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Investigating the Role of ICT in the Educational System of Iran from the Perspective of Teachers and Students: A Case Study (Islamic Azad University (District 2))

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Abstract

This study aimed to investigate the use and role of information and communication technology (ICT) in the educational system of Iran from the perspective of teachers and students. The population consisted of the teachers (N=310) and students (N=3370) of Islamic Azad University (District 2). However, 85 teachers and 300 students were selected through stratified random cluster sampling. In addition to theoretical studies and literature review, data were collected by questionnaire. The reliability was obtained 0.91 for teachers and 0.86 for students. This was an application- field research. By analyzing data through descriptive and inferential statistics, the results showed that the use of ICT in educational system of Iran had a significant impact on the effective teaching and learning. However, there were challenges for using them. The findings also showed significant differences between the views of teachers and students about the use of ICT.

Keywords: Technology, Information Technology, Information and Communication Technology, Application And Role Of Information And Communication Technology.

Introduction

Generally, ICT helps to improve teaching-learning process and thereby helps to increase productivity and efficiency in education. Educational institutions such as universities are the

biggest producer, distributer, and store of knowledge and information. If appropriate plans will be formulated for correct application of information technology and its centrality in development programs, the educational systems will be able to be one of the largest sources of skilled manpower in information technology and play important science and economic role in Iran and global competitions. From this point of view, it is an important step in the reform of educational systems. The changes should be embraced. By paying attention to human abilities, local capacities, and scientific, cultural, and historical background, Iran may play an important role in the world and technology management (Vojdani Asadi, 2006).

Higher education system and its activities constantly changes because of community changes. Educational change is affected by social, science, and technology changes. In simple communities, the needs and ways to satisfy them are simple and easy. But in developed and complex societies, educational systems evolve so fast that their educational structure changes every few years. Here, complex science and technology will be needed. It is no longer possible to lead the community members to the massive and complex evolution with traditional approaches. It may create new opportunities for lifelong learning, develop job skills, present new jobs, develop individual activity between students and teachers, and make able them to solve problems (Ahmadabadi & Nili, 2001).

Peter Drucker states that thirty years later, the big university centers will be scattered survivors and today's valid universities will not be remain. The cost of education increased along with the costs of healthcare day-to-day. These expenses are not controllable and do not affect the improvement of educational material and change quality. This means that this system has quickly lost its ability to defend and cannot survive. Higher education has been in deep crisis. Even today, the lessons are taught outside the campus via satellite or interactive video interactions with one hundredth of current cost. Thus, the current faculties as institutions that are full of students will not never survive.

Around the world, general and fundamental advances in the field of formal education are formed. Most of the large and prestigious universities in the world try to link the developed technologies with their normal routine teaching in college. This is their routine tasks. Currently, such activities as amendments and supplements to the regular courses; but soon, the pressure of changes speed and the pressure of time will impact on everything.

There are a number of factors accelerate the use of technology in university teaching and learning of scientific principles in the learning environment:

A) Public funding of universities around the world continues to decline and the use of technology increases opportunities for reducing the costs and increasing the efficiency of educational system.
B) The expectations from the universities for greater accountability are increased. The universities should provide compelling evidence to prove that they have used most effective from the huge public resources. Here again, technology can play a major role.
C) The awareness and demand will increase among future students. Also, parents will have to pay high costs.

Many people are dissatisfied with the current state of the educational system. In the traditional education system, people spend many years of their life for learning and then enter the labor market. In this type, training is not consistent with the labor market needs and the opportunities for additional training after entering the labor market are less. Using information technology in education, many of these problems can be solved. Today, Internet has a special status due to saving time and cost in the majority of applications such as communications and training. New technologies have provided powerful and new tools for

people communication. Information technology is a new tool for viewing and working with information. Increasingly, it becomes an integral component of individuals' life around the world (Beheshti, 2005).

Information technology has affected the development of new methods and forms of education and enters to the educational environment. Form the late of twentieth century, this subject has proposed as one of the key policies in developing countries. Accordingly, a suitable environment for learning should always be readily available with greater flexibility. According to this attitude, the walls of training centers and schools will collapsed and training will always be available everywhere. For this reason, the importance of new information and communication technologies in the information age is evident (Ebadi, 2003).

The new technologies have enabled learners for learning and teaching and has established a close relationship with their daily life. In addition, the exchange of information between the class and the students has been made possible and accessible. However, experts believe that if teachers do not use information technology in their education, the development of information technology in this field will fail (Turani, 2005). The information technology leaves the responsibility of learning to learners, facilitates individual training programs, allows the learner to set the pace of his/her progress, offers a wide range of information to the learner, and encourages active learning. In traditional teaching methods, learners are not active in learning activities, teachers lecture and students listen and take notes, and rarely get involved in the learning process. While, information technology makes it possible for students to be active and share information and knowledge (Attaran, 2002).

Educational and research system in Iran should evaluate the need for information technology in its infrastructures to include it in its structure. In other words, to recognize the role of information technology in educational system, its role in the quantitative and qualitative development of research and education field should be identified and explained. Of course, we should not expect amazing results from information technology in higher education in a short period. Information technology has an important role in improving the quality of education and research and facilitating the achievement to necessary and sufficient conditions for the provision of high- quality education and proper research (Parandeh, 2001).

