", "Iranian studies", and "English language", the sources written in English were collected and reviewed. The findings of Davoudi *et al.* (2018) revealed that e-learning research in some disciplines such as psychology, sociology, and philosophy was rather unexplored. Another systematic review was done by Abbasi Kasani *et al.* (2020) who investigated the challenges of the Iranian e-learning system through a research synthesis methodology. Having included studies published between 2006 to 2019 in the field of challenges of the e-learning system of Iran, 19 studies were included. Abbasi Kasani *et al.* (2020) found that Iran's e-learning system mostly faced problems in eight dimensions including legal, human, educational, technological, sociocultural, support, economic, and managerial-organizational aspects. A quick search of the literature revealed the lack of studies related to e-learning within the field of TEFL in Iran. Therefore, the present review aimed at finding out where TEFL would stand concerning the e-learning phenomenon in Iran.

Method

Data were collected through two main sources. We utilized MetSearch (Cardiff Metropolitan University's e-library; 2022). MetSearch covers several reputable databases, yet we specifically looked into ProQuest Central, Scopus, PubMed, and ScienceDirect. The second source was Google Scholar (https://scholar.google.com) which includes more publications but is less structured. Our search terms were (e-learning OR elearning AND Iran AND problems AND challenges AND opportunities). To have a more precise look at the e-learning research in Iran, we investigated a period of 15 years and therefore the search

periods for both sources were set between 2008 and 2022. Only peer-reviewed original articles written in English and addressing the challenges, problems, or opportunities related to e-learning in Iran were included. Data collection took place between 14 March 2022 and 07 May 2022. Table 1 shows the different stages of data collection.

Table 1
Stages of the Selection Process

Stage	Description	n
1	Identifying relevant studies based on titles and abstracts	128
2	Exclusion of irrelevant sources (e.g., books, review articles, and letters to the editor)	93
3	Exclusion of non-peer-reviewed articles	80
4	Initial screening based on the titles and abstracts	59
5	Exclusion of duplicate sources	32
6	Assessment of the full papers	12

Findings

Our final search led to 12 original articles written between 2008 and 2020. Table 2 provides a summary of the included sources.

Table 2
Summary of the Included Sources

No.	Author(s) and Year	Approach	Objective	Method	Main Findings
1	Salahshouri *et al.* (2022)	qualitative	to highlight the strengths and weaknesses of e-learning based on the viewpoints of Iranian medical students	Through an online questionnaire, data were collected from 122 returning questionnaires representing 46 medical sciences universities in Iran.	Seven themes related to the strengths (i.e., the positive experiences) and 6 themes related to the weaknesses (i.e., challenges) were extracted. Most of the participants believed that although e-learning was an effective tool to prevent failure during the pandemic, it could not replicate the same efficiency of face-to-face education.
2	Salmani *et al.* (2022)	qualitative descriptive	to investigate the challenges related to e-learning during the COVID-19 pandemic	Data were collected through semi-structured interviews with 10 Iranian undergraduate nursing students based on four main areas for discussion including a) novelty of e-learning, b) the advantages of e-learning, c) the disadvantages of e-learning, and d) the passage of time and the desire to return to normal, face-to-face classes.	The participants considered e-learning a novel era that was confusing at the beginning, but later, as their knowledge about this phenomenon improved, it became the new normal. Self-centered flexible learning as well as a reduction in their concerns experienced with face-to-face learning were among the advantages reported by the researchers. The disadvantages reported by the participants included the change in the way of interaction among students with their teachers and peers as well as a reduction in their interactions, hardware and software problems, superficial learning, and the perception of their families about their roles as students, and cheating in their home exams and assignments.
3	Yekefallah *et al.* (2021)	cross-sectional	to measure the effectiveness and the level of satisfaction of the participants concerning e-learning	Data were collected from 420 participants through a three-part questionnaire.	Only 41% of the participants had desirable satisfaction with e-learning during the pandemic. The findings also showed that the mean scores of dimensions of teaching and learning, feedback and evaluation, flexibility and appropriateness, and workload among students with desirable satisfaction were higher than students with undesirable satisfaction.
4	Afshari *et al.* (2020)	cross-sectional	to evaluate the views of Iranian medical students about e-learning during the COVID-19 pandemic	A questionnaire containing 54 items was distributed among 600 Iranian medical students. The questionnaire aimed at collecting data on five subscales, including a) quality of content, b) effective interactions, c) the supporting system, d) virtual class management, and e) motivation management.	A high volume of the content presented by the educators, lack of interaction with educators, weak supporting system, weak management of the e-learning system, and low motivation were the most challenging issues reported by the participants. It was concluded that to tackle such issues, the e-learning system in Iran must be upgraded, and both students and educators should receive proper training in this regard.

