

# Evaluation of Effective Factors in Designing the Distance Learning Model in Iran's Higher Education's and Presentation of an Appropriate Model

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## ABSTRACT

In the sophisticated and competitive world of today in which environmentally accelerating changes pose increasing threats to the education system every moment, the leader of organizations are advised to predict and implement appropriate measures to counter such threats. One of the functional approaches that can be used in this terrain is distance learning. Because through this approach, human resources can be put into optimal use, as they are the most important resources at managers' hands. For this purpose, the present study has been done based the very crucial matter whose results help understanding more accurately that if the establishment and usage factors and variables of virtual education is identified and implemented, then human resources are put into optimal use. The effective independent variables in the implementation of virtual education in educational centers and institutes in Iran, which are under emphasis in this study, include the tutors, technology, educational content, and finally the student, and these factors are studied in the population subsequently. This study is done with the purpose of investigating effective factors in distance learning in Iran's educational system and presenting a practical approach, and consequently, with the use of inferential statistical methods, applying the results of distributing questionnaires, and doing statistical analyses to prove the secondary research hypotheses which include correlation and effect of independent variables. According to the results, the technological structures and developing the human resources to the specialists and tutors, students are in relation with distance learning, the new managerial structures as the main factors in developing the function procedure in distance learning in higher education institutes.

**Keywords:** distance learning, higher education, educational institutes, educational content, technology, students.

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## INTRODUCTION

Given the increasing role of distance learning in different areas of scientific and technical issues and the importance of optimal use of factors in this regard, and also considering the necessity of making efforts to survive and develop in the competitive world of today, the organizations are forced to put these approaches into use more than before. Obviously, the organizations which succeed in the planning process in order to discover, share, save, and use the knowledge and experience of professors and specialists and manage to create and apply the mentioned method will practically take the lead and play an effective role in this regard.

### Declaring the issue and importance of research

Considering the fact that distance learning has a distinguished and convergent role with differences in business, and effects the way all the resources and assets of organizations are used to some extent at the majority of levels and sectors in the organizations doing educational affairs, on the other hand. Hence, choosing this subject can indicate a direct impact on the optimal use of this method.

### The history and background of research

Distance learning was known as correspondence course for the first time in the 19<sup>th</sup> century. After a while, the correspondence course became pervasive by using the postal system, and schools with other administrative authority agencies offered distance learning by using post and established the written relationship between teachers and students. The United States of America has not been the only country presenting correspondence course, but the European countries have presented courses for language and writing summary since the early 40s, too. In 1873, due to mailing costs, an English avant-garde named Isaac Pittman used shorthand to teach correspondence courses in

Great Britain (3). He explained his method which was based on phonetic principles rather than spelling rules in a book titled "The shorthand correct pattern" in 1873. Pittman's shorthand system was adjusted with 15 languages, and it was one of the most functional systems for stenography in the world, until 1844, when Samuel Morse invented the electric telegraph which became a better way for communications. The revolutionary guards' university was the first non-traditional university in Iran. This university was created correspondently to provide the knowledge brigades with educational opportunities. Then, in 1971, a faculty in the University of Abourayhan-e-Birooni was formed to present distance learning correspondently, and its arrangements were made in 1969. After that, the number of students and majors of this faculty increased, and it was split in two faculties of "Humanity and social sciences" and "Sciences." In 1976, a new unit was formed in the central building of this university and known as regional colleges which established and run the new branches of the university in different regions of the country. Distance learning, in the University of Abourayhan-e-Birooni, was a combination of in-person education tools and distance ones, and books alongside the written content formed the basis of its educational system. The Azad University established a new basis and method in higher education's in Iran. This university accepted the first students after preparations levels of educational system in February, 1987. Purposes, the educational system, the number of students, and methods of this university were totally different from those of the traditional universities. The programs of this university were formed with the purpose of coordinating education with rapid changes in society. After the Islamic Revolution and before the Cultural Revolution, there didn't exist distance learning for a while in Iran, but alongside an annual 10% increase in the number of applicants to universities in the 60s, the government's attention was drawn to the potential power to open the Payam-e-Noor University. The Payam-e-Noor University, as the only university with distance learning system in Iran, was formed according to the ratifications by the Cultural Revolution High Council in 1966, and began to work practically by accepting the first group of students in October, 1988.

