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# The challenges of E-learning system: Higher educational institutions perspective

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## Abstract:

**INTRODUCTION:** The development of information technology (IT) in education has led to the expansion of new teaching and learning methods at universities. Implementation of E-learning programs at Iran's universities as well as assessing the prerequisites and level of preparation of learners to attend E-learning environments require extensive study. Therefore, this study examined to investigate the challenges of E-learning system at Tehran University of Medical Sciences.

**METHODOLOGY:** This study was a descriptive and cross-sectional one that conducted in 2016\_2017. The statistical populations were all of the students that have an E-learning course in Tehran University of Medical Sciences, from whom, 300 were selected to participate in the study using a stratified random sampling method. The tool of the study was a researcher-made questionnaire. The data were analyzed through SPSS software.

**RESULTS:** According to the findings of this study, about half of the participants (40%) had problems accessing the technology, and only 26.4% of the participants had good preparation for the use of E-learning system. Furthermore, a significant difference was found between the challenges of skill and culture of the participants ( $P$  value = 0.01).

**CONCLUSION:** Success in the implementation of E-learning educational system as one of the main approaches in managing knowledge and educational needs of higher education organization will not be achieved without identifying the different skill, technical and cultural challenges. To overcome this challenge, establishing IT infrastructure and standards, using experiences of the leading countries in the field of E-learning, creating proper culture, and familiarizing learners and teachers to the development and use of E-learning materials are necessary.

## Keywords:

E-learning, E-learning preparation, challenges, information technology

## Introduction

In the recent years, with the growth of technological expansion, one of the approaches found helpful to increase the effectiveness and efficiency of education is the use of Information and Communications Technology (ICT) that changed our lives and our perspective of the world in an unimaginable way.<sup>[1,2]</sup> Distance education, E-learning and Virtual Universities are the ICT's new achievements that may provide the desired solutions to overcome

the complications of traditional methods.<sup>[3]</sup> In the other words continuous development in the field of communication technologies has resulted in more efficient and cost effective methods of learning as compared to traditional approaches to learning.<sup>[4]</sup>

Commission to technology and adults learning defines E-learning as the entire teaching and learning involvements which are delivered through electronic systems such as the internet, audio and visual tapes, satellite broadcasting, computer and

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compact drives.<sup>[5]</sup> The extent of the increasing E-learning plans and courses have been started in the mid-90s, and consequently, currently, we hear more about the enhancement of this method processes rather than teaching methods at universities of medical sciences.<sup>[6]</sup> E-learning does not facilitate communication of novel medical information, but also it expands the quantity of knowledge and skills, enhances the quality of medical educating and reduces medical costs.<sup>[7]</sup>

Based on the findings from similar researches, the application of E-learning has been considered as a strategy at universities worldwide.<sup>[5,8]</sup> E-learning has been implemented in Iran universities, too. At Tabriz University of medical sciences, the understood of generating electronic education in medical field has been started in 2003 and from 2008, it has been called E-learning system (ELS).<sup>[5]</sup> However, previous studies on the challenges of E-learning system suggest that, the use and implementation of this strategy requires considerable analysis.<sup>[6-12]</sup> As the rapidly expanding use of E-learning technology in medical sciences is realized, analyzing the problems of this emerging phenomenon becomes kind of necessity.<sup>[13]</sup> Understanding and facing these problems and issues either reduce their benefits and also considering the approach of changing the traditional education method to electronic learning makes universities stronger in stepping to this area.<sup>[14]</sup> Therefore, to implement an e-learning system, an understanding of the facts, circumstances and challenges of this technology is required. We aimed to determine the challenges of using the e-learning system in 2016 at Tehran University of Medical Sciences.

