

Investigating the status of ICT in the educational system of Iran: Case study (Islamic Azad University (District 2))

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Abstract

This study aimed to investigate the current status of using 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 status of using ICT in educational system of Iran was satisfactory. 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

According to experts, the shift of learning perspective from behaviorism to constructivism has lead the students to involve in in teaching - learning process (Betham, 2002). In the traditional beliefs of learning, a limited facts and concepts are provided and students should memorize those concepts (Zoofan, 2004). However, in contemporary approaches to teaching and

learning such as constructivism and student-orientation, the emphasis is the way of collecting and creating knowledge based on personal experiences, mental structures, and beliefs. The learning in new area is student-oriented (Wiles & Bondi, 2002). Using the information and communication technologies especially computers, the goals of this new area in educational process will be realized.

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.

In the new millennium, traditional training structures and processes do not meet the needs of human society in the information age, because knowledge-orientation is the major goal of modern human. Therefore, the opportunities for improving the results of training process should be found. The illiterate people in new century are not those who cannot read and write, but those who do not know how to learn. Certainly, taking advantage of educational technologies using new methods will lead to more efficiency and effectiveness of educational systems. Studying the conducted research, it can be easily understood that with the establishment of such educational systems, the huge costs of universities will be reduced significantly.

Globalization is an inevitable process of the present century and its driving motor is the economic needs of communities. Undoubtedly, the extensive ICT developments can be followed in all social and economic areas. Its impact on human society is such that the world is rapidly becoming an information society. A society in which knowledge and useful use of knowledge has crucial and central role and doing tasks, regardless of geographical distance and free from time limitations, is the central achievement of this technology. Although information and communication technologies alone cannot feed the hungry, eradicate hunger, or reduce the death of children, there are more important things which direct the economic growth and social equality.

Today, as a powerful phenomenon affecting the lives of individuals and society, information and communication technology has a special and important place in education. We are living in a world that uses technology every day more than before. So, everyone should understand this technology and the concepts and skills which are necessary for its optimal use. The development of technology is so significant and pervasive that we cannot ignore its effects on education. Using developed capacities of information and communication technology in education is inevitable and necessary (Attaran, 2002).

Many experts believe that the IT revolution speed is much greater than the industrial revolution speed. If Iran – as a developing country- does not attempt to join the fast train, it definitely will have greater distance with other countries than the industrial revolution. The fundamental and important issue is the empowerment of learners to achieve self-leadership skills in learning (Amir Teymoori, 2001).

Considering the rapid changes in information, human knowledge, knowledge production process, and obsolescence of existing knowledge, Mehr Mohammadi (2004) asserts that the methods of learning and lifelong learning must be considered more than ever.

A society which aims to develop based on knowledge and technology must transform its education. For this purpose, it should use the educational technology; i.e. the design, implementation, and evaluation of basic and applied research (Rastegarpour, 2005).

The significant changes arisen from information technology have caused fundamental transformation in the classroom. It is because of the fact that technology has enabled

students to access to information outside of class. This has increased their motivation for learning. The studies have shown that approximately less than half of the teachers use computers for educational purposes such as the use of word processors, spreadsheets, and graphics software (Mishra, 2005).

In general, it can be said that by changing the teaching methods, information technology has directed the the traditional concept of memory-based learning to the creative and dynamic learning (Jariani, 2001).

In general, the role of information and communication technologies in the educational system can be summarized as follows:

- Teacher is no longer an individual who seats in front of the students and teaches. He/she acts as a guide and helps students to find the right educational path and evaluate their learning. Teachers coming together to work in group and joint projects.
- Students are not inactive individuals who just listen to the teacher. They are active learners who work in groups to create new knowledge and engage in problem solving.
- Instead of being away from school and the community, schools enter to the community and workplace.
- Parents involve in learning of their children (Koozma and Aschank, 1998).

Materials and Methods

Given the subject and objectives, this is application research. Given that the researcher intends to investigate the current 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).

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 status of ICT in Iran's higher education system is satisfactory.