Nowadays, the main problem in distance learning is not more availability of information, but in fact, one of the challenges for students is to signify the load of contents they face and grasp all of it with a target. Due to this reason and some more important ones or the information explosion and the consequent progresses, new approaches are needed. Generally, dramatic changes have begun in the world since the late 50s, and information technology has been the main director of all the new innovations for humanity ever since. The pace of these innovations is so high that new ones are introduced with better facilities, more convenience, and less expense while progress, development, and application stages have not been provided in the society yet.

The recent progresses in computer industry, information, emerging local and national computer networks, especially the internet, multimedia networks, and information and communication technologies have provided program planners and implementers with new tools and methods. Khan considers the examples of e-learning as web-based learning, internet-based education, and advanced learning. By other definitions, e-learning refers to those educations which are delivered via electronically communicative devices such as the internet, intranet, and extranet (4).

In this regard, our researches indicate that e-learning is an educational method which provides the learner and the educator with the opportunity to fill the education gap with the appropriate technology, although they are apart from each other in terms of time and place. It can be said that distance learning is the most important factor in developing information technology, and the activists have significant roles in this field in various universities. They believe that technology's familiarity with this language, distance learning system, is not limited to any specialty, level, age, and specific course, and it can activate education at each level and stage, given its active range. Because it's not limited to time and place and is capable of inviting education enthusiasts with a public call in institutes, universities, factories, and etc. by using easier options than before.

E-learning provides countless opportunities which were not possible before. The chance of educating in a well-known and reputable university is now possible. This does not require changing the pervasive lifestyles, leaving jobs, and immigrating individually or with family. Learning in an invisible class promotes the unlimited access to information (Parker, 2004). Lesley et al. has concluded that the reasons why people chose virtual education are the flexibility and free choice of the curricula for the applicants, in a study titled "Educating the virtual world, exploratory learning, and implementing it." (5)

The results of a study, conducted by Zandberg, I., & Lewis, L. with the purpose of designing a pattern for e-learning in agriculture extension and education in Iran in 2008, indicates that self-confidence and responsibility hold the highest priority among the characteristics necessary for students of virtual education (11). Lau and Huang recommend three types of considerations in order to design effective e-learning environments: learners' characteristics, the structure of education, and interaction in development of e-learning which is necessary to fathom the needs of society. First, the learners' characteristics such as attitude, motivation, beliefs, and confidence must be specified (6). A research has been conducted to provide an effective approach in learning, and it has been illuminating that using virtual learning patterns in a combined form is a lot more successful than using a single

method. This research indicates that using the fusion method to educate virtually must be normalized to apply in each society.

## **MATERIALS AND METHODS**

This research is generally a quantity research and is considered an applied one in terms of purpose. The population in this research consisted of the MA student of IT in the University of Shiraz. The total number of them was 110 people. The sample volume is  $n=70$ , and the random sampling method has been used for the statistical society. The main tool is the five-choice questionnaire of Likert's spectrum which has been checked and used by researches, and the confidence level is considered 950%. In order to survey, obtain strong and reliable results, and gather the necessary information, a questionnaire including 30 questions has been designed and distributed in the statistical society.

Cronbach's Alpha method was used to determine the reliability of research instruments. Cronbach's Alpha coefficients for the different variables are as shown in table 1, indicating variables reliability. Processing and analyzing data obtained from the mentioned questionnaire have been done using the Excel software and SPSS version 19.