No.	Author(s) and Year	Approach	Objective	Method	Main Findings
5	Mahmoodi-Shahrebabaki and Yaghoubi-Notash (2014)	descriptive	to investigate the major challenges of e-learning faced by Iranians	Participants (n=350) with various backgrounds aged between 16 and 53 were asked to prioritize six items among the challenges collected from existing literature.	Lack of government support, lack of public awareness, high costs of e-learning, the collectivist society of Iran, low-speed internet, internal filtering, and external sanctions were the most significant challenges reported by the researchers. The results indicated that the lack of public awareness, lack of government support, and the collectivist society of Iran were chosen by the participants as the main hurdles in the path of e-learning development in Iran, respectively.
6	Talebian *et al.* (2014)	descriptive	to investigate the merits, demerits, conveniences, and limitations of applying information and communication technology in conjunction with e-learning to higher education students in the field of agriculture in Iran	not specified	Accessibility, equity, enhancing group collaboration, access to training sources, and enhancing the international dimensions of education were among the reported advantages of e-learning among the participants. Some of the disadvantages included the lack of face-to-face and lively interaction between the students and teachers, access to unsupportive information, limitations in the students' assessments and feedback, and the impracticality of teaching some agricultural courses. The conveniences reported by Talebian *et al.* (2014) were greater access to more students, offering a balance between life and work to students, affordability, ease of access, and the fact that e-learning could be delivered through any platform via the Internet. Finally, some limitations were reported, including the high cost of establishment, low bandwidth, the need for computer and IT literacy, lack of access to computers and the Internet in some areas, and the need to improve the English language skills of the students of agriculture.
7	Rabiee *et al.* (2013)	mixed methods	to investigate the obstacles to using Internet technology for e-learning in Iran	Qualitative data were collected through exploratory observations of eight virtual higher education institutions, as well as interviews with 20 experts in those institutions.	Socio-cultural, educational, structural, economic, and legal factors were among the most significant barriers to web technology used in the context of Iran.
8	Alizadeh, 2012	experimental	to delve into some of the pedagogical and practical challenges of employing e-	Thirty language learners were randomly divided into experimental and control groups. Data were collected through a pretest, 3 post-tests, and an open-ended questionnaire.	The study shed light on some of the practical and pedagogical drawbacks of utilizing e-learning in teaching language skills. In addition, the productive and receptive language skills in both groups of participants were checked. Based on the findings, the experimental group was far better in the writing skill as compared to the control group, while

No.	Author(s) and Year	Approach	Objective	Method	Main Findings
			learning for teaching language		the control group outperformed the experimental group in the speaking skill.
9	Mohamadzadeh *et al.* (2012)	descriptive survey questionnaire	to identify the challenges associated with e-learning at Payame Noor University in Iran	Faculty members (n=160) in a total population of 600 faculty members and instructors at Payame Noor University were asked to fill out a questionnaire on e-learning.	Incompatibility of contents and methods, unavailability of skills, as well as the barriers related to the culture, infrastructure, encouragement, crediting, and incorporating e-learning into traditional education systems were the main e-learning challenges at Payame Noor University. Factors such as educational effectiveness in e-learning, policy making, university's technical and social support, financial support, improving working conditions, foreign language skills, and faculty members' interest in professional development were also reported as the most important factors in developing e-learning in Payame Noor University.
10	Ahmadpour and Mirdamadi (2010)	Survey questionnaire	to investigate the major challenges faced by Iran's agricultural extension centers and agents	Extension agents (n=379) participated in the study by filling out a questionnaire.	The main six challenges in the field of agriculture were financial, technical, supporting services, regulatory, cultural, and human factors.
11	Hosseini *et al.* (2008)	Survey questionnaire	to investigate the barriers to the development of e-learning within the education system of Iran	A questionnaire among 46 experts in the field with 1-5 years of experience was used.	The main obstacles to e-learning in the educational system of Iran were a) technological, b) socio-cultural, c) pedagogical, d) legal/administrative, e) strategic, and f) economic factors.
12	Yaghoubi *et al.* (2008)	descriptive-correlation survey	to examine the perceptions of virtual students about e-learning in Iran	Students (n=110) were asked to fill in a web-based questionnaire containing close-ended questions.	Most of the students had a positive perception of e-learning, although practical considerations for the implementation of e-learning were raised. The two main benefits of e-learning were flexibility in time and place, in addition, to ease and quick sharing of learning materials.