Table 2:

Descriptive indicators and frequency distribution of answers to questions relate to the first hypothesis

Professors` perspectives regarding ICT status									
Observed SD	Observed mode	Observed Mean	Total frequency	Response Frequency					No.
				The most (5)	More (4)	Average (3)	Less (2)	The least (1)	
1.009	3	3.13	85	6	25	34	14	6	1
0.727	3	2.68	85	0	8	47	25	5	2
0.573	4	3.93	85	11	57	17	0	0	3
0.931	3	3.27	85	8	23	42	8	4	4
0.781	3	3.52	85	10	29	41	5	0	5
0.666	3	3.49	85	5	35	42	3	0	6
0.788	3	3.39	85	5	33	38	8	1	7
0.742	4	3.74	85	10	47	25	2	1	8
0.654	4	3.62	85	5	46	31	3	0	9
0.944	3	2.33	85	0	7	35	22	21	10
0.909	3	2.65	85	0	16	32	28	9	11
0.925	3	2.75	85	2	12	44	17	10	12
0.810	4	3.66	85	13	35	32	5	0	13
0.743	4	3.60	85	9	37	35	4	0	14
0.802	3	3.31	85	4	30	41	8	2	15
0.851	4	4.04	85	29	32	23	0	1	16
0.879	3	3.04	85	4	16	50	9	6	17
0.4397	3	3.3024	1445	121	488	609	161	66	کل
			100	8.4	33.8	42.1	11.1	4.6	درصد

The above table represents the descriptive information related to the first hypothesis (the status of information and communication technology from the perspective of professors). This table described the 1 to 17 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 (3.3024) is more than the theoretical mean (=3), except the Question 2, 15, and 17. This implies that respondents have chosen very high and high options more than other options.

Thus, professors believed that the status of ICT in Iran's higher education system is satisfactory. 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	3.3024	0.4397	6.341	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, the status of ICT in Iran's higher education system is satisfactory.

Descriptive and inferential analysis of the second hypothesis: From the perspective of students, the status of ICT in Iran's higher education system is satisfactory.

Table 4:

Descriptive indicators and frequency distribution of answers to questions relate to the second hypothesis

Students` perspectives regarding ICT Status									
No.	Response Frequency					Total frequency	Observed Mean	Observed mode	Observed SD
	The least (1)	Less (2)	Average (3)	More (4)	The most (5)				
1	70	85	95	39	11	300	2.45	3	1.095
2	86	76	78	36	24	300	2.45	1	1.244
3	9	18	63	134	76	300	3.83	4	0.974
4	38	74	127	48	13	300	2.75	3	1.013
5	16	47	118	94	25	300	3.22	3	0.986
6	9	36	123	92	40	300	3.39	3	0.964
7	11	40	95	100	45	300	3.46	4	1.019
8	10	35	104	88	63	300	3.53	3	1.052
9	19	62	126	69	24	300	3.06	3	1.005
10	47	101	103	38	11	300	2.55	3	1.019
11	71	94	96	29	10	300	2.38	3	1.051
12	71	93	99	27	10	300	2.37	3	1.044
13	11	23	102	121	43	300	3.54	4	0.955
14	11	24	121	108	36	300	3.45	3	0.933
15	10	40	121	96	33	300	3.34	3	0.956
16	5	25	59	120	91	300	3.89	4	0.987
17	33	68	120	61	18	300	2.88	3	1.048
کل	527	941	1750	1309	573	5100	3.0902	3	0.5207
درصد	10.3	18.5	34.3	25.7	11.2	100			

The above table represents the descriptive information related to the second hypothesis (the status of information and communication technology from the perspective of students). This table described the 1 to 17 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 (3.0902) is more than the theoretical mean (=3), except the Questions 1, 2, 4, 10, 11, 12, and 17. This implies that respondents have chosen very high and high options more than other options. Thus, students believed that the status of ICT in Iran's higher education system is satisfactory. 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 satisfactory status.

Third hypothesis: there is a significant difference between the perspectives of teachers and students about the status of ICT in Iran's higher education system.

Table 6:

Test results of the third hypothesis

متغیر	T student			
	T value	d.f	Sig	Result
Variable	3.427	383	0.000	اختلاف معنادار است
ICT Status in teaching				

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 status of ICT in higher education system. Because the mean value of the professors' sample (3.3024) is more than the mean value of students sample (3.0902), it can be concluded that professors more than students believe that ICT has a satisfactory status in higher education system.

Discussion

The single-sample t-test results for the professors show that the mean of professors' sample (3.30) is more than theoretical mean (3) and the mean of students' sample (3.09) is more than theoretical mean (3). In fact, the results confirmed this hypothesis: professors more than students believe that ICT has a satisfactory status in higher education system. This result is consistent with the research results of Mishra (2005), Jariani (2001), Koozma and Aschank (1998), Hajj Foroosh (2000), and Maleki and Garmabi (2009). This indicates that the current status of ICT is satisfactory.

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