### **Factors affecting distance learning in higher educations**

Given the previous researches, many variables are involved in studying and designing a pattern for distance learning in higher educations, and they must be carefully taken into note to implement such an approach. Generally, variables like teacher, student, content, organizational structure, and technology can be mentioned. Hence, these variables are briefly studied. Additionally, other variables such as staff and environmental factors like economic and cultural conditions alongside some other ones may be effective, but only four of the mentioned factors have been worked on, considering the limitations.

#### **Teacher**

Teachers and faculty members in distance learning should be familiar with its technology and performance in education. The ability to manage and respond to interact with students should also be taken into account so that teachers can use the available facilities to organize educating and teaching in the virtual form. Therefore, it's totally obvious that these factors should also be studied. These factors can be introduced in this way: management and encouragement, supporting students, providing students with an interactive environment, e-learning skills, and facilitating. Additionally, given the factors such as time management, bilateral interactions, and experience and specialty in applying the electronic contents of the lessons which may affect the independent variable of teacher, they have been asked of the statistical society to some extent through designing and distributing questionnaires.

#### **Student**

Our researches have indicated that virtual education pays more attention to the needs of teachers and managers than those of students, and it's a fact that teachers start teaching in this area without getting familiarized with it. Needless to say that high quality in education is achieved by using skilled teachers. So, we must choose teachers who can understand the virtual student. In this regard, two researches named Noriko Hara and Rob Kling enumerate the needs of students in virtual courses as the following: 1. Making sure that students' ideas and beliefs are expressed to discuss virtually; 2. Awareness of the needs and purposes of learning the lessons and how to do the homework assignments; 3. The possibility of expressing dissatisfaction with the communication quality with the teacher, without the fear of being repressed; 4. Conducting studies, presenting papers, and sending emails to the necessary extent; 5. Receiving response easily and fast; 6. Guidance regarding used technology; 7. Technical supports (2).

According to our researches, based on structures, content, technology, and the teacher, the problems of distance learning in Iran can be put in 10 categories such as: 1. Lack of a comprehensive and convergent policy on using information technology in education; 2. Lack of proper investment; 3. Lack of agreement on the concept and nature of distance learning; 4. Various policy-making organizations; 5. Various organizations to execute commands; 6. Shortage of required information literacy; 7. Weak support; 8. The traditional form of education system; 9. Policymakers insist on the realm of education; 10. Lack of skilled human resource

Nowadays, the importance of investment in education, especially public educations, is quite clear to everyone, and every country, whether developed or not, considers education as vital matters. They also tend toward public, free, and mandatory education. In this regard, Kate Murphy says that the distance learning program is always faced with the problem of budget deficit. Because students seek the ways to receive more services from distance learning systems while paying less costs (Murphy, 2008). As it was mentioned before, the geographical distance between the

teacher and the student is quite long in distance learning, and a two-way communication requires advanced technology and high expenses, a fact which must be known by all managers in order to plan and afford the monetary resources appropriately. In this regard, two researchers Anthony Pinna and Hunt state, "The Managerial systems of distance learning which are responsible for administrative affairs are made in a way so that they can achieve a relative stability in administrations. Additionally, given the factors such as motive, enthusiasm, teamwork, and skill which may affect student variable, they have been asked of the statistical society to some extent through designing and distributing questionnaires." (9)

### **Technology**

ICT and its influence on every aspect of human's life have offered everyone a new paradigm and changed human's life. Universities and educational institutes are not exempted from this and have been changed so much. Normally, the information technology is focused on using knowledge, and universities are identifying and developing new technologies in this area. Plus, given the factors like software, information resources, and hardware factors which can affect the variable of technology, they have been asked of the statistical society to some extent through designing and distributing questionnaires.

