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FEASIBILITY STUDY OF IMPLEMENTING THE E-LEARNING-TEACHING SYSTEM IN SECONDARY SCHOOLS

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ABSTRACT

With the widespread of information technology and its influence to the various dimensions of human communities, tools and methods of teaching-learning have also changed. The implementation of E-learning-teaching system requires Prerequisites review and study of feasibility. The main objective of the paper was the study of feasibility of the implementation of E-learning-teaching system from the perspective of students in secondary schools of Zabol. The amount of students ' readiness evaluated for participating in the E-learning-teaching courses in four components such as access to technology, skills and online communication, motivation and ability of learning through media. The paper is a survey research. The statistical community of this study is all students studying in secondary schools of Zabol in the academic year, 2012-2013. The participants were 358 that were selected by stratified relative sampling. The questionnaire was prepared according to Watkins and Trainer's questionnaire (2004). Descriptive statistics (frequency and percentage) and inferential statistics (One-Sample T-test, Independent T-test, ANOVA) were used for data analysis. The results showed that the students participating in the E-learning-teaching courses had relative readiness. There is a significant relationship between students' readiness and academic performance. But this results, on the basis of the moderating variable, showed that there is no significant difference according to gender and degree of students in terms of readiness for participating in the E-learning-teaching courses.

Keywords: *Feasibility Study, Information Technology, Internet, E-Learning-Teaching System.*

INTRODUCTION

The expansion of information technology and penetration of telecommunications equipment to community's depth, tools and methods of teaching - learning has been changed. The use of information technology tools and Internet at learning environments rapidly is spreading. Development of the tools and methods in a way that any person at any time and any place with features can in the timeframe that indicates him (her), engaged in learning. This issue was followed with the emergence of the Internet is more serious and consequently, the standard tools and methods provided for electronic learning and constantly new reforms in this area will be done (Kennedy, 2008).

Electronic learning can be targeted using information and communication technology network in the teaching-learning process called (Naidu, 2006).

With the development of information and communication technology, computer facilities, multimedia and Internet remote education system has entered a new stage. The rapid development of information technology, changes in applications and processes of technical and

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dependent on a variety of education has created (Mazman and Usleul, 2010). Features and capabilities of information, communication, multi-sensory, interactive, anytime, anywhere and customize these technologies to curriculum planners and designers of training allows new learning environment in the name of electronic learning, online, or on the web design. Feasibility and evaluation of IT preparation is the introduction of E-learning Development and the readiness of an organization to achieve the benefits of electronic learning measures (Lopes, 2007). To provide electronic learning courses and assessments to prepare organizations and educational institutions for various models have been developed by researchers. Such as model adapted from reference Beyer and Bruhn-Suhr (2004) building components necessary to provide successful e-learning courses efficiently should be taken into consideration. The basic components of infrastructure construction model (Figure 1) provides electronic learning courses on organizational and technical infrastructure and construction development program and budget by the standards of quality assurance, personnel training and the production of educational content and the pillars of the building from the perspective of learner supports and roof of the building is set to output or the final presentation of shows related to the coordination and guidance aspects of the all previous components (Safavi, 2009).