Discussion

Based on the findings, the included sources (n=12) were survey questionnaires, descriptive, or cross-sectional studies. Out of the 12 articles, 3 (sources 1, 3, and 4) were related to medical sciences. One of the sources (source 2) was in the field of nursing. Two articles (sources 6 and 10) were related to the field of agriculture. The participants of two sources were mostly from the fields of science and technology (source 7 participants were from the fields of Information Technology and E-Commerce, Administration and MBA, Commercials and Media, and source 12 participants were from the University of Technology, Iran University of Science and Technology, and Shiraz University). Out of the 12 sources, 4 articles mentioned the presence of general participants without specifying their fields of study. Source 5 mentioned that the participants were citizens from various social, economic, and educational backgrounds. In source 9, the participants were from Payame Noor University, and source 11 targeted Iran's educational system in general.

Based on the findings, the literature contained various studies related to the e-learning phenomenon in the fields of medicine and medical sciences (Abdekhoda *et al.*, 2016; Changiz *et al.*, 2013; Dargahi *et al.*, 2008; Eslaminejad *et al.*, 2010; Karimzadegan *et al.*, 2007; Mohammadimehr, 2020; Ostad *et al.*, 2019), nursing (Mehrdad *et al.*, 2011; Salari *et al.*, 2009; Salmani *et al.*, 2022; Sheikhaboumasoudi *et al.*, 2018; Zolfaghari *et al.*, 2007), and agriculture (Ahmadpour & Mirdamadi, 2010; Mohammadi *et al.*, 2011; Ommani & Chizari, 2008; Talebian *et al.*, 2014; Yaghoubi, 2009; Yaghoubi *et al.*, 2008).

Except for a few cases, most of the studies carried out in the context of Iran are dated and do not represent the most recent trends in the field of e-learning and how they evolved over the years. In addition, not all of the existing studies are original research. For example, Mohammadimehr's (2020) and Aghakhani and Shalbafan's (2020) work are letters to editors, Nakhoda *et al.*'s (2021) study is a systematic review and a meta-analysis, Davoudi *et al.*' (2018) study is a systematic review, and Abaasi Kasani *et al.*'s (2020) work is a research synthesis.

Our findings revealed that e-learning in the area of TEFL has widely been neglected in Iran. Out of the 12 sources included in the present study, only one was conducted in the area of TEFL (source 8; Alizadeh, 2012) which was about the practical and pedagogical shortcomings of utilizing e-learning for teaching language skills. On the other hand, the few studies conducted on e-learning processes within the field of TEFL in Iran do not solely focus on the challenges, problems, solutions, opportunities, and conveniences associated with it. Some examples are Hemmati's (2016) study of M.A. students of TEFL at Payame Noor University, Taghizadeh and Hajhosseini's (2021) investigation of blended learning among postgraduate students, and Bagheri *et al.*'s (2009) work on the motivational and learning strategies of EFL learners exposed to an e-learning program. Our findings revealed a huge gap in the literature concerning the e-learning phenomenon and the concepts associated with it in the area of TEFL in Iran.

Conclusion

E-learning usage has significantly increased among students and educators around the world. During the COVID-19 pandemic, e-learning was one of the few available options to resume teaching and learning. Although e-learning platforms in Iran have been utilized since 2005, our findings revealed a huge gap in the literature related to TEFL. Based on our findings, the literature related to e-learning research in Iran is highly oriented toward medicine and medical sciences, nursing, agriculture, sciences, and technology. Our search of the literature revealed that there were a few studies conducted within the area of TEFL in Iran; however, except for one, others did not focus on the merits and demerits of e-learning among Iranian TEFL students and educators. Therefore, researchers need to fill the huge gap that exists within the area of e-learning in TEFL in Iran.

One of the limitations of the present review was the number of databases we looked into (i.e., ProQuest Central, Scopus, PubMed, and

ScienceDirect). Further studies may include more structured databases such as Google Scholar, Directory of Open Access Journals (DOAJ), and Index Copernicus. In addition, Islamic World Science Citations Center (ISC) and Regional Information Center for Science and Technology (RICeST) are two databases where scientific documents related to e-learning in the context of Iran could be found. The findings of the present systematic review could be useful for the immediate beneficiaries of e-learning (i.e., TEFL students and educators), as well as other stakeholders such as researchers, administrators, and policymakers.