Effectiveness of educational technology is clear to thinkers and scholars of education. Studies have confirmed this effectiveness. For example, Balooi Pir Naimi studied the role of educational technology in the learning process from teachers' perspective. Most of the teachers in this study believed that educational technology has an important role in motivating learners and teachers to teach and learn. Considering the role of educational technology in optimizing and accelerating the teaching- learning process, 85.6 percent believed that educational technology may have great role to play. They also stated that the role of educational technology in the better evaluation of teaching and learning process is positive. Also, Moshavegh Arani showed that teachers' familiarity with the concepts and principles of educational technology enhances students learning. Such is the case of the higher education system; there is strong evidence approve the effectiveness of using educational technology in higher education. For example, Pourmohammadi investigated the teaching through the use of educational technology and instructional regular design, and evaluated students' achievements and compared it with the traditional methods. It was found that there are significant differences between the scores of the students who were engaged in learning by using educational technology and students who have been trained traditionally.

Materials and Methods

Given the subject and objectives, this is application research. Given that the researcher intends to investigate the use, role, and status of ICT in educational system from the perspectives of professors and students and it is not possible to manipulate the independent variable, descriptive research method is used.

The population

The population consists of the teachers (N=310) and students (N=3370) of psychology, Educational Sciences, and Teacher Education majors from Islamic Azad Universities (District 2) in West Azerbaijan, Ardabil, and Zanjan (35 units and academic centers). Table 1-3 indicates the statistical population of research.

Sample and Sampling Method

Given that the population size is large, researcher used the cluster sampling method in the first stage. In this study, the academic unit of District 2 was divided into three provinces. Randomly, Zanjan province were selected as sample that includes 9 units or academic centers. Given that the number of male teachers (82%) is more than the female teachers (18%) and the number of female students (81%) is more than male students (19%), stratified random sampling method was used in the second stage. These values are considered as follows:

Table 1
Estimation of The Sample Size among the Students and Teachers

Study population	N	n	Maximum error	Sig.	z
Professors	105	85	0 .05	0 .95	1 .96
Students	1350	300	0 .05	0 .95	1 .96

By selecting 85 professors as sample, it can be said - with 95% confidence- that the estimates of this study will have difference up to 5% from the actual value. From the student population, 300 subjects should be selected.

After determining the sample size, stratified sampling method was used for selecting samples of the academic units. The sample size in each category are summarized in the following tables.

It should be noted that 18 percent of professors are female; this proportion is observed during sampling.

It should be noted that in target population, 19% are male and 81% are female students.

The researcher made questionnaire in this study is based on Likert method with five options (very high, high, medium, low, and very low). The questionnaire was prepared after consultation with supervisor and consultant professors. Then, the validity and reliability of the questions was evaluated. The data were analyzed using descriptive statistics including frequency tables, percentage, central indices, and distribution indices. Given the type of data, one-sample t-test was used to analyze the data related to all questions and t-test was used to compare the perspectives of professors with students. These tests are described below.

Findings

Descriptive and inferential analysis of the first hypothesis

From the perspective of professors, the use of ICT in Iran's higher education system has an important role in teaching and learning.

Table 2
Descriptive Indicators and Frequency Distribution of Answers to Questions Relate to the First Hypothesis

Professors` perspectives regarding ICT role									
No.	Response Frequency					Total frequency	Observed Mean	Observed mode	Observed SD
	The least (1)	Less (2)	Average (3)	More (4)	The most (5)				
1	10	10	36	23	6	85	3.06	3	1.073
2	2	3	29	34	17	85	3.72	4	0.908
3	8	11	29	30	7	85	3.20	4	1.078
4	0	3	23	39	20	85	3.89	4	0.802
5	0	3	18	48	16	85	3.91	4	0.734
6	4	7	15	44	15	85	3.69	4	1.012
7	0	8	40	25	12	85	3.48	3	0.854
8	0	0	27	45	13	85	3.84	4	0.670
9	0	8	15	24	38	85	4.08	5	1.003
10	0	3	21	32	29	85	4.02	4	0.859
11	0	1	11	35	38	85	4.29	5	0.737
12	0	3	16	38	28	85	4.07	4	0.813
13	11	24	23	16	11	85	2.91	2	1.231
14	5	8	42	26	4	85	3.19	3	0.893
15	0	0	18	53	14	85	3.95	4	0.615
کل	40	92	363	512	268	1275	3.6871	4	0.4074
درصد	3.1	7.2	28.5	40.2	21	100			

The above table represents the descriptive information related to the first hypothesis (the role and application of information and communication technology from the perspective of professors). This table described the 1 to 15 questions related to the first hypothesis. As can be seen, the (observed) mean of all the questions and the mean of the first hypothesis's questions (3.6871) is more than the theoretical mean (=3), except the Question 13. This implies that respondents have chosen very high and high options more than other options. Thus, professors believed that the use of ICT in Iran's higher education system has a significant role in teaching and learning. The T-test was used for comparing the observed mean and

theoretical mean (the mean of codes allocated to each question's options). The null hypothesis in this test is as follows:
The results of this test are recorded in the following table:

Table 3
T-Test Results of the First Hypothesis

Sample	n	$\bar{x}$	sample SD	t value	d.f	Sig	Result
Professors	85	3.6871	0.4074	15.545	84	0.000	Rejected

Considering the values of above table, especially the Sig values which are less than 5%, it can be said that sample mean has significant difference with value 3 (theoretical means). Since the sample mean is greater than 3, we can accept that the sample mean is significantly greater than 3. From the perspective of professors, therefore, ICT has a significant role in teaching and learning.