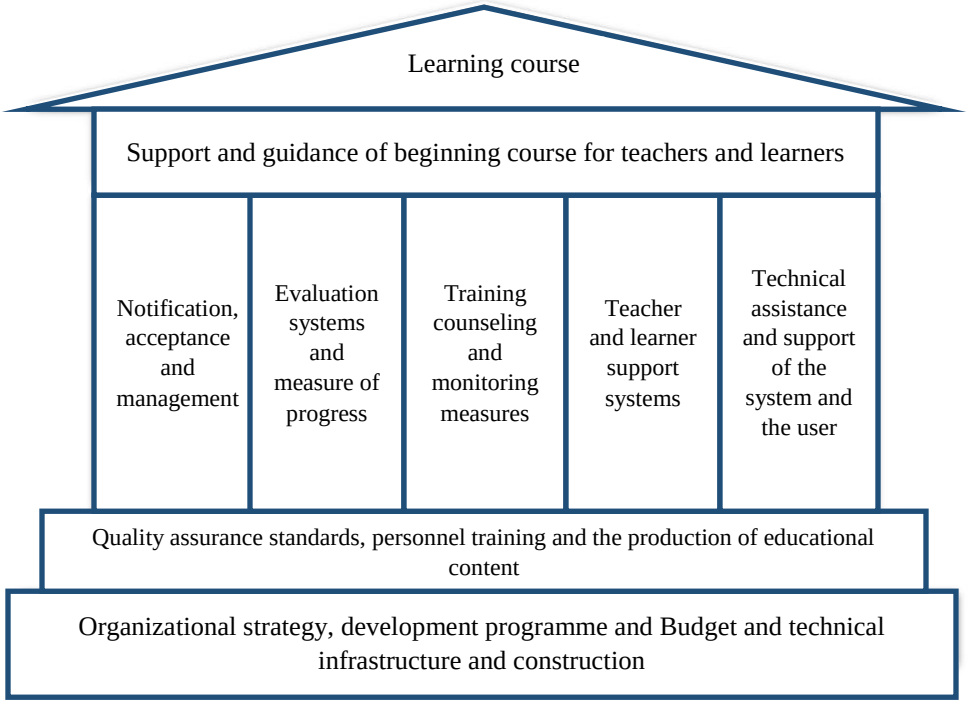

Figure 1: essential component in building models of electronic learning courses

According to this model was introduced, the first step in organizing a successful electronic learning course, Planning and providing infrastructure technical and construction and also investigate prerequisites and amount of preparation learners to participate in e-learning is. The education system readiness for cooperation with other social institutions, in the age of information and communication technology, human breeding that can play role in this era is essential (Garrison & Anderson, 2003). For successful implementation of electronic learning system, the first step should be to prepare the learners to learn this style of learning and also

technical infrastructure necessary for the development of electronic learning is measured. In this study, the feasibility of amount of preparation of secondary school students for the implementation of the electronic teaching - learning will be done. The results of the feasibility of implementing electronic learning to the educational system managers will have the opportunity to evaluate the needs of schools; educational environment for the implementation of electronic learning system gives them. The findings of this research to teachers, instructional designers and managers of the educational system will help the traditional classes to electronic classes with the content of standard electronic, move. Students are the most important people in the use of electronic learning environments because by having e-learning standard content, with a new style of learning will be familiar. This style of learning will help students to learn at any time and any place educational materials and learning is not confined to the classroom.

Background of research

Seeking happiness in research to investigate the use of information and communication technologies in secondary schools from the perspective of teachers is in Tehran. The research method was mixed (quantitative and qualitative), had been. The results showed that teachers have greatly agreed with the spheres of information and communication technology Also believes that the conditions, facilities and resources available for the use of these technologies in schools is very low and these resources are greatly needed. Teachers with barriers and facilitating factors heavily agreed the use of information and communication technology and about the positive and negative consequences outlined in the application of ICT in schools had also agreed (Saadat Talab, 2009). Abdulwahabi and et al in a study on "the feasibility the deployment of smart schools in the girls high school in Ahvaz," to review to prepare of girls' Ahvaz high school for the deployment of smart schools have addressed. In this research component of attitudes, knowledge, skills, teachers and administrators and financial resources, infrastructure and equipment, culture and school administrative functions for the deployment of smart school administrators and teachers are evaluated. The results showed that the overall readiness of high school girls in Ahwaz for the establishment of smart schools, located in the lower level (Abdulwahabi et al., 2012). Sabzi et al in their study to assess the readiness of high school student's west Islamabad city for the use of e-learning were addressed. The results showed that the use of e-learning environments by students is quite low, their access to work with the environment medium, the level of their skills, to work with the environment, low and levels of belief and attitude to the effective use of e-learning in teaching is high (Sabzi, et al., 2010). Kamalian and Fazel in their study to assess pre needs and feasibility of the implementation of e-learning have addressed. Statistical population these studies were all students of the University of Sistan and Baluchestan, among which 332 randomly as the subjects were selected. Preparation of a questionnaire to measure consists of six factors access to technology, skills and continuous communication, motivation, ability to learn through the media, internet and discussion groups, important issues for the success of e-learning were used. The results showed that the students at the University of Sistan and Baluchestan have relative readiness for e-learning. The researchers concluded that a there is no significant difference in terms of gender and academic achievement in preparation for e-learning (kamalian and Fazel, 2009). Miladi and Malek Mohammadi in a study entitled "The feasibility of the use of e-learning in higher education by using factor analysis" to examine the possibility of their use of e-learning in higher education were addressed. Researchers were looking for infrastructure dimensions and hypothetical variables related to the