References

Abbasi Kasani, H., Shams Mourkani, G., Seraji, F., Rezaeizadeh, M., & Abedi, H. (2020). E-learning challenges in Iran: A research synthesis. *International Review of Research in Open and Distributed Learning*, *21*(4), 96-116. https://doi.org/10.19173/irrodl.v21i4.4677

Abdekhoda, M., Dehnad, A., Mirsaeed, S. J. G., & Gavgani, V. Z. (2016). Factors influencing the adoption of e-learning in Tabriz University of Medical Sciences. *Medical Journal of the Islamic Republic of Iran*, *30*, 457.

Afshari, P., Abedi, P., Eslami, K., Rokhafrooz, D., Maraghi, E., & Beheshtinasab, M. (2020). The views of medical students about e-learning during pandemic of COVID-19 in Iran. *Research Square.* https://doi.org/10.21203/rs.3.rs-47582/v1

Aghakhani, K., & Shalbafan, M. (2020). What COVID-19 outbreak in Iran teaches us about virtual medical education. *Medical Education Online, 25*(1), 1770567. https://doi.org/10.1080/10872981.2020.1770567

Ahmadpour, A., & Mirdamadi, M. (2010). Determining challenges in the application of e-learning in agricultural extension services in Iran. *American-Eurasian Journal of Agriculture and Environmental Science*, *9*(3), 292-296.

Alizadeh, I. (2012). Challenges of employing e-learning for teaching language: A case of teaching English in Iran. *E-Learning and Digital Media*, *9*(4), 426-438.

Anderson, T. (2008). *The theory and practice of online learning*. Athabasca University Press.

Aparicio, M., Bacao, F., & Oliveira, T. (2016). An e-learning theoretical framework. *Educational Technology and Society, 19*(1), 292-307.

Bagheri, M. S., Yamini, M., & Riazi, A. (2009). Motivational and learning strategies of Iranian EFL learners exposed to an e-learning program. *TESOL Quarterly: Journal of Teaching Language Skills, 58*(4), 1-35.

Bain, J. D., McNaught, C., Mills, C., & Lueckenhausen, G. (1998). Describing computer-facilitated learning environments in higher education. *Learning Environments Research, 1*(2), 163-180. https://doi.org/10.1023/A:1009905832421

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). Academic Press. http://www.uky.edu/~eushe2/Bandura/BanEncy.html

Bates, T. (2012, August 5). *What's right and what's wrong about Coursera-style MOOCs.* Online Learning and Distance Education Resources. http://www.tonybates.ca/2012/08/05/whats-right-and-whats-wrong-about-coursera-style-moocs/

Becker, J. W. (1968, May). *Run computer run: A Critique* [Paper presentation]. Conference on Information Technology and Secondary Education, Harvard University, Cambridge MA, USA. https://eric.ed.gov/?id=ED031081

Bernhardt, K. S. (1960). Review of the undirected society and automatic teaching: The State of the art. *Canadian Journal of Psychology, 14*(1), 60-61. https://doi.org/10.1037/h0083460

Bitzer, D.L., Blomme, R.W., Sherwood, B.A., & Tenczar, P. (1970). *The Plato system and science education.* *https://files.eric.ed.gov/fulltext/ED042624.pdf*

Changiz, T., Haghani, F., & Nowroozi, N. (2013). Are postgraduate students in distance medical education program ready for e-learning? A survey in Iran. *Journal of Education and Health Promotion, 2,* 61. https://doi.org/10.4103%2F2277-9531.120862

Conole, G. & Oliver, M. (2007). *Contemporary perspectives in e-learning research: Themes, methods, and impacts on practice*. Routledge.

Dalsgaard, C. (2006). Social software: E-learning beyond learning management systems. *European Journal of Open, Distance and e-learning*, *9*(2).

Danchikov, E. A., Prodanova, N. A., Kovalenko, Y. N., & Bondarenko, T. G. (2021). Using different approaches to organizing distance learning during the COVID-19 pandemic: Opportunities and disadvantages. *Linguistics and Culture*

Review, 5(S1), 587-595. https://doi.org/10.21744/lingcure.v5nS1.1444

Daniel, J. S. (1996). *Mega-universities and knowledge media: Technology strategies for higher education*. Routledge.

Darazsdi, J. J., & May, P. L. (1989). The fight against illiteracy: How one company is making a difference. *Management Review, 78*(10), 36-39.

