





## *A Survey on the readiness of e-teaching among Faculty Members of Zanjan University of Medical Sciences in 2014*

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### **Abstract**

**Background:** Application of technology for education accounts for an important aspect of expansion of the information technology in the present century.

**Objectives:** This study aims to examine the degree of readiness of the faculty member of Zanjan University of Medical Sciences for e-Teaching.

**Methods:** This descriptive-cross-sectional study focused on the degree of readiness of 70 faculty member of Zanjan University of Medical Sciences in 2014. It followed the simple randomized sampling method. The readiness of faculty member was assessed from five dimensions, including organizational support, perceived value, and time commitment, working skill, access to computer, internet and attitude towards e-Teaching, using a standard questionnaire. The data were analyzed using descriptive statistics indices, Pearson correlation coefficient and Logistic Regression Model at 95% confidence interval.

**Results:** The university faculty member were in adequate level of readiness in terms of organizational support (46.4%), positive attitude towards e-Teaching (49.3%); the skill of work with computer (49.3%), time commitment (44.9%), access to computer (49.3%) and positive perceived value (45.6%). The predictive variables of the university faculty member' readiness were appropriate in terms of organizational support, access to computer and in term of, perceived value, age and gender of the university faculty member in term of, perceived time obligation, skill in work with computer and organizational support.

**Conclusion:** The results showed that readiness of the the faculty member of Zanjan University of Medical Sciences for e-Teaching was in a relatively appropriate level. Expansion of the technological infrastructure, holding empowerment workshops in order for improvement of the required skill and changing attitude of the university faculty member for e-Teaching are suggested.

**Keywords:** *readiness, faculty member of University of Medical Sciences, e-Learning*

### **Introduction**

Using technology for education marks an important aspect of expansion of information technology and communications in present century, opening up new horizons towards universities [1]. Compared to the past, the medical science faculty member today face enormous challenges in teaching the medical students. Over recent years, abundant efforts have been made for

replacing the Stereotype and traditional methods with new and genuine methods based on the personal and social needs of students [2].

Studies have shown that using technology in education will cut educational expenditures, save time, raise opportunities of learning and teaching, increase educational success and make it possible to have swift access to information [3].

eTeaching covers a wide scale and can be web-based, computer assisted learning, digital-based like tablet or mobile, which are at the disposal of the service receivers (school and college students) [4].

The key to implementation of the e-Teaching systems in organizations is preparing necessary conditions in various dimensions, which are regarded as readiness for e-Teaching [1]. The requisite for e-Teaching is having various dimensions of readiness in terms of technical infrastructure, cultural readiness, financial support, human sources and so on [5]. This is while assessment of the degree of readiness allows the officials to take necessary and due policies and measures for development of projects through partnership of all the beneficiary groups [6].

To this end, some universities of medical sciences assess their degree of readiness for eTeaching from various aspects. The results of such studies in Alborz University of Medical Sciences shows that the university is in favorable level in terms of organizational, cultural and financial support as well as technical infrastructures and personal readiness [7].

Furthermore, the readiness of the university faculty member of universities of medical sciences in western part of the country in terms of attitude, knowledge and the skill of work with computer and internet show that majority of the faculty member have positive attitude and enjoy average level of knowledge and skill for the purpose [8].

Of course, studies in other universities have shown contradictory results [3,9].

Deterring obstacles and factors, including personal factors, organizational attitude and support are mentioned as influential in materialization of e-Teaching [10]. Therefore, organizational support for internet-based education consists of technical and financial support and educational planning. While providing necessary equipment and resources for the web-based education, financial support can be in the form of receipt of expenditures and financial rewards, thus further motivating the faculty member to implement the program [11]. The degree of profitability with perceived value, attitude, skill and self-efficiency in using computer can be as influential as organization support, making members of the board of

instructor inclined to use the e-Teaching systems [12,13]. By perceived profitability, the researcher means the degree of the person's belief in using a special system which would improve his/her professional conduct. Personal understanding of the profitability of a system is affected by the reality that s/he perceives a system application is so simple. By perceived obstacles the researcher means any factor, including the organization and social factors, specifications of a computer system such as the type of hardware and software and the quality of education and other people's help in using the computer systems that negatively affect the person's mental attitude towards using the information technology [14].