feasibility the use of e-learning. The results showed that four factors of infrastructure, technology, training and support, infrastructure the variables related to the feasibility of e-learning application are formed (Miladi and Malek Mohammadi, 2010). Tmajyan in research to assess the readiness of e-learning students and faculty of Tarbiat Modarres University addressed. The results showed that students have in terms of mental preparation required for participation in e-learning are at the highest level and in terms of introduction of e-learning technologies at the lowest level. Professors also have in terms of right attitude towards e-learning at the highest level and in the context of a proper approach to the factors Triggers are at the lowest level (Tmajyan, 2008).

Omui Milan in their research to the study of factors affecting the willingness of faculty members to use electronic learning systems is addressed. From effective factors, resistance to change, perceived value, computer self-efficacy and attitudes were examined. The results showed that all variables in wanting been effective. The researchers found that gender, age, level of experience and college professors' tendency to the use of electronic learning systems has not affect (Omoiee Milan, 2010).

Fathi and Nasiri, the feasibility study on the establishment of electronic learning in-service training centers of the Ministry of Education have done. According to this study, staff of the Ministry of Education in terms of knowledge, attitudes and skills in the field of electronic learning has low level (Fathi and Nasiri, 2005).

Smak et al., preparation of teachers in the use of IT in teaching evaluated. The results showed that the use of computers and the ability to use software among teachers are moderate (Summak et al., 2010).

Watkins and et al by using a questionnaire with 6 components to check their e-readiness of learners is addressed which in the past have not used from electronic the environment. The questionnaire consists of six components: access to technology skills and online communication, motivation, web chats, the ability to learn through the media and important issues for the success of electronic learning was carried out on 936 learner's people. The results showed that all components have sufficient credit (Watkins et al., 2004).

Research findings Kumar and et al, showed that the amount of teacher's using technology for educational purposes is low, but their attitude in this regard is positive. But between attitude of teachers and amount of use of information technology in teaching, there is a positive correlation (Kumar et al., 2008). Hasemi and Esari in research preparation of students for the use of electronic learning systems were examined. Statistical population of this research was students at the University of the Sine in Malaysia.

By using questionnaire in four dimensions' access to computers, Internet access, ease of use and perceived benefits, the amount of preparation was investigated. The results showed that students for using electronic learning systems are 65% preparation (Hasmi and Asar, 2005).

Wilson in research, lack of training classes that is equipped with appropriate facilities for the use of technology as a major obstacle in the path of development knows virtual learning (Wilson, 2003).

Ansted and et al, in their study items such as the little knowledge in the field of IT training and lack of education, in this context, the inexperience of faculty members in the effective use of new technologies and their resistance have been noted virtual courses (Anstead et al., 2004).

