

# The Study of the Status of Factors Affecting the E-learning Quality Assurance from the Student Teachers' Point of View

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## ABSTRACT

**Background:** The obvious point is that the optimal use of e-learning education for student teachers needs to examine the executive factors that play a decisive role in improving the quality of e-learning. This study aimed to investigate the status of factors affecting the quality of e-learning from a student teachers' point of view at the Farhangian University of Yazd.

**Methods:** This descriptive survey was conducted among 314 student teachers at Farhangian University. The samples were selected through simple stratified random sampling during April-July 2021. The status of factors affecting the quality assurance of e-learning was assessed with a researcher-made questionnaire. Data were analyzed in SPSS v.23 using a one-sample t-test, and all statistical tests were run at a significance level of 0.05.

**Results:** The results showed that the component status of the students' skills was at a favorable level (3.82). However, the status of factors such as technology infrastructure (2.41), skills of professors (2.28), ease of access to services (2.35), and management structure (2.45) were not in a favorable situation in the implementation of e-learning quality assurance at the Farhangian University of Yazd.

**Conclusion:** As a result, in order to improve e-learning, university administrators must consider all of the factors influencing the implementation of e-learning quality assurance for teacher students' learning effectiveness.

**Keywords:** E-learning; University; Quality assurance; Students; Teachers; Information and communication technology

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## Introduction

The use of information and communication technology (ICT) in educational systems has increased since the beginning of the third millennium. The development of ICT has led to the significant evolution of e-learning methods (1, 2). In the meantime, the implementation of e-learning in higher education has created substantial changes in the educational systems. It has paved the way for the emergence of universities and

institutions with new teaching and learning systems (3). The entry of communication technologies into education has changed the nature of the teaching process of university learning. It has led to e-learning environments (4-6). E-learning can be defined as a wide range of applications and educational strategies, including computer-based training, web-based training, virtual classrooms, etc. (7). In another definition, e-learning uses Internet technologies to provide systematic

and comprehensive solutions that improve knowledge and performance (8). The Organization for Economic Co-operation and Development (OECD) defines e-learning as using ICT in various educational processes to support and enhance higher education institutions (9).

Today, e-learning systems have become the mainstream of higher education. The successful implementation of e-learning systems will be realized when the necessary qualifications are provided in the university in terms of various human resources, infrastructural, and content dimensions (10, 11).

One of the methods that contribute to the success of e-learning systems in higher education is quality assurance. Quality assurance is an ongoing process of evaluation that includes monitoring, assessing, guaranteeing, maintaining, and enhancing the quality of university e-learning systems (12). In addition, quality assurance can take many forms, from simple self-assessment to more comprehensive accreditation, audit, review, or inspection supported by external and independent peer-review (13). Based on the research, technology infrastructure, professors' experience and skills, students' skills, ease of access to services, and management structure are the most essential factors for quality assurance in e-learning systems (14). Some experts believe that the structure, content, presentation, service, and output reflect the quality of e-learning in higher education institutions (3,15).

For example, according to Ghalyan et al. (16), all four components of service quality and units, quality of information, interaction in the online environment, and quality of system and infrastructure are the factors influencing the success of students' e-learning.

Naranji Sani et al. (6) conducted a study to identify the e-learning system's evaluation components. They emphasized the significance of traits such as teacher, student, teaching assistant, teaching-learning process, content, evaluation, support services, interaction, educational system, and

empowerment. In a study entitled "A model for accepting e-learning in Iranian universities," Jafarpour et al. (14) concluded that the indicators of advanced technologies and desirable organizational and administrative processes are the most important ones, and that indicators of honesty in solving problems are created and satisfaction with available facilities are the least important indicators in the e-learning acceptance process.

Mazloom Ardakani et al. (17) conducted a study entitled "Identification and leveling of factors affecting e-learning in medical education." They concluded that executive-educational structures, innovative management, and supportive managers are influential factors in e-learning education at the University of Medical Sciences. According to the study conducted by Al-Fraihat, Joy, and Sinclair, teacher attitude and enthusiasm as well as the level of teacher interaction with learners has a significant impact on the usefulness of the system (18).

In addition, Choudhury et al. (19) showed that providing equal opportunities for participation, appropriate education and assessment strategies, encouraging students' reflection and engagement, communication between teacher and learner, and quality of resources and content are the most critical factors for the success of an e-learning system.

Raman et al. (20) conducted a research to examine the success factors of e-learning system. They showed that personality traits (teacher attitude, technical skills of teachers, teacher-student interaction, teaching style, knowledge in e-learning, and self-efficacy), information technology infrastructure (ease of use and perceived usefulness), and organizational features (training and support) should be considered.