Dargahi, H., Ghazi Saidi, M., & Ghasemi, M. (2008). The role of e-learning in Medical Sciences Universities. *Payavard Salamat, 1*(2), 20-29.

Davoudi, M., Hosseininejad, S. M., & Yousefi, D. (2018). Systematic review of research on e-learning and e-teaching in Iran: Studies conducted between 2000-2018. *Second International Conference on Psychology, Consultation, Education*. Civilica. https://civilica.com/doc/843470/

Derouin, R. E., Fritzsche, B. A., & Salas, E. (2005). E-learning in organizations. *Journal of Management, 31*(6), 920-940. https://doi.org/10.1177/0149206305279815

Dorai, C., Kermani, P., & Stewart, A. (2001). ELM-N: E-Learning media navigator. In *Proceedings of the Ninth ACM International Conference on Multimedia* (pp. 634-635). ACM.

Downes, S. (2006). Learning networks and connective knowledge. *Collective Intelligence and E-learning 2.0: Implications of Web-Based Communities and Networking, 20*, 1-26.

Downes, S. (2008). Places to go: Connectivism & connective knowledge. *Journal of Online Education, 5*(1), 6.

Dron, J., & Anderson, T. (2016). The future of e-learning. In C. Haythornthwaite, R. Andrews, J. Fransman and E.M. Meyers (Eds.). *The SAGE handbook of e-learning research* (pp.537-556). SAGE Publications.

Drumm, J. E., & Groom, F. M. (1997). The cybermobile: A gateway for public access to network-based information. *Computers in Libraries, 17*(1), 29-33.

Eslaminejad, T., Masood, M., & Ngah, N. A. (2010). Assessment of instructors' readiness for implementing e-learning in continuing medical education in Iran. *Medical Teacher, 32*(10), e407-e412. https://doi.org/10.3109/0142159X.2010.496006

Fini, A. (2009). The technological dimension of a massive open online course: The case of the CCK08 course tools. *The International Review of Research in Open and Distance Learning, 10*(5). https://doi.org/10.19173/irrodl.v10i5.643

Fiol, C. M., & Lyles, M. A. (1985). Organizational learning. *The Academy of Management Review, 10*(4), 803–813. https://doi.org/10.5465/amr.1985.4279103

Fox, A. (2013). From MOOCs to SPOCs. *Communications of the ACM, 56*(12), 38-40. https://doi.org/10.1145/2535918

Georgiev, T., Georgieva, E., & Smrikarov, A. (2004, June). M-learning - A new stage of e-learning. In *International Conference on Computer Systems and Technologies - CompSysTech'2004* (pp. IV.28-1-IV.28-5). Rousse, Bulgaria. Retrieved from http://ecet.ecs.uni-ruse.bg/cst04/

Godwin-Jones, R. (2011). Mobile apps for language learning. *Language Learning & Technology, 15*(2), 2-11.

Grabinger, R. S., & Dunlap, J. C. (1995). Rich environments for active learning: A definition. *Research in learning Technology, 3*(2), 5-34. https://doi.org/10.1080/0968776950030202

Hart, R. S. (1981). The PLATO system and language study. *Studies in Language Learning, 3*(1), n1.

Hemmati, F. (2016). Face to face versus E-learning: An investigation into the performance of TEFL master's students of Payame Noor University. *Research in School and Virtual Learning, 3*(11), 49-58.

Hockly, N. (2018). Blended learning. *ELT Journal, 72*(1), 97-101. https://doi.org/10.1093/elt/ccx058

Holmes, B., & Gardner, J. (2006). *E-learning: Concepts and practice*. Sage.

Hosseini, S. M., Mirarab Razi, R., & Rezaee, S. (2008). An investigation of obstacles in the development of E-learning in Iran educational system. *Journal of Management and Planning in Educational System, 1*(2), 47-59.

Hubackova, S. (2015). History and perspectives of elearning. *Procedia-Social and Behavioral Sciences, 191*, 11871190. https://doi.org/10.1016/j.sbspro.2015.04.594

Hung, J. L. (2010). Trends of e-learning research from 2000 to 2008: Use of text mining and bibliometrics. *British Journal of Educational Technology, 43*(1), 5-16. https://doi.org/10.1111/j.1467-8535.2010.01144.x

Ismail, J. (2001). The design of an e-learning system: Beyond the hype. *The Internet and Higher*

Education, 4(3-4), 329-336. https://doi.org/10.1016/S1096-7516(01)00069-0

Jahangard, N. (2003). The goals of educations in the information era. *TAKFA Magazine, 1*, 5-6.