Aydin and Tasi in a study to assess the readiness of Turkish companies to implement is addressed electronic learning system. In this research, organizational readiness for implementing electronic learning system in four dimensions of human resources, personal growth, technology and innovation were investigated. The results showed that companies in this area are relatively well prepared and promotion of human resources is required for the implementation of electronic learning (Aydin and Tasci, 2005).

Trandsen in a survey entitled "Attitudes of students in online collaborative learning environments with limited participation" showed that the variables of self-leadership skills, working with computers and internet skills, time management, lack of face-to-face relationship, having regular characters, problems of access, employment, technical issues, support the intellectual, fitness and quality of course content Including the variables influencing learners participate in online collaborative learning is. These factors in order including the most important variables are limiting students to participate in electronic learning (Trandsen, 2004).

Wilhelm a research as a virtual learning has done from the perspective of students at the Leva States University. In this case, the perception of students in a virtual classroom has been described. The results show that the majority of students the virtual classes had a positive experience and is expressed that in virtual classrooms more than presence classes, the content have learned (Wilhelm, 2003).

Research questions

1) How is the level of readiness secondary school students in terms of access to technology to participate in e-learning courses?
2) How is the level of readiness and communication skills in Secondary school students to participate in online courses and e-learning?
3) How is the level of readiness Secondary school students in motivation for participating in e-learning courses?
4) How is the level of readiness Secondary school students in ability to learn through the media to participate in e-learning courses?
5) Is there is any significant difference between secondary school students' readiness to participate in e-learning courses due to academic performance?
6) Is there is any significant difference between Secondary school students' readiness to participate in e-learning courses according to grade?
7) Is there is any significant difference between Secondary school students' readiness to participate in e-learning courses according to gender?

MATERIALS AND METHODS

Present study in terms nature of the problem and research objectives, descriptive - survey research, and in the dimension of time sectional is considered. Statistical population of this study, all students (male and female) enrolled in high school in the city of Zabol year of 2012-2013 is that their number has been 8450 people, the number of 4250 males and 4200 were females. The sample size is proportional to the population through a Morgan sample volume determination is obtained on the basis of number 358 by using the relative stratified sampling were selected. In this study, first of all secondary schools in the second class were boys and girls. The number of students in each class than them in society was selected (179 boys and 179 girls).

In Continued from each class of 3 schools (three boys, three girls) were selected randomly and then from the every three schools, 179 students were selected randomly.

Measuring tools

The feasibility of the implementation of e-learning in secondary schools, from researcher made questionnaire Based on questionnaires of Watkins and trainer was used (Watkins et al., 2004). This questionnaire has 25 items in 4 factors that consist of two parts. The first part is about personal information including gender, basic education and the average score. The second part is related to the level of readiness of high school students to participate in electronic learning courses. In the 4 factors (access to technology and online communication skills, motivation and ability to learn through the media) is classified. Scale of the questionnaire was a Likert-type responses from 1 (very low) to 5 (very much) is graded.

Validity of measurement

The order of validity, Performance of measuring tools to measure features that is made tools for (Sharifi, 2011). Validity of this study was determined based on the validity of the content. In accordance with the content validity of the questionnaire to the relevant subject experts such as supervisor, consultant professor and others from university professors were places and necessary reforms in the questionnaire were considered.

The reliability of measuring tools

The purpose of reliability, degree of accuracy, or the accuracy and stability of measuring tools is that as well as shows a measuring tool how measurement error exists. To determine the reliability from Cronbach's alpha were used the amount of alpha 0.84 is obtained. The reliability of the results is shown in Table 1.

Table 1: alpha coefficient for reliability

Row	Variable	Alpha	Number of items
1	Access to technology	0.75	5
2	Skills and online communication	0.74	12
3	Motivation	0.78	5
4	The ability to learn through the media	0.77	3
total		0.84	25

RESULTS

First question of this research: How is the level of readiness secondary school students in terms of access to technology to participate in e-learning courses? In order to review, first question of research, from single group t test were used. Results Table 2 shows the average achieved (15.40) the average of test (15) is higher than that this difference in level of 95 percent ($p < 0.05$) is significant.