Despite diversity of factors affecting admission and use of technology by the people in charge of teaching, identification of the amount of readiness and the influential factors in different universities is of special importance.

Meanwhile, as the key part of the learning procedure, faculty member should be well ready in terms of belief, attitude, knowledge, skill, access and degree of using e-Teaching. Since implementation of the e-Teaching program is one of the policies of Zanzan University of Medical Sciences, successful implementation of e-Teaching in the university, evaluation of the degree of readiness of the faculty member from different dimensions seems so necessary. Furthermore, regarding inavailability of similar studies, this study was conducted in 2014 with the purpose of determining the degree of readiness of the faculty member of Zanzan University of Medical Sciences in e-Teaching.

## Methods

This study is descriptive-cross sectional in nature, conducted in 2014 with the purpose to survey the degree of readiness of the faculty member of Zanzan University of Medical Sciences for e-Teaching. The population undergoing this research were all the faculty member of Zanzan University of Medical Sciences, who were asked to submit their informed consent after undergoing the sampling procedure. The criteria for their selection was teaching in Zanzan University of Medical Sciences having a position in the board of academic-education faculty member and teaching for at least one semester. The participants were selected using simple

randomized sampling method. The sample size was on pilot study, taking the least error of  $X^2$  1.10 and variable of 5 for a group of 70 members as the criteria.

The data were studied using the Demographic Information Questionnaire, consisting of (age, Gender, history of teaching, scientific position, the position of service) and readiness of the faculty member on five dimensions, including the perceived organizational support (seven questions) and the perceived value on e-Teaching (14 questions), perceived time commitment (three questions), the skill of work with computer (15 questions) and access to computer and internet (four questions). The questionnaire of the faculty member's readiness by Gasaymeh et al. was designed and underwent psychometric procedure [11]. This study confirmed the content validity of the questionnaires after translation and re-translation, using the perceptions of the experts, and their reliability, estimated by Cronbach's In order for reliability of the questionnaire, modified using Hashemi et al. questionnaire (2011) as model and the views of the content experts for revision, will be estimated, using Cronbach's alpha formula for organizational support (0.78) and the perceived value to e-Learning (0.88), access (0.79), time commitment (0.81), and skill (0.86). Furthermore, to assess the attitude of faculty member Mishra's E-Learning Attitude Scale questionnaire was used, consisting of 22 items. The scoring of the questionnaire items was on the five-point Likert scale. The reliability coefficient of the questionnaire on internal studies was 0.71 and on external studies was 0.81. [15,16]. This study confirmed the re-reliability of Mishra's E-Learning Attitude Scale questionnaire with 0.90 coefficient. To investigate the readiness of the faculty member in each dimensions, this

study used mid cut point, taking the score higher than the mean as sign of readiness.

To describe the data, this study used frequency distribution, mean and dispersion indices, while benefitting from Pearson Correlation Coefficient and Backward Logistic Regression Model at 95% level of significance. Therefore, all the demographic variables and various dimensions of readiness for e-Teaching were entered into the model and using backward method, each variable was derived out of the model and the predictive variables were gained in the final model.

### Results

The results provided in this section are gained through analysis of the data relating to 69 university faculty member. The difference in distribution of data is mentioned in each table, while pointing to the number on the sample mortality.

Table 1 shows that majority of the participant faculty member were male (73.5%), falling within the age group of 30-49 years (36.2%) with the teaching experience of less than four years (39.7%). Their position was associate professor (68.7%) and were engaged in the faculty of medicine (37.7%).

The mean age of the faculty member was  $41.13 \pm 8.72$ . Moreover, the mean score of the attitude of faculty member to e-Teaching was  $73.04 \pm 11.02$ , organizational support was  $20.15 \pm 4.16$ , perceived value of e-Teaching  $45.38 \pm 8.73$ , access to computer and internet was  $15.52 \pm 3.72$ , time commitment was  $8.85 \pm 2.92$ , and skill of work with computer and internet was  $47.91 \pm 9.20$ . The range of the gained score in attitude was 29-102, organizational support 9-31, the perceived value 16-70, access to computer 5-20, time commitment 3-15 and skill of work with computer 27-70.