Descriptive and inferential analysis of the second hypothesis: From the perspective of students, the use of ICT in Iran's higher education system has an important role in teaching and learning.

Table 4
Descriptive Indicators and Frequency Distribution of Answers to Questions Relate to the Second Hypothesis

Students` perspectives regarding ICT role									
No.	Response Frequency					Total frequency	Observed Mean	Observed mode	Observed SD
	The least (1)	Less (2)	Average (3)	More (4)	The most (5)				
1	96	74	87	29	14	300	2.30	1	1.153
2	7	16	75	111	91	300	3.88	4	0.982
3	32	70	118	56	24	300	2.90	3	1.077
4	17	13	84	102	84	300	3.74	4	1.087
5	5	17	67	134	77	300	3.87	4	0.918
6	19	18	79	115	69	300	3.66	4	1.091
7	22	58	130	68	22	300	3.03	4	1.004
8	28	58	101	76	37	300	3.12	3	1.142
9	118	91	50	27	14	300	2.09	1	1.156
10	7	9	43	130	111	300	4.10	5	0.915
11	5	20	53	115	107	300	4.00	4	0.976
12	5	18	69	128	80	300	3.87	4	0.934
13	25	43	102	84	46	300	3.28	3	1.139
14	16	44	108	110	22	300	3.26	4	0.978
15	3	12	83	146	56	300	3.80	4	0.822
کل	405	561	1249	1431	854	4500	3.3929	4	0.5207
درصد	9	12.5	27.6	31.9	19	100			

The above table represents the descriptive information related to the second hypothesis (the role and application of information and communication technology from the perspective of students). This table described the 1 to 15 questions related to the second hypothesis. As can be seen, the (observed) mean of all the questions and the mean of the first hypothesis's questions (3.3929) is more than the theoretical mean (=3), except the Questions 1, 3, and 9. This implies that respondents have chosen very high and high options more than other options.

Thus, students believed that the use of ICT in Iran's higher education system has a significant role in teaching and learning. The T-test was used for comparing the observed mean and theoretical mean (the mean of codes allocated to each question's options). The null hypothesis in this test is as follows:

The results of this test are recorded in the following table:

Table 5:
T-Test Results of the Second Hypothesis

Sample	n	$\bar{x}$	sample SD	t value	d.f	Sig	Result
Students	300	3.3929	0.5072	13.418	299	0.000	Rejected

Considering the values of above table, especially the Sig values which are less than 5%, it can be said that sample mean has significant difference with value 3 (theoretical means). Since the sample mean is greater than 3, we can accept that the sample mean is significantly greater than 3. From the perspective of students, therefore, ICT has a significant role in teaching and learning.

Third hypothesis: there is a significant difference between the perspectives of teachers and students about the effective role and use of ICT in teaching and learning.

Given that this hypothesis aims to compare the mean of two independent samples, the independent T-test was used for comparing the samples means.
Decision-making: If the Sig value will be smaller than 0.05, the null hypothesis – the equality of two sample means- is rejected at the 5% error. Otherwise, the assumption of equality of the means of two groups will be accepted.

Table 6
Test Results of the Third Hypothesis

Variable	T student			
	T value	d.f	Sig	Result
ICT role in teaching	4.916	383	0.000	Significant difference

As it was mentioned, if the Sig value will be smaller than 0.05, the null hypothesis – the equality of two sample means- will be rejected at the 5% error. Considering the Sig value in above table, it can be said that there is a significant difference between the perspective of professors and students about the effective role and use of ICT in teaching. Because the mean value of the professors' sample (3.6871) is more than the mean value of students sample (3.3929), it can be concluded that professors more than students believe that ICT has a significant role in teaching and learning.

Discussion

The single-sample t-test results for the professors show that the mean of professors' sample (3.68) is more than theoretical mean (3) and the mean of students' sample (3.40) is more than theoretical mean (3). In fact, the results confirmed this hypothesis: from the perspective of professors and students, ICT has a significant role and use in teaching and learning. This result is consistent with the research results of Rostami and Ayati (2011), Yadegarzadeh (2005),

Ghoorchian (2003), Bakhtiari and Ahmadi (2005), Gerald and Wilde (1996), Vesiyeh (2005), Williams (1998), Carlson and Gadio (2002), Hajj Foorosha and Orangi (2004), Mehr Mohammadi (2004), Rahmani and etc. (2006), Abdullahinia and Rastegarpoor (2005), Attaran (2002), and Noroozi and colleagues (2008). So, teachers and students should use these technologies in teaching and learning.

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