Joo, Y. J., Bong, M., & Choi, H. J. (2000). Self-efficacy for self-regulated learning, academic self-efficacy, and internet self-efficacy in web-based instruction. *Educational Technology Research and Development, 48*(2), 5-17. https://doi.org/10.1007/BF02313398

Karimzadegan, D., Mojtahedzadeh, R., & Mohammadi, A. (2007). E-Learning in medical education in the world and Iran. *Journal of Medical Education, 11*(1-2), 37-39.

Kearney, M., Schuck, S., Burden, K., & Aubusson, P. (2012). Viewing mobile learning from a pedagogical perspective. *Research in Learning Technology*, *20*(1), 1-17. https://doi.org/10.3402/rlt.v20i0/14406

Kolowich, S. (2012, September 6). *MOOCs' little brother.* Inside Higher Ed. http://www.insidehighered.com/news/2012/09/06/u-maine-campus-experiments-small-scale-high-touch-open-courses

Koschmann, T. D. (1994). Toward a theory of computer support for collaborative learning. *Journal of the Learning Sciences, 3*(3), 219-225. https://doi.org/10.1207/s15327809jls0303_1

Kousha, K. (2004). Iran's national ICT education plan: An overview of the possibilities, problems and the programs. In *the 70th IFLA General Conference and Council on World Library and Information Congress* (pp. 1-10), Buenos Aires.

Kumar Basak, S., Wotto, M., & Belanger, P. (2018). E-learning, m-learning and d-learning: Conceptual definition and comparative analysis. *E-learning and Digital Media*, *15*(4), 191-216. https://doi.org/10.1177/2042753018785180

Lanier, V. (1966). Newer media and the teaching of art. *Art Education, 19*(4), 4-8.

Lee, J. K., & Lee, W. K. (2008). The relationship of e-learner's self-regulatory efficacy and perception of e-learning environmental quality. *Computers in Human Behavior, 24*(1), 32-47. https://doi.org/10.1016/j.chb.2006.12.001

Lee, M. K. O., Cheung, C. M. K., & Chen, Z. (2005). Acceptance of internet-based learning medium: The role of extrinsic and intrinsic motivation. *Information & Management, 42*(8), 1095-1104. https://doi.org/10.1016/j.im.2003.10.007

Levy, M. (1997). *Computer-assisted language learning: Context and conceptualization*. Oxford University Press.

Ludvigsen, S., & Morch, A. I. (2010). Computer-supported collaborative learning: Basic concepts, multiple perspectives, and emerging trends. In B. McGaw, P. Peterson & E. Baker (Eds.), *The international encyclopedia of education* (Vol. 5, pp. 290-296). Elsevier.

MacKeogh, K., & Fox, S. (2009). Strategies for embedding e-learning in traditional universities: Drivers and barriers. *Electronic Journal of E-learning*, *7*(2), 147-154.

Mahmoodi-Shahrebabaki, M., & Yaghoubi-Notash, M. (2014). E-learning in Iran as a developing country: Challenges ahead and possible solutions. *International Journal of Research in Education Methodology, 6*(2), 788-795. https://doi.org/10.2139/ssrn.2514434

Masie, E. (2007). Lies about e-learning. In L. Israelite (Ed.), *Lies about learning: Leading executives separate truth from fiction in a $100 billion industry* (pp.127-140). ASTD Press.

McAuley, A., Stewart, B., Siemens, G., & Cormie, D. (2010). *The MOOC model for digital practice*. University of Prince Edward Island.

Mehrdad, N., Zolfaghari, M., Bahrani, N., & Eybpoosh, S. (2011). Learning outcomes in two different teaching approach in nursing education in Iran: E-learning versus lecture. *Acta Medica Iranica, 49*(5), 296-301.

Mitchell, A.W., & Batorski, R.E. (2009). A study of critical reasoning in online learning: Application of the occupational performance process model. *Occupational Therapy International,16*(2), 134-153. https://doi.org/10.1002/oti.272

Mohammadi, D., Hosseini, S. M., & Fami, H. S. (2011). Investigating agricultural instructors' attitudes toward e-learning in Iran. *Turkish Online Journal of Distance Education*, *12*(1), 174-183.

Mohammadimehr, M. (2020). E-learning as an educational response to COVID-19 epidemic in Iran: The role of the learners support system. *Future of Medical Education Journal, 10*(3), 64-65.