**Table 1: Frequency Distribution and Percentage of the Demographic Information of the Faculty member (n=69)**

Variable	Frequency	Percent	Total	
<b>Gender</b>	Male	50	73.5	68
	Female	18	26.5	
<b>Age (in year)</b>	30>	9	13	69
	30-39	25	36.2	
	40-49	25	36.2	
	50<	10	14.5	
<b>Background of Teaching (in year)</b>	5>	25	39.7	*63
	5-9	11	17.5	
	10-14	6	9.5	
	15-19	12	19	
<b>Scientific Position</b>	Instructor	14	20.9	*67
	Associate Professor	46	68.7	
	Assistant Professor	6	9	
	Full Professor	1	1.5	
<b>The Faculty of Service</b>	Health	15	21.7	69
	Nursing	11	15.9	
	Medicine	26	37.7	
	Pharmacology	12	17.4	
	Dentistry	5	5.2	

**\*Sample mortality**

Table 2 shows that the adequate readiness in terms of organizational support was 46.4%, of positive attitude was 49.3%, of the skill of work

with computer was 49.3%, of time commitment was 44.9%, of access to computer was 49.3% and of the perceived value was 45.6%.

**Table 2: Percentage and Frequency of the Domains of Faculty member' Readiness for e-Teaching Based on the Mid Cut Point**

Variable	Mid Cut Point	Percent	Frequency
<b>Attitude</b>	Negative	50.7	35
	Positive	49.3	34
<b>Skill</b>	Inadequate	50.7	35
	Adequate	49.3	34
<b>Time Commitment</b>	Inadequate	55.1	38
	Adequate	44.9	31
<b>Access</b>	Inadequate	50.7	35
	Adequate	49.3	34
<b>Organizational Support</b>	Inadequate	53.6	37
	Adequate	46.4	32
<b>Perceived Value</b>	Negative	54.4	37
	Positive	45.6	*31

**\*Sample mortality**

Table 3 also shows that readiness of the faculty member in terms of the perceived organizational support had positive and significant correlation with time commitment ( $r=0.24$ ), access to computer ( $r=0.44$ ) and age ( $r=0.24$ ).

Readiness in terms of the domain of perceived value had positive and significant correlation with attitude ( $r=0.7$ ) and the skill of work with computer ( $r=0.34$ ).

Readiness in terms of the skill of work with computer had direct correlation with access to

computer ( $r=0.28$ ), while having reversed and significant correlation with age ( $r=-0.36$ ) and background of teaching ( $r=-0.36$ ).

Readiness in terms of time commitment had direct correlation with skill ( $r=0.31$ ) and access to computer ( $r=0.43$ ), while had reversed and

significant correlation with background of teaching ( $r=-0.36$ ).

In terms of access to computer, readiness had positive and significant correlation with time commitment ( $r=0.43$ ) and the skill of work with computer ( $r=0.28$ ).

**Table 3: Correlation of the Domains of Faculty member' Readiness for e-Learning and Demographic Variables**

	Organizational Support	Perceived Value	Attitude	Time Commitment	Skill of Work with Computer	Access to Computer	Age	Teaching Experience
<b>Organizational support</b>	1							
<b>Perceived Value</b>	-0.07	1						
<b>Attitude</b>	-0.01	*0.7	1					
<b>Time Commitment</b>	*0.24	0.007	0.13	1				
<b>Skill of Work with Computer</b>	-0.05	*0.34	*0.23	*0.31	1			
<b>Access to Computer</b>	*0.44	-0.15	-0.02	*0.43	*0.28	1		
<b>Age</b>	*0.24	0.006	-0.004	-0.18	*-0.36	-0.09	1	
<b>Teaching Experience</b>	0.13	0.009	-0.007	*-0.26	*-0.36	-0.16	*0.87	1

\*Less than 0.05 level of significance

Table 4 shows that the predictive variables of readiness were positive in terms of organizational support and access to computer and internet to the extent that those having access to computer had 1.26 times more chance of having favorable organizational support compared to others.