Table 2: impact of access to technology in readiness for electronic learning

Index						Abundance	Frequency
Very little						6	1.7
Low						73	20.4
Average						134	37.4
High						118	32.9
Too much						27	7.6
Total						358	% 100
Component	Count	Mean	SD	Test Value	t	Degree of freedom	Significant level

Access to technology	358	15.40	3.48	15	2.18	357	0.030

The results of the survey first question indicated that preparation in secondary schools students in terms access to technology to participate in e-learning courses exist, That this result is consistent with the results of Sabzi and et al, kamalian and Fazel, Summak and et al, Watkins and et al, Kumar et al., Hasmi and Asaari, Wilson is Have expressed that access to computers and Internet network for students in educational institutions and universities, e-learning courses is required. And contrary to the results of research conducted by Saadat Talab and Abdulwahabi and et al is that have expressed facilities and electronic technology in schools is low level.

The second research question: How is preparation of secondary school students, in terms of skills and online communication, e-learning courses for? Results Table 3 shows the average achieved (41.40) the average of test (36) is higher than the difference in level of 99% ($p < 0.01$) is significant.

Table 3: impact of Skills and online communication in readiness for electronic learning

Index						Abundance	Frequency
Very little						0	0
Low						39	10.9
Average						145	40.5
High						103	28.7
Too much						71	19.9
Total						358	% 100
Component	Count	Mean	SD	Test Value	t	Degree of freedom	Significant level
Skills and online communication	358	41.40	8.32	36	12.31	357	0.000

The results of the second question of survey showed that prepare in secondary schools students for skills and online communication for participate in e-learning courses exist, That this result, in line with the results of Omoiee Milan, Summak and et al, Watkins et al., Aydin and Tasci and Trandsen is, who have expressed.

Students from enough readiness to use of computer and network technologies, such as Internet search and ... have and contrary to the results of research conducted by Abdulwahabi et al., Sabzi et al., Kamalian and Fazel, Tamajyan, Fathi al Nasiri and Anstead is that have expressed school and university students do not have basic skills in using computers and electronics.

Third research question: How is the level of readiness Secondary school students in motivation for participating in e-learning courses? Results Table 4 shows the average achieved (18.52) the average of test (15) is higher that this difference in level of 99% ($p < 0.01$) is significant.

Table 4: impact of motivation in readiness for electronic learning

Index						Abundance	Frequency
Very little						0	0
Low						33	9.2
Average						46	12.8
High						154	43
Too much						125	34.9
Total						358	% 100
Component	Count	Mean	SD	Test Value	t	Degree of freedom	Significant level
Motivation	358	18.52	3.70	15	18.01	357	0.000

The results of the survey showed that the third question that prepare in secondary schools students the motivation for participating in e-learning courses exist, That this result is in line with research, Saadat Talab, Sabzi et al., Kamalian and Fazel, Miladi and Malek Mohammadi, Tamajyan, Omoiee Milan, Watkins and et al, Kumar and et al who have expressed. Learning attitude about e-learning courses and the advantages of using it is positive and faith in the effective use of e-learning in teaching is high. And contrary to the results of research conducted by, Fathi and Nasiri have expressed that the staff of the Ministry of Education in terms attitudes and skills in the field of e-learning are low level.

The fourth question of this research: How is the level of readiness Secondary school students in ability to learn through the media to participate in e-learning courses? Table 5 shows the results obtained average (10.33) from average of test (9) is higher that this difference in level of 99% ($p < 0.01$) is significant.