### **Content**

We think that titles and explanations given to students on the web pages are highly important. Educational pages on the internet must be carefully created. An internet page is a very small space. These pages shouldn't be very crowded. Lessons should be programmed from easy to hard, up-to-date and coordinated with the novel knowledge, and contents must be crystal clear, easily accessible, and put into small sections in organized forms. To approve of the results of our research, two researchers called Vlavianou and Ioannidou who provide electronic contents say, "Planning in education facilitates achieving predetermined goals. Education requires planning, no matter where or when it is. Therefore, the growth of online libraries, easy access to the knowledge and information of experts through the internet, variety of learning sources, and changing the place to live and etc. in the lifetime require learning new skills and reconstructing the old ones." (10) Thus, providing regular and accurate applications and virtual content bears a clear role in improving teaching and learning. Additionally, the regular form of educational titles on webpages has positive impacts on the transfer of concepts to the students. It is also important in providing training programs to create a relaxed atmosphere. Given our surveys in Iran, it is not easy to access most of the educational materials in the training courses of the virtual learning institutes. It is because of the lack of an appropriate road map, responding misinformation by links, wrong connective words, and etc. that make students confused while using educational programs distantly. These programs can't establish an efficient two-way communication with the student, either. Moreover, considering factors like curricula, syllabi, and the teaching method which can affect the variable of content, they have been asked of the statistical society to some extent through designing and distributing questionnaires.

### **The variables used**

Given the necessity to answer the questions inserted in this paper set of variables were defined at first, so they can be concluded and presented through required statistical calculations and analyses. These variables are mentioned in table 2.

#### **Calculating the desirability level (Comparing the variables)**

Given the use of the Likert's spectrum and the five-choice questionnaire distributed among 70 people of the population, this test has been used to determine the utility level in order to compare the variables. The results are shown in table 3.

#### **Calculating the correlations among the variables**

Having collected the questionnaires and studied the results of answers given by the population, Chi-2 test was used in order to make sure whether there is a correlation between independent variables and dependent ones. The results are shown in table 4.

#### **Calculating the intensity of the correlations**

Having made sure of the correlation between independent and dependent variables, d-Summers calculation was used in order to determine the intensity of the calculations. The results are shown in table 5.

#### **Moderating variables**

The information regarding the mentioned variables are age and gender which have been obtained through distributing questionnaires in the population and put in table 6.

**REVIEW AND ANALYSIS OF STATISTICAL RESULTS**

Given the statistical results of the questionnaires and doing a set of calculations with the Chi-2 and d-summers tests assumption, it can be concluded that there is a meaningful correlation between independent and dependent variables, and so is intensity.

**A) The independent variable of content**

Considering the fact that the meaningful level acquired through the calculations of Chi-2 and d-Summers is less than 0.05, it can be concluded that there are correlation and intensity between the mentioned variable and the dependent variable of distance learning. Additionally, given the intensity of 35%, it is clear that if change occurs in the independent variable of content as much as 1 unit, the dependent variable of distance learning will change 35%.

**B) The independent variable of teacher**

Considering the fact that the meaningful level acquired through the calculations of Chi-2 and d-Summers is less than 0.05, it can be concluded that there are correlation and intensity between the mentioned variable and the dependent variable of distance learning. Additionally, given the intensity of 33%, it is clear that if change occurs in the independent variable of teacher as much as 1 unit, the dependent variable of distance learning will change 33%.

**C) The independent variable of student**

Considering the fact that the meaningful level acquired through the calculations of Chi-2 and d-Summers is less than 0.05, it can be concluded that there are correlation and intensity between the mentioned variable and the dependent variable of distance learning. Additionally, given the intensity of 43%, it is clear that if change occurs in the independent variable of technology as much as 1 unit, the dependent variable of distance learning will change 43%.

**D) The independent level of student**

Considering the fact that the meaningful level acquired through the calculations of Chi-2 and d-Summers is less than 0.05, it can be concluded that there are correlation and intensity between the mentioned variable and the dependent variable of distance learning, which is of course logical, according to the previous researches and statistical results. Additionally, given the intensity of 27%, it is clear that if change occurs in the independent variable of student as much as 1 unit, the dependent variable of distance learning will change 27%.