### Methodology

This study was a descriptive\_cross\_sectional one that conducted in 2016\_2017. The statistical populations were all of the students that have an E-learning course in Tehran University of Medical Sciences. Sampling was done using the following formula and finally 300 students surveyed. The total number of people in the research community and the number of samples are shown in Table 1.

$$nh = \frac{nh}{n} * n$$

By reviewing the online resources and using the information obtained from the review of similar studies,<sup>[2,5,7-8,11-17]</sup> a questionnaire was developed for survey of E-learning challenges from the perspective of the research community. The content validity of the questionnaire was measured by four experts in the field of health information technology. To collect data and increase the number of participants in the study, a face-to-face meeting approach was used. To ensure the reliability of the questionnaire, it was determined by

**Table 1: The number of statistical populations from different faculties**

Faculty	N	n
Medical	480	120
Paramedical	328	82
Public health	392	98
Total	1200	300

\*N: Number of Community, n: number of samples

internal consistency reliability ( $\alpha = 0.87$ ). The questionnaire consisted of 7 parts and 72 questions: identity information (6 questions), determining the challenges of E-learning system policies (9 questions), financial challenges of E-learning system (8 questions), infrastructure challenges of E-learning system (10 questions), challenges of access to required technology (9 questions), students' skills challenges for use of E-learning system (17 questions), and students' cultural challenges for use of E-learning system (8 questions). The data obtained from the statistical population ( $n = 300$ ) were analyzed using SPSS version 19 (SPSS Inc., Chicago, Illinois, USA), descriptive statistics (frequency distribution and mean reports) and inferential statistics (ANOVA variance analysis, *t*-test, and Pearson correlation coefficient). In this way, all of the questionnaires were completed (response rate was 100%) and the questions in the questionnaire were scored from 0 to 2 (2 for Yes, 1 for Partly, and 0 for No). After calculating the maximum and minimum points for each part of the questionnaire, the median obtained was divided into good, medium and poor points.

### Results

The study participants included 300 students from the Tehran University of Medical Sciences who were studying at medical, health and paramedical schools. In total, 300 questionnaires were completed and returned. Among the students, 47% were studying at bachelor's degrees, and 53% were Ph.D. students. The evaluated indexes were the challenges of using e-learning systems which are shown in Tables 2-5.

According to the findings of this study, the majority of the participants agreed that policies and guidelines to resolve the possible problems that might arise during implementation of e-learning system have been considered and only 22% of the participants disagreed with that. About half of them (40%) had a problem accessing the technology and 38% of them stated that they have skill challenges including the use of tools such as Yahoo Messenger, and the ability to use audio and video tools for online chat. Furthermore, more than half of the participants (57%) did not have any cultural challenge to use the e-learning system. In this regard, the participants believed that, previous experiences in this field and also the encouragement of others are important in their e-learning success.

**Table 2: Statistical populations' answer on the challenges of E-learning system policies**

Variable	Answer			Total
	Yes	No	Partly	
Existence of policies and guidelines	75(%25)	95(%32)	163(%43)	300(%100)
Existence of financial policies	100(%33)	80(%27)	40(%120)	300(%100)
Existence of educational policies and guidelines	102(%34)	52(%17)	146(%49)	300(%100)
Existence of policies to buy the systems	83(%28)	100(%33)	117(%39)	300(%100)
Existence of policies to replace the failed systems	90(%30)	68(%23)	142(%47)	300(%100)
Existence of policies for high-speed Internet accessing	101(%34)	75(%25)	117(%39)	300(%100)
Existence of policies for student access to Internet	89(%30)	75(%25)	136(%45)	300(%100)
Existence of policies for culture	88(%29)	105(%35)	107(%36)	300(%100)
Existence of policies for solving problems	110(%37)	66(%22)	124(%41)	300(%100)

**Table 3: Statistical populations' answer on the challenges of e-learning system's skills (Original)**

Variable	Answer			Total
	Yes	No	Partly	
Having basic computer skills	101(%34)	82(%27)	117(%39)	300(%100)
Having ICDL skills	95(%32)	75(%25)	163(%43)	300(%100)
Having basic internet search skills and access to online information	100(%33)	80(%27)	120(%40)	300(%100)
Having social networking skills such as yahoo messenger	110(%37)	66(%22)	124(%41)	300(%100)
Having the ability to simultaneously type and talk	100(%33)	80(%27)	120(%40)	300(%100)
Having the ability to ask question and make comment in writing	90(%30)	68(%23)	142(%47)	300(%100)
Having the ability to send email and attach file	82(%27)	101(%34)	117(%39)	300(%100)
Having the ability to download audio file	89(%30)	75(%25)	163(%45)	300(%100)
Having the ability to communicate with others via internet	88(%29)	105(%35)	107(%36)	300(%100)
Having the ability to use online video and audio communication	110(%37)	66(%22)	142(%41)	300(%100)
Having the ability to describe the emotions in writing	95(%32)	75(%25)	163(%43)	300(%100)
Having the time management skill to respond as a teacher or a learner	100(%33)	80(%27)	120(%40)	300(%100)
Having the ability to make connection between the content of video clips, attached information and books	102(%34)	52(%17)	146(%49)	300(%100)
The ability to write note while watching a video	101(%34)	82(%27)	117(%39)	300(%100)
The ability to understand the online lesson through video	90(%30)	68(%23)	142(%47)	300(%100)
The ability to answer classified questions over a limited period of time	82(%27)	101(%34)	117(%39)	300(%100)
The ability to spend time to answer a question	89(%30)	75(%25)	163(%43)	300(%100)