Table 5: impact of the ability to learn through the media in readiness for electronic learning

Index						Abundance	Frequency
Very little						37	10.3
Low						27	7.5
Average						106	29.6
High						128	35.8
Too much						60	16.8
Total						358	% 100
Component	Count	Mean	SD	Test Value	t	Degree of freedom	Significant level
The ability to learn through the media	358	10.33	2.88	9	8.77	357	0.000

The results of the study showed that the fourth question in the readiness of secondary school students in terms ability to learn through the media to participate in e-learning courses exist, that this result is in line with results of kamalian and Fazel, Watkins and colleagues and Wilhelm, who expressed that in virtual classroom have been taught more than presence classes.

The fifth question of this research: Is there is any significant difference between secondary school students readiness to participate in e-learning courses due to academic performance? To investigate the question of fifth study, the statistical method ANOVA was used. Results Table 6 shows the observed F proportion (187.93) at the level of 99% is statistically significant ($F_{(3,354)}$, $P<0.01$). So among readiness of secondary school students to participate in e-learning courses due to academic performance, there is a significant difference.

As can be seen in Figure 2, the highest average, for students GPA higher than 17 (95.10) and the lowest mean of students with GPA's below 12 (62.35) is.

Table 6: correlation between academic performance and readiness presence of e-learning courses

	Total squares	Degrees of freedom	Mean square	F	Significant
Between groups	38526.17	3	12842.05	187.93	0.000
Within groups	24190.06	354	68.33		
Total	62716.23	357			

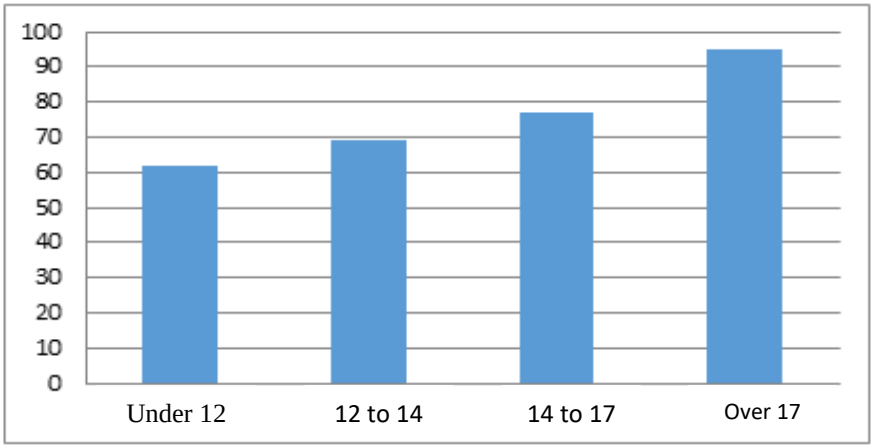

Figure 2: compare the academic performance of students with the readiness presence of e-learning courses

Researcher by doing Tukey test (Table 7) concluded between readiness students with over GPA of 17 Students with a GPA of 14 to 17 and with students GPA of 12 to 14 As well as students with a GPA of below 12, there is a significant difference. So which students are better prepared for the GPA of over 17 e-learning courses. However, among students with GPA of 12 to 14 and under 12 no significant differences were found. This result is inconsistent with the results kamalian and Fazel that have expressed readiness for e-learning does not affect students' progress.

Table 7: Tukey test results readiness for the impact of e-learning in the academic performance of students

	Under 12	12 to 14	14 to 17	over 17
under 12	-	6.92 N.S	15.32*	32.74*
12 to 14	-	-	8.40*	25.81*
14 to 17	-	-	-	17.41*
over 17	-	-	-	-

* Significant
N.S No significant

The sixth question of this research: Is there is any significant difference between Secondary school students readiness to participate in e-learning courses according to grade? To investigate the question of the sixth study, the statistical method ANOVA was used. Results Table 8 shows the ratio of the observed F (0.544) at 95% is not statistically significant ($F_{(3,354)}$, P>0.05). So among readiness of secondary school students to participate in e-learning courses according to grade at the level of 95% there is no significant difference.