The predictive variables of readiness were age, gender and attitude from the standpoint of the positive perceived value to the extent that the variable values for those of higher age with female gender and positive attitude were 1.16, 11.6 and 1.28 times more than others.

The predictive variables of readiness substantiated perceived time commitment, the skill of work with computer and organizational support.

Therefore, the chance of having adequate time commitment was 1.08 and 1.19 times higher for those having the required skill and organization support, respectively.

The predictive variables of readiness in terms of the skill of work with computer included the teaching experience, access to computer and perceived value to the extent that the chance of the people with less teaching experience, adequate access and positive perceived value in having high skill was 0.88, 1.24 and 1.09 times more.

Moreover, the chance of women's positive attitude was 13.6 times and positive perceived value was 1.5 times that of other people.

**Table 4: Predictive Variables of Organizational Support, Perceived Value, Faculty member' Perceived Time Commitment and Attitude**

Variable	Predictive Variables*	B	OR	CI 95%	P Value
<b>Organizational Support</b>	Access to Computer	0.23	1.26	1.06-1.50	0.008
	Gender	2.61	13.61	1.56-118.92	0.01
<b>Attitude</b>	Perceived Value	41.0	1.52	1.24-1.82	0.0001
	Skill	0.08	1.08	1.01-1.16	0.01
<b>Time Commitment</b>	Organizational Support	0.18	1.19	1.04-1.37	0.01
	Teaching Experience	-0.12	0.88	0.81-0.95	0.003
<b>Skill</b>	Access	0.21	1.24	1.02-1.50	0.02
	Perceived Value	0.08	1.09	1.00-1.19	0.04
	Skill	0.11	1.12	1.03-1.22	0.004
<b>Access</b>	Perceived Value	0.15	0.85	0.76-0.96	0.01
	Attitude	0.09	1.09	1.00-1.18	0.03
	Attitude	0.25	1.28	1.11-1.49	0.001
<b>Perceived Value</b>	Age	0.15	1.16	1.02-1.31	0.01
	Gender	2.45	11.60	1.22-110.17	0.03

\*After controlling effect of other variables in backward method

### Discussion

The results of this study showed that readiness of the faculty member of Zanjan University of Medical Sciences for e-Teaching is in relatively appropriate condition from the dimensions of organizational support, the skill of work with the computer, time commitment, and access to computer, perceived value and positive attitude towards e-Teaching. The results of this study are not consistent with those of Darab et al. (2010), Zamani et al. (2010), Rezaei-Rad (2012) and Sheikhian et al. (2014) in certain aspects (5,17-19). The reason for the inconsistency can be the time span when this study took place in 2010. Sheikhian et al. (2014) in Lorestan University of Medical Sciences reported that this university is not well prepared for the purpose for poor educational-technical experience as well as from the standpoints of culture, equipment, communication network, manpower, management, educational policies, security and logistics [19]. Results of the afore-mentioned studies do not go with those of this study; of course, this study lacks any investigation into readiness in terms of the educational and cultural policies. Darabi et al. (2013) and Dehqan et al. (2015) offered similar findings and indicated that Qazvin and Alborz universities of medical

sciences are well ready to receive and embark on development of the e-Teaching system [7,20]. The said results show that although readiness of university faculty member in certain universities of medical sciences is relatively in an appropriate level, there are more steps remaining to material e-Teaching in the universities in line with other universities of the Ministry of Science, Research and Technology, including Sharif University of Technology, which is the pioneer in virtual education.

Results of this study showed that degree of organizational support for launching e-Teaching was almost 47% the adequate level, not consistent with findings of a study by Bakhshi et al. (2016) [21]. The shortcomings caused by technical, educational and administrative support caused restrictions in readiness of the faculty member as one of the major indices for readiness of the learners to participate in e-Learning [22,23]. Therefore, preparing the ground for implementation of the new educational technology, necessary technical facilities, financial support for the web-based educational projects and preparing the web-based technical-educational skill could be taken as one of the policies for encouragement of the directors of universities in this field.