As shown in table 6, the present study showed a significant relationship between skill and cultural challenges of the participants ( $P$  value < 0.05).

According to the findings of this study, no significant difference was found between the challenges of using e-learning system between different universities [Table 7].

The findings of this study showed that, 26.4% of the participants had a good preparation, 39.7% had medium preparation and 33.9% of the participants had a poor preparation to use e-learning system [Figure 1].

## Discussion

E-learning as a new method is a comprehensive approach consisting of collaboration, selection, and collection of electronic resources that support a successful online learning experience.<sup>[18]</sup> Such success will not be achieved without identifying the challenges of the environment and supporting the best solutions to overcome them

to ensure the success of teachers and students. In this study, challenges of the use of electronic systems in three Schools of Health, Medicine, and Paramedical of Tehran University of Medical Sciences were investigated.

In general, considering policies in an E-learning system as one of the important factors encourages students to learn better by creating a competitive atmosphere. However, according to different studies, the policy-making for these courses does not have a specific trustee, and this has caused the educational institutions and universities to halt the implementation of this technology despite having necessary licenses and approval regarding required networks, hardware, and planning. According to the results of this study regarding the challenges of e-learning system's policy-making, the majority of the participants agreed that, necessary policies and guidelines to resolve possible problems during the implementation of e-learning system have been considered, but the problems are the lack of planning to implement and monitor this policy.<sup>[19,20]</sup> The results of this study also revealed that, nearly half of

**Table 4: Statistical populations' answer on the cultural challenges of e-learning system (Original)**

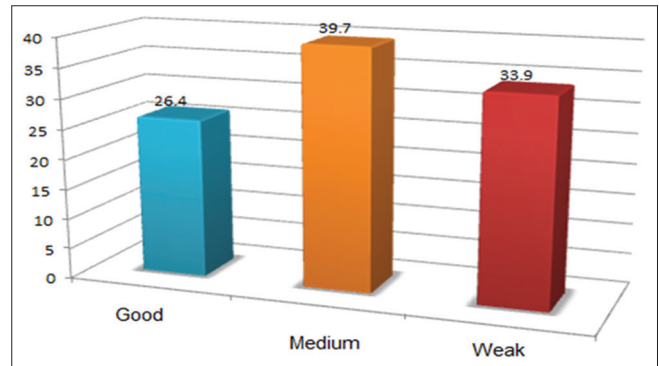
Variable	Answer			Total
	Yes	No	Partly	
Being interested in online learning	82(%27)	137(%47)	81(%26)	300(%100)
Reading the e-books more	75(%25)	163(%43)	62(%32)	300(%100)
Interested in having online communication with teacher	80(%27)	150(%50)	70(%23)	300(%100)
Having the ability to complete the work even with faulty system	66(%22)	124(%41)	110(%37)	300(%100)
Having the ability to complete the work even with disruptions at home	80(%27)	180(%60)	40(%13)	300(%100)
Like to do homework online	68(%23)	142(%47)	90(%30)	300(%100)
The important of making continuous online communication with teacher-student in e-learning success	101(%33)	197(%66)	2(%1)	300(%100)
The important of technical support and emergency management in e-learning success	75(%25)	136(%45)	89(%30)	300(%100)
The important of previous experiences in e-learning success	105(%35)	147(%49)	68(%16)	300(%100)
The important of continuous participation in online classes in e-learning success	66(%22)	177(%59)	57(%19)	300(%100)
The important of immediate use of educational materials in e-learning success	75(%25)	163(%43)	62(%32)	300(%100)
The important of continuous e-learning education in e-learning success	80(%27)	150(%50)	70(%23)	300(%100)
The important of encouragement of friends to use e-learning system in e-learning success	52(%17)	201(%67)	47(%16)	300(%100)