Table 8: correlation between readiness's basic academic to participate in e-learning courses

	Total squares	Degrees of freedom	Mean square	F	Significant
Between groups	375.253	3	125.084	0.544	0.653
Within groups	81900.94	354	230.059		
Total	82276.19	357			

The seventh question of this research: Is there is any significant difference between Secondary school students readiness to participate in e-learning courses according to gender? To investigate the question of seventh present study independent t test was used. Results Table 9 shows that the average difference between boys (mean 103.54) and girls (average 104.36) in the amount their readiness to participate in e-learning courses at 95% with 356 degrees of freedom statistically is not significant. (t=0.511, df=356, P>0.05). So among gender of secondary school students with their readiness to participate in e-learning, there is no significant relationship. This result is in line with the result of research kamalian and Fazel, which have expressed the readiness of male and female students in the field of e-learning, cannot see the difference.

Table 9: correlation between genders of students with their readiness to participate in e-learning

gender	count	mean	SD	t	df	sig
Boy	179	103.54	15.14	- 0.511	356	0.609
Girl	179	104.36	15.17			

DISCUSSION AND CONCLUSION

Analysis of research variables (access to technology and online communication skills, motivation, ability to learn through the media) shows that, in general, students have acceptable readiness to participate in e-learning. First factor studied, in this research, for feasibility of implementing an e-learning system is access to technology. The access to e-learning technology in the use of computers, software and hardware is needed in the system. In this research, access to technology is desirable from the perspective of students. Students access to the appropriate Internet, less than other cases have access to the technology. The reason may be the lack of development of high-speed Internet lines, especially in this region, known. In question of 5 of the questionnaire, students access to an expert in the field of computer and guides throughout the average expressed. Presence of expert consultants to solve computer problems for students, and teaching tools of information technology in schools to implement e-learning system is required. The second factor studied in this questionnaire is skills and online communication. These skills include the use of computers, the ability to search for content on the Internet, the ability to communicate with others through the Internet, ability to manage time while surfing the web, chat with others is the ability to problem-solving research findings show knowledge students in this case are in the range of average readiness. Educational classes, working with computers and Internet skills training to use the network for students, to be increase their computer knowledge. Without sufficient skills in the use of web-based tools, will not be allowed entry into the e-learning system. Motivation is third factor of e-readiness assessment of students in this study. The results showed that the majority of students have a high motivation to use e-learning systems. Students, the impact of e-learning systems in the learning materials have assessed positively. What to be increase motivation of students to enhance their knowledge and skills in the use of electronic tools. In response to question of 22, questionnaire, the majority of students hold one or two meetings presence classes during the term, for success in e-learning is expressed very important. Nowadays, some universities and educational institutions to combine the capabilities and characteristics of electronic and presence environments have gone. Hybrid learning environment on the one hand has the advantages of e-learning environment, such as reducing costs, improving quality of content, allowing more interaction and ease of access at

any time and place, And on the other by using features of presence environments, Can some of the shortcomings of electronic learning environments, Such an imbalance, with some training courses weakness infrastructure, lack of familiarity with the technology tools and weaknesses learners access to Internet technology covers. Presence classes during the electronic learning courses will be helpful in improving teaching. Regular contact with own teacher for students is very important. In the e-learning system, teacher support from student not limited to specific hours an electronic teacher should always be ready to answer questions and problems of students. Students as well as teachers in the system of teaching- learning electronic technical and management support have required. If there is no technical support and management, teaching-learning process will not be successful (Aydin and Tasci, 2005). Another important factor in preparing the implementation of e-learning is the ability to learn through the media. Electronic learning environment, learner-cantered environment and the learner must be able to understand the contents of the media have had. In the present study results showed that students in terms of the ability to learn through the media are in a high level of readiness. The research findings show that students with high academic performance have more prepared to use electronic learning systems. So weak students can strengthen their readiness to participate in e-learning courses promote. The results showed that gender and grade of students, electronic learning has no effect on the amount of preparation.

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