**Table1.** The number of questions on each variable and the results of Cronbach’s Alpha

Row	Variable	The number of questions	Cronbach’s Alpha
1	Teacher	6	73%
2	Student	6	85%
3	Content	5	78%
4	Technology	6	83%
5	Distance learning	7	87%
6	<b>Total</b>	30	-----

**Table2.** The variables of survey

Independent Variables	Factors	Dependent Variable	Moderating Variables
<b>Content</b>	Lesson materials	Distance learning in higher education	Age
	Method		Gender
<b>Technology</b>	Software		
	Information sources		
	Hardware		
<b>Teacher</b>	Time control		
	Interactions		
	Expertise/Experience		
	Lessons content		
<b>Student</b>	Motivation		
	Interest		
	Teamwork		
	Skill		

**Table3.** The results of calculated level of desirability

variables	N	Mean
<b>Content</b>	70	3.15
<b>Distance learning</b>	70	3.20
<b>Teacher</b>	70	3.21
<b>Student</b>	70	3.32
<b>Technology</b>	70	3.19

**Table4.** The results of the calculation of Chi-2

Calculating the intensity of correlations	The meaningful level
The correlation between student and distance learning	.001
The correlation between technology and distance learning	.003
The correlation between content and distance learning	.000
The correlation between teacher and distance learning	.005

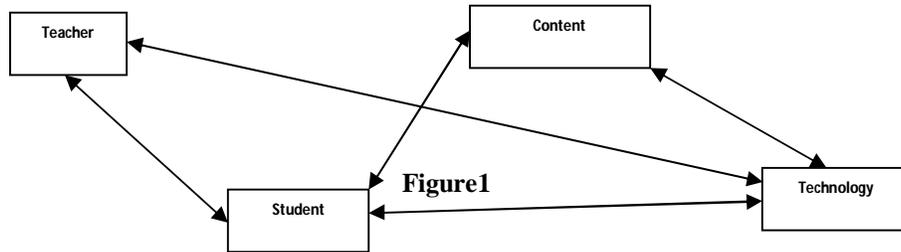
**Table5.** The results of d-Summers calculation

Calculating the intensity of correlations	Value	The meaningful level
The intensity between teacher and distance learning	.334	.008
The intensity between content and distance learning	.353	.004
The intensity between technology and distance learning	.430	.011
The intensity between student and distance learning	.274	.033