Mohamadzadeh, M., Farzaneh, J., & Mousavi, M. (2012). Challenges and strategies for e-learning development in the Payame Noor University of Iran. *Turkish Online Journal of Distance Education*, *13*(1), 148-159.

Molnar, A. R., & Sherman, B. (1969). US office of education support of computer activities. *Educational Technology, 9*(4), 5-9.

Morri, A. (1997). A Bright future for distance learning: One touch/hughes alliance promotes interactive "e-learning" service. *Connected Planet Online, 17*. Retrieved from http://connectedplanetonline.com/mag/telecom_bright_future_distance/

Morrison, D. (2003). *E-learning strategies: How to get implementation and delivery right first time*. John Wiley & Sons.

Mousazadeh, S., Dehghani, M., Mozaffari, F., Ghasemnegad, S. M., Hakimi, H., & Bagherian, S. (2016). The effectiveness of e-learning in learning: A review of the literature. *International Journal of Medical Research & Health Sciences*, *5*(2), 86-91.

Nakhoda, K., Ahmady, S., Fesharaki, M. G., & Azar, N. G. (2021). COVID-19 pandemic and e-learning satisfaction in medical and non-medical student: A systematic review and meta-analysis. *Iranian Journal of Public Health*, *50*(12), 2509-2516.

Nicholson, P. (2007). A history of e-learning: Echoes of the pioneers. In B. Fernandez Manjon (Eds.), *Computers and education: E-learning, from theory to practice* (pp. 1-11). Springer.

Omidinia, S., Masrom, M., & Selamat, H. (2011). Review of e-learning and ICT infrastructure in developing countries (Case study of Iran). *American Journal of Economics and Business Administration*, *3*(1), 120-125. https://doi.org/10.3844/ajebasp.2011.120.125

Ommani, A. R., & Chizari, M. (2008). Information dissemination system (IDS) based E-learning in agricultural of Iran (perception of Iranian extension agents). *International Journal of Human and Social Sciences*, *2*(3), 129-133.

Ostad, S. N., Ahmady, S., Mohammadi, A., Sabzevari, O., Mojtahedzadeh, R., Razavizadeh, M., & Norouzadeh, A. N. (2019). Evolution of e-learning in Iran's medical sciences universities: Formation of virtual university of medical sciences. *Journal of Medicine and Cultivation*, *27*(4), 233-243.

Paulsen, M. F. (2002). Online education systems: Discussion and definition of terms. *NKI distance education*, *202*, 1-8.

Pesanelli, D. (1993). The plug-in school: A learning environment for the 21st century. *Futurist, 27*(5), 29-32.

Peter, S., & Deimann, M. (2013). On the role of openness in education: A historical reconstruction. *Open Praxis, 5*(1), 7-14. https://doi.org/10.5944/openpraxis.5.1.23

Piccoli, G., Ahmad, R., & Ives, B. (2001). Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training. *MIS Quarterly, 25*(4), 401-426. https://doi.org/10.2307/3250989

Rabiee, A., Nazarian, Z., & Gharibshaeyan, R. (2013). An explanation for internet use obstacles concerning e-learning in Iran. *International Review of Research in Open and Distributed Learning*, *14*(3), 361-376. https://doi.org/10.19173/irrodl.v14i3.1412

Rodriguez, O. (2013). The Concept of openness behind c and x-MOOCs (Massive Open Online Courses). *Open Praxis, 5*(1), 67-73. https://doi.org/10.5944/openpraxis.5.1.42

Rosenberg, M. (2001). *E-Learning: Strategies for delivering knowledge in the digital age*. McGraw-Hill.

Rosenberg, M. J., & Foshay, R. (2002). E-learning: Strategies for delivering knowledge in the digital age. *Performance Improvement*, *41*(5), 50-51. https://doi.org/10.1002/pfi.4140410512

Rovai, A. P. (2004). A constructivist approach to online college learning. *The Internet and Higher Education*, *7*(2), 79-93. https://doi.org/10.1016/j.iheduc.2003.10.002

Rushby, N. (1998). Where are the desks for the virtual class? *ACM SIGCUE Outlook, 26*(2), 33-36. https://doi.org/10.1145/281083.281093

Salahshouri, A., Eslami, K., Boostani, H., Zahiri, M., Jahani, S., Arjmand, R., Heydarabadi, A. B., & Dehaghi, B. F. (2022). The university students' viewpoints on e-learning system during COVID-19 pandemic: The case of Iran. *Heliyon*, *8*(2). https://doi.org/10.1016/j.heliyon.2022.e08984

Salari, M., Yaghmayee, F., Mehdizade, S., Vafadar, Z., & Afzali, M. (2009). Factors related to accept of "e-learning" in nursing students. *Education Strategies in Medical Sciences*, *2*(3), 103-108.