Alhabeeb et al. (21) conducted a study entitled "e-learning success factors: a comparison of faculty and students' perspectives." From the professors' point of view, the teacher's clarity of e-learning components, the teacher's ability to motivate learners to use the e-learning system, the

teacher's enthusiasm while teaching using e-learning tools, the teacher's teaching style using e-learning technologies, and the teacher's ability to use the e-learning system effectively have the greatest impact on e-learning success, respectively (18).

Given that Farhangian University, which is considered the center of teacher training, has paid much attention to e-learning to train student teachers, it is obvious that the optimal use of e-learning education for student teachers also needs to be examined and the executive factors that play a decisive role in improving the quality of e-learning need to be identified. In addition, no research has been done in this area at Farhangian University, and an information gap is felt in this field. As a result, this study investigated the status of factors affecting the implementation of e-learning quality assurance at the Farhangian University of Yazd.

## Methods

### *Study Design*

The present descriptive survey was conducted among 314 student teachers at Farhangian University during April-July 2021.

### *Participants*

#### *Eligibility Criteria for Participants*

The inclusion criteria were all students studying at Farhangian University, Yazd, Iran, and a willingness to participate. All those who had incompletely filled out the questionnaire and those with extended leave of absence during the study were excluded.

### *Data Collection Tool*

The student teachers' view of the status of factors affecting the quality of e-learning was evaluated through a researcher-made questionnaire. Valid articles and books in this field were examined to construct a researcher-made questionnaire (22-24). In the first stage, the result from which was 36 items. In the next stage, literature and theoretical foundations were examined. In this section, 44 items were extracted. In the next step, the items of the

research section and the theoretical literature section were merged, which resulted in 30 items after overlapping and removing unrelated items. The questionnaire was given to three professors in the fields of philosophy of education, educational technology, and curriculum to determine its face validity, and they were asked to express their views on the difficulty of the questions and the degree to which the questions were related to the purpose of the research. In the content validity review, three experts (philosophy of education, educational technology, and curriculum) were asked to provide the necessary feedback after reviewing the questionnaire based on the criteria of grammar observance, using appropriate words, accuracy and necessity of placement of each phrase in the questionnaire. In this part, the content validity ratio (CVR) was 0.9. Finally, all the changes were applied, and a questionnaire with 25 items was designed.

The questionnaire has items scaled based on the five-point Likert scale (very high, high, average, low, and never). The questionnaire has five indicators. The first indicator is technology infrastructure (5 items), experience and skills of professors (5 items), student skills (5 items), ease of access to services (5 items), and management structure (5 items). The reliability of the questionnaire (Cronbach's alpha) was calculated to be 0.91.

Then, online questions were distributed to eligible participants through WhatsApp after completing the online informed permission form. Participants who did not complete the surveys were contacted and urged to complete them. Notably, only one follow-up attempt was made for each participant.

### *Sample Size and Randomization*

The study population consisted of all Farhangian University students in Yazd (1789), including 951 women and 838 men. Cochran's formula was used to determine the sample size. After performing the procedure, the sample size was determined to be 314 students. The stratified sampling method was used to select the statistical sample. It was

**Table 1:** Demographic characteristics of the students

Students	Gender	Female	151	0.48
		Male	163	0.52
	Educational background	Less than two-term	107	34.23
		2 to 4 term	84	26.51
		4 to 6 term	82	25.17
	6 to 8 term	40	12.8	

**Table 2:** The students' viewpoints of the status of factors affecting the quality of e-learning

99% Confidence Interval of the Difference						
Indicator	Statistical sample	Average	The standard deviation	t value	Level of significance	
Information Technology infrastructure	314	2.41	1.47	-7.02	<0.001	
Skills of students	413	3.82	1.38	1.63	<0.001	
Skills of professors	413	2.28	1.33	-9.54	<0.001	
Ease of access to services	413	2.35	1.39	-8.26	<0.001	
Management structure	413	2.45	1.51	-6.40	<0.001	

used according to the distribution of male and female students in primary education, Persian literature, counseling, Arabic, theology, mathematics, social sciences, exceptional children, and physical education.

*Statistical Methods*

SPSS software version 23 was used for data analysis. In the descriptive statistics section, tables of standard deviation, mean, frequency, etc., were used, and in the inferential statistics section, the one-sample t-test was used.

*Ethical Declarations*

In this study, the following ethical issues were considered: the study was approved by Yazd Farhangian University; explanations were provided to the students in advance of the study; and they were reassured about the confidentiality of their information.

**Results**

A total of 314 student teachers at Farhangian University participated in the study and returned the completed questionnaires. Participants' demographic characteristics are shown in Table 1.