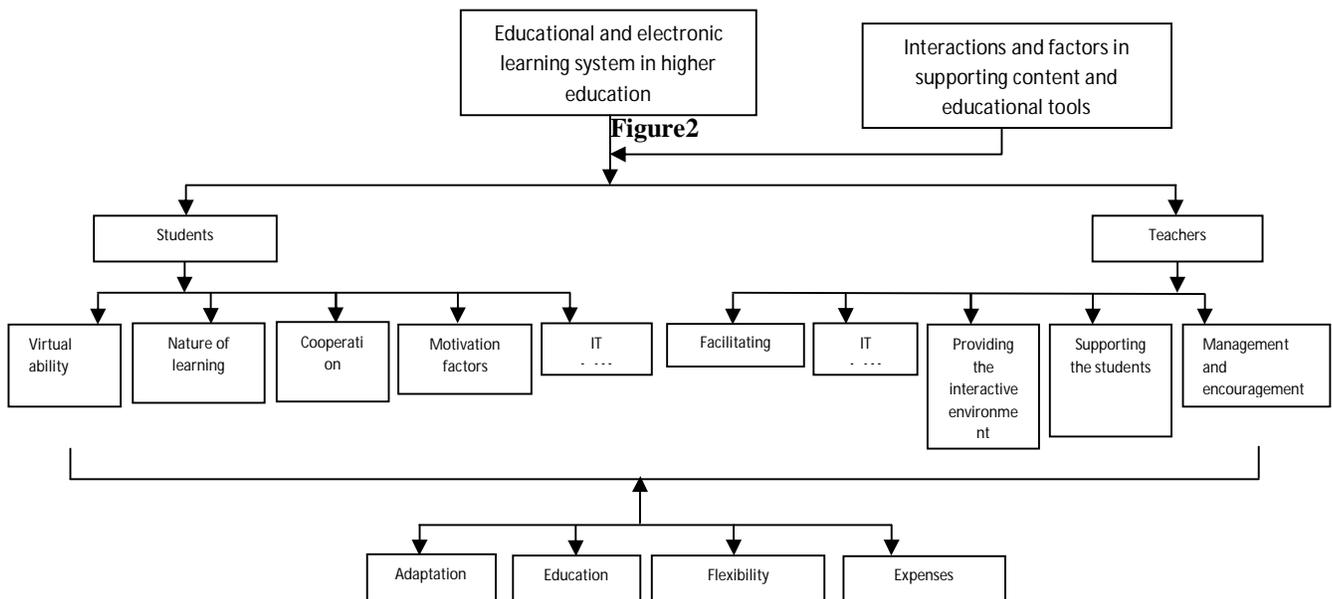
**Table6.** The frequency and percentage of moderating variables

Past 41		From 31 to 40		From 21 to 30		Age
Percentage	Frequency	Percentage	Quantity	Percentage	Frequency	
28%	20	23%	16	52%	34	
Man			Woman			Gender
Percentage	Quantity	Percentage	Frequency			
70%	49	30%	21			

**Figure1:** Factors affecting distance learning in higher educations



**Figure2:** most important factors in a successful educational system



## **Conclusion**

The acquired results indicate that the independent variables of technology, teacher, student, and content are effective with the possibility of 95% in distance learning in higher education's, and since it has been attempted to clarify the intensity of these impacts through using field researches and statistical analyses, four mentioned variables have a determining and sensitive role in distance learning in higher education.

## **Presentation of a conceptual model**

Generally and applying the useful information of the researches in previous researches alongside distance learning in higher education, the following conceptual model can be recommended and designed to create such an approach in universities and higher education institutes, and study the matter, using each of the effective factors and variables. What is aimed in this model should take some factors and subsets into account, and if a set of these factors is created and applied, then it can be claimed that a pace has been picked in distance learning in higher education. Thus, the distance learning pattern in higher education can be summarized as the following:

As it is shown in figure 1 and given the conducted research, the most important factors in a successful educational system which is based on e-learning are educational interactions, educational content, and supporting factors. This need will not be met unless the appropriate electronic infrastructures are provided, and the integrated educational network system is created in the electronic learning system.

## **Conclusion, discussion, and recommendations**

In this study, the main factors of distance learning system have been reviewed and analyzed. This survey has indicated that characteristics like self-confidence and responsibility hold higher priorities than the other ones. It should be acknowledged that the studies of Baker et al. (2003), and Khan (2008) have obtained similar results. Among them, the necessary properties for distance learning teachers have also been reviewed. These findings are also consistent with the results of studies conducted by Rena and Keith (2004) and Murphy (2008). Reviewing and analyzing the effective factors in the success of distance learning system have indicated that these factors can be put into three important categories which are the educational concept, educational tools, and educational support. The educational support falls into two groups of supporting teachers and students. These findings are also consistent with the results of studies conducted by Salmon (2002), Khan (2005), and Mecesyil(2004).

According to the acquired results, the following suggestions are offered:

1. Understanding the philosophy of distance learning, and reviewing the ability of people who want to enter these courses
2. Familiarizing teachers with the new educational technologies
3. Providing teachers and students with courses relating to educational interactions
4. Evaluating teachers' expertise and their ability before starting the course

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