Salmani, N., Bagheri, I., & Dadgari, A. (2022). Iranian nursing students' experiences regarding the status of e-learning during COVID-19 pandemic. *Plos One, 17*(2), e0263388. https://doi.org/10.1371/journal.pone.0263388

Sheikhaboumasoudi, R., Bagheri, M., Hosseini, S. A., Ashouri, E., & Elahi, N. (2018). Improving nursing students' learning outcomes in fundamentals of nursing course through combination of traditional

and e-learning methods. *Iranian Journal of Nursing and Midwifery Research*, *23*(3), 217. https://doi.org/10.4103%2Fijnmr.IJNMR_79_17

Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning, 2*(1).

Singh, H. (2003). Building effective blended learning programs. *Educational Technology, 43*(6), 51-54.

Stahl, G., Koschmann, T., & Suthers, D. (2006). Computer-supported collaborative learning: An Historical perspective. In *Cambridge handbook of the learning sciences* (pp. 409-426). Cambridge University Press.

Taghizadeh, M., & Hajhosseini, F. (2021). Investigating a blended learning environment: Contribution of attitude, interaction, and quality of teaching to satisfaction of graduate students of TEFL. *The Asia-Pacific Education Researcher*, *30*(5), 459-469. https://doi.org/10.1007/s40299-020-00531-z

Talebian, S., Mohammadi, H. M., & Rezvanfar, A. (2014). Information and communication technology (ICT) in higher education: Advantages, disadvantages, conveniences and limitations of applying e-learning to agricultural students in Iran. *Procedia-Social and Behavioral Sciences*, *152*, 300-305. https://doi.org/10.1016/j.sbspro.2014.09.199

Tavangarian, D., Leypold, M. E., Nolting, K., Roser, M., & Voigt, D. (2004). Is e-learning the solution for individual learning?. *Electronic Journal of E-learning*, *2*(2), 273-280.

Torres Martin, C., Acal, C., El Honrani, M., & Mingorance Estrada, A. C. (2021). Impact on the virtual learning environment due to COVID-19. *Sustainability*, *13*(2), 582. https://doi.org/10.3390/su13020582

Vovides, Y., Sanchez-Alonso, S., Mitropoulou, V., & Nickmans, G. (2007). The use of e-learning course management systems to support learning strategies and to improve self-regulated learning. *Educational Research Review*, *2*(1), 64-74. http://dx.doi.org/10.1016/j.edurev.2007.02.004

Wang, Y., Liu, X., & Zhang, Z. (2018). An overview of e-learning in China: History, challenges and opportunities. *Research in Comparative and International Education*, *13*(1), 195-210. https://doi.org/10.1177/1745499918763421

Wentling, T., Waight, C., Strazzo, D., File, J., La Fleur, J., & Kanfer, A. (2000). *The future of e-learning: A corporate and an academic perspective*. Knowledge and Learning Systems Group.

White, M. A. (1983). Synthesis of research on electronic learning. *Educational Leadership*, *40*(8), 13-15.

Winn, W. D. (2002). Research into practice: Current trends in educational technology research: The study of learning environments. *Educational Psychology Review*, *1*(3), 331-351. https://doi.org/10.1023/A:1016068530070

Yaghoubi, J., Malek Mohammadi, I., Iravani, H., Attaran, M., & Gheidi, A. (2008). Virtual students' perceptions of e-learning in Iran. *The Turkish Online Journal of Educational Technology*, *7*(3), Article 10.

Yekefallah, L., Namdar, P., Panahi, R., & Dehghankar, L. (2021). Factors related to students' satisfaction with holding e-learning during the Covid-19 pandemic based on the dimensions of e-learning. *Heliyon*, *7*(7), e07628. https://doi.org/10.1016/j.heliyon.2021.e07628

Zinn, K. L. (2000). Computer-assisted learning and teaching. In *Encyclopedia of Computer Science* (pp. 328-336). John Wiley and Sons Ltd.

Zolfaghari, M., Mehrdad, N., Parsa, Y. Z., Salmani, B. N., & Bahrani, N. (2007). The effect of lecture and e-learning methods on learning mother and child health course in nursing students. *Iranian Journal of Medical Education, 7*(17), 31-39.