As can be seen in Table 2 from the viewpoint of Farhangian University students, the status of the component of students'

skills is favorable in ensuring the quality of e-learning ( $P < 0.001$ ). However, the status of the element of technology infrastructure, the skills levels of professors, the component of ease of access, and the component of the management structure for services are unfavorable in ensuring the quality of e-learning.

**Discussion**

This study aimed to investigate the factors affecting the e-learning quality assurance from the students' point of view at Farhangian University. According to the findings, the status of the component of students' skills is favorable in ensuring the quality of e-learning. However, the status of the components of technology infrastructure, the skills levels of professors, the component of ease of access, and the component of the management structure for services are unfavorable in ensuring the quality of e-learning. The results of this study are in line with those of Ghalyan et al. (16), Mazloom Ardakani et al. (17), Choudhury et al. (19), and Raman et al. (21) regarding the status of the component of technology infrastructure. However, the findings of Jafarpour et al. (14), Salehi et al. (3), and Alhabeeb et al. (21) are not consistent with the results of

this research. The component of technology infrastructure is one of the factors affecting the success of e-learning. The quality of technology infrastructure, the suitability of online educational units, and the appropriate learning environment for students, staff, and professors are largely related to the facilities and context of universities. These results indicate that Farhangian University administrators must make special investments in technology infrastructure and seriously consider the weak criteria.

The results also showed that the status of the component of students' skills is favorable in ensuring the quality of e-learning. Ghalyan et al. (16), Narenjithani et al. (6), and Al-Fraihat et al. (18) achieved results that are consistent with the findings of this research. However, the findings of Al-Habib et al. (21) are not compatible with the results of this research. The results in this part of the study showed that, fortunately, there is no particular problem in the component of students' skills, and the students have the necessary qualifications and skills to ensure the quality of e-learning. Also, it should be noted that it is necessary to pay special attention to the students' managerial and computer skills, factor of interaction in the online environment, organizational support, skills, and attitude. These measures should be taken to keep the students in the e-learning environment engaged as much as possible.

Another result revealed that the status of the component of the skills of professors is unfavorable in ensuring the quality of e-learning. Salehi et al. (3), Narenjithani et al. (6), and Choudhury et al. (19) achieved results that are consistent with the findings of this research. However, the findings of Al-Habib et al. (21) are not in line with the results of this study. The existence of qualified human resources is the most important condition for creating and using e-learning. In this regard, some measures should be taken to improve the status of the skills of professors in ensuring the quality of e-learning. These measures include appropriate incentives to motivate teachers, appropriate teaching methods

in e-learning, familiarity with e-learning standards, adequate funding, and suitable facilities for purchasing computers, hardware, and software equipment for professors.

However, the component of ease of access to services was evaluated as unfavorable in ensuring the quality of e-learning. Salehi et al. (3), Narenjithani et al. (6), Jafarpoor et al. (14), Choudhury et al. (19), and Al-Fraihat et al. (18) achieved results that are consistent with the findings of this research. However, the findings of Al-Habib et al. (21) are not consistent with the results of this research. Some measures should be taken to improve the status of the component of ease of access to services in order to ensure e-learning. These measures include a user-friendly e-learning system, quality of the e-learning system program, e-learning system, error tracking, and e-learning system ease of use.

Furthermore, the status of the component of the management structure is unfavorable in ensuring the quality of e-learning. Salehi et al. (3), Ghalyan et al. (16), Raman et al. (20) achieved results that are consistent with the findings of this research. However, the findings of Mazloom Ardakani et al. (17) and Al-Habib et al. (21) are consistent with the results of this research. The component of management structure is one of the most fundamental factors in the success of e-learning because management and the way of supervision, as well as the type of organization and coordination of affairs will lead to success in e-learning, and improper management will cause loss of material and intellectual capital and failure to achieve learning goals.

In conclusion, for the quality assurance of e-learning, university administrators must make special investments in technology infrastructure and seriously consider the weak criteria. Second, workshops should be held to improve the electronic skills of teachers. Third, some measures should be taken to improve the status of the component of ease of access to services in ensuring e-learning. These measures include a user-friendly e-learning system, the quality of

the e-learning system program, e-learning system error tracking, and e-learning system ease of use. Finally, pathology was performed for the management structure.

### Limitations

The results from this study cannot be generalized to the general population because the study was conducted in a single location. Also, the study can be conducted over a longer time span.

### Ethical Considerations

In this research, all ethical issues were considered, such as introducing ourselves, a clear explanation of the purpose of the research, and the confidentiality of personal information. The study was approved by Yazd Farhangian University.

### Conflict of Interest

The authors declare that they have no conflict of interest.

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