Results of this study showed that the perceived value by faculty member to set up eTeaching was 46 percent positive to set up eTeaching system. The results are in agreement with a study by Mehrdad et al. (2015) to the extent that the degree of satisfaction of the faculty member with implementation of the virtual teaching was close to 44% and the mean perceived value  $11.35 \pm 2.76$  [24]. The perceived value e-Teaching serves as the nucleus of persistent ideology, predictor of the degree of using the systems [12]. To successfully implement technology in an organization, one should pay attention to the background factors like organizational guidelines and the supportive structures for improvement of the attitude of staff towards using technology as well [10]. Time commitment or norm are as important as the perceived value for accepting the e-Teaching. This study showed that almost 45 percent of the faculty member had favorable time commitment. Time or norm commitment has something to do with obligation and accountability of the person towards organization [25]. This study showed that organizational support had positive and significant correlation with time commitment, access to computer and age, while time commitment had direct and linear correlation with degree of skill and access to computer, having reversed and significant relation with teaching experience. Relationship between organizational support and organization commitment has been emphasized in different studies, which fall in line with findings of this study [26,30]. Arshadi (2011), Panaccio and Vandenberghe (2009), DeConinck and Johnson (2009), Shakerinia and Davoodi (2010) and Poor-Soltani and Zarandi (2016) came up with similar results [26,30]. This study showed that inaccess to internet and computer was unfavorable in 50.7% of cases, going in line with study of Darabi et al. (2013). Lack of high wide band and/or lack of access to the educational management networks in proportion to needs of university were the most important factors for lack of access in using the e-Teaching, which should be considered by the university directors [31].

Ertmer believes that faculty member usually prefer a method for teaching to studies that they had experienced it themselves. Therefore, changing the traditional method into electronic method will not be successful unless the board of

faculty member are empowered for the purpose. To this end the high level of literacy on using the internet will increase the faculty member's self-confidence, making them inclined to accept this new method of teaching [32]. Therefore, holding workshops for faculty member's familiarity with the Learning Management Systems, engagement with students through email, using educational websites and designing educational weblogs are recommended. In the same vein, Bahadorani and Yamani concluded that despite having positive attitude, major percentage of the faculty member lack required knowledge and skill for the purpose. Therefore, it is necessary to adopt measures to upgrade knowledge and function of the members of the university board of faculty member in order for optimal use of computer and internet [33]. Gasaymeh proved that the faculty member's positive attitude showed positive correlation with four variables of the degree of the faculty member's access to internet, time commitment, the computer and internet skills, the perceived value of education, being in negative correlation with the organizational support [11]. They are in line with the findings of this study. Of course, it should be noted that the attitudes and feelings of people have more precise relation with other behavioral and attitudinal variables that similar ground and framework is investigated [26]. Though internal (personal and attitudinal) factors are in turn accounted for the primary and fundamental deterrents to the faculty member's participation in the virtual teaching, it can be justified that had it not been for the required external and organizational support for the faculty member's participation, the internal deterrent factors might have less affected their participation [10].

Therefore, increased support of the senior management of organization for the eLearnign and formation of a team of key directors and staff for expansion of e-Learning, support for the said team by senior directors of the organization and efforts for engagement of the team with other staff are suggested [7]. ETeaching is a newly emerged industry of educational and e-Learning technology in Iran. Therefore, Iranian educational centers and institutions, especially universities of medical sciences, are required to use a pattern in proportion to the country's educational and cultural structure to design e-Teaching

environments based on the international standards [34].

This study's data were collected through the self-report questionnaire, which is one of the limitations of this research. Furthermore, this study fails to consider the readiness of the faculty member in certain domains like the experience of e-Learning, which should be taken into consideration in generalizing the outcome of this research.

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### Conflict of interest

The authors of this article declare that there is no conflict of interest in writing this article.

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