**Table 5: Statistical populations' answer on the challenges of using e-learning system (Original)**

Variable	Answer			Total
	Yes	No	Partly	
Access challenges	105(%35)	75(%25)	120(%40)	300(%100)
Skill challenges	115(%38)	62(%21)	123(%41)	300(%100)
Cultural challenges	85(%28)	170(%57)	45(%15)	300(%100)

those surveyed had difficulty accessing the technology. According to various studies, one of the challenges that Information and communication tools (ICT tools) and e-learning program are faced with is internet use and accessing the technology.<sup>[21,22]</sup> Olaniran (2007) stated that the cost of access to the Internet and the World Wide Web prevents students to access the e-learning curriculum.<sup>[23]</sup> Hence, often in education, a so-called digital divide is defined as the gap between those who have access to technology and those who do not.<sup>[24]</sup> However, according to Warschauer (2003), the digital divide is not only determined by physical access to computers and communications but also by access to additional resources that will lead to better access to the technology. In other words, according to him, the current definition of digital divide had changed from access to technology to understanding how to use it.<sup>[25]</sup> However, accessing the technology is still considered as a challenge particularly in relation to e-learning.

As e-learning approaches are becoming more popular in the world, one of the major issues and concerns is the issue of culture and determining the cultural differences in global education. Vaughn and Mac- Vicar (2004) stated that e-learning is distant to fail if the cultural needs of learners are not considered in detail.<sup>[26]</sup> In the current study, less than half of the participants had cultural challenges to use e-learning system that this was due to cultural similarities of the participants. In general, cultural differences can influence communication,



**Figure 1:** The level (percentage) of preparation of students to use e-learning system (Original)

interaction, and participation through media technology and can create challenges for learners with different cultures. Most e-learning resources and materials have been developed in western countries, whereas the biggest consumers of these resources and materials live in eastern countries. For example, students in the United States have more open online conversations and experience a greater level of satisfaction in relation to participation and online messages than the Taiwanese and Asian students.<sup>[27]</sup> Thus, it is necessary for teachers and designers of online education to have skills in order to deliver culture-based education. This study also showed a relationship between skill and cultural challenges of using e-learning system.

### Conclusion

In general, the use of the e-learning system, as an important approach in managing knowledge and educational needs of higher education institutions, creates some challenges. Discussion on ways to improve these challenges requires rules in relation to both teachers and learners. These rules include the transition from traditional teacher\_student relationship to cyberspace

**Table 6: Statistical populations' answer on the challenges of using e-learning system (Original)**

Variable	Mean	Standard deviation	P
Access challenges	11.97	4.18	0.01
Skill challenges	19.20	4.29	
Cultural challenges	14.13	3.42	

**Table 7: The relationship between different schools in Tehran University of Medical Sciences in regard to the challenges of using e-learning system (Original)**

School	Mean	Standard deviation	P
Medicine	93.00	15.53	0.92
Health	93.27	13.33	
Paramedical	92.23	21.31	

communications that help to overcome challenges and support the success of students.<sup>[28-30]</sup> Teachers and learners must accept the shift from traditional classroom activities to e-learning approaches. Creating a safe online space that facilitates cooperation and creates an opportunity for learners to use different technologies can cover the gap of the digital divide and by creating a common culture. Furthermore, it can reduce the educational deference, which leads to effective e-learning experience. Simultaneous, contact access of learners and teachers to access contact information, confirming the technological competence of students as well as taking into account the different levels of their abilities in teacher\_student interaction in e-learning environment are essential. Furthermore, developing appropriate, purposive and defined courses that contain educational, social, and cultural aspects support teachers and students in e-learning environments. These targeted online courses can enhance students' learning experience and support continuous and self-centered learning.<sup>[23,26,31]</sup> In general, success in the implementation of e-learning system in managing knowledge and educational needs of higher education organizations cannot be achieved without identifying the technical, cultural and skills challenges of e-learning. To overcome these challenges, it is necessary to create technological infrastructure and standards and use the experiences of the developed countries in relation to e-learning. Furthermore, it is necessary to create a suitable culture, and familiarize teachers and learners by developing and using the e-learning system.

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### Conflicts of interest

There are no conflicts of interest.

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