

Study of Deployment of Information and Communication Technology (ICT) by Faculty Members of Departments of Education in Universities of Iran

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Abstract

This survey attempts to study and interpret the deployment of ICT by faculty members of departments of Education in universities of Iran. Descriptive analytical method was used as the research method. Questionnaires were distributed among 600 full-time faculty members of Education in universities of Iran. 410 (68.3%) respondents replied and completed questionnaires. SPSS was used to analyze the data. The data analysis showed that 97% of respondents used ICT. Findings indicated that 96.4% of respondents used computer followed by 96% the internet, 69.8% intranet, 72.9% online databases, 68.8% on-disc databases, 60.3% multimedia, 88.3% CDs & DVDs, 73.5% software tools, 94.9% digital printers, 91% digital scanners, 80.9% digital cameras, 76.4% data projector, 66.3% e-boards, 43.2% expert systems. Among the internet services, web, e-mail, news services and search tools were the most popular internet services being utilized by respondents while digital publishing and online shopping have been the least used services. It showed that the majority of respondents used ICT mostly for doing research, information seeking, classroom lectures, communicating and planning.

Keywords: ICT, Department of Education, Iran, Universities, Faculty Members.

Introduction

ICT generally relates to those technologies that are used for accessing, gathering, manipulating and presenting or communicating information. It refers to the integration of computing technology and communication (Curtin & et al., 2001). The process of globalization and revolution in ICT has changed Higher Education (HE) system. These technologies have been developed dramatically during the recent decades (Rezai-sharifabadi, 1997). The process of education and teaching have been affected by the increasing pace of the digital ICT revolution and the emergence of a knowledge society where a much greater percentage of workforce than before will need skills to create, access and share knowledge (Kaspar & Wells, 2001). In recent decades, the barriers between nations have broken down as never before, and the latest development in computer technology and the internet communication systems have pushed us into a global era with the unprecedented speed and even a sense of surprise (Khirwadkar & Pushanadham, 2005). ICT is now at the centre of

education reform efforts that involve its use in coordination with changes in curriculum, teacher training, pedagogy and assessment (Kozma, 2002). Educators are increasingly aware of the need and concomitant demand to have skills to access the information to enable them to continue learning through their careers. Faculty members must have a basic qualification including ICT related topics from the view point of their professional pedagogic and didactic considerations (Shah & Venkateshwarlu, 2002). This study investigates the deployment of ICT by faculty members of Education in Iran.

Significance of the Study

Despite the increasingly widespread use of ICT by faculty members, relatively few research works are available with respect to their use of ICT and the impact of such use on their activities. The need for new researches on the use of ICT among faculty members was felt necessary. Among issues related to the academic use of ICT, McClure raises these questions: How can the use of electronic networks facilitate the tasks and goals of particular communities of users within this academic setting? What problems do particular academic groups of users face in attempting to exploit networks for the accomplishment of those tasks and goals? (McClure, 1992). The aim of this study is, therefore, to address these and other questions to find out ICT use among faculty members of Education in Iran. The rapid development of using ICT in university departments has also made a need to study technology tools, e-resources, and the related services.

Objectives of the Study

1. To study the status of ICT use among faculty members of departments of Education in universities of Iran.
2. To find out ICT tools and services used by faculty members of Education in Iran.
3. To find out purposes of ICT use by faculty members of Education in Iran.
4. To explore possibilities which encourage and motivate faculty members to increase use of the ICT.
5. To study problems faced by faculty members while using ICT.
6. To suggest/recommend ways to overcome problems faced by faculty members.

Review of Literature

Meadows and Bukhari (1992) studied "Use of Information Technology by Scientists in British and Saudi Arabian Universities." They mailed questionnaires to respondents in British & Saudi Arabian Universities in the departments of Chemistry, Biology and Engineering. Results indicated a rapid growth and diversification of IT activities in the UK. It showed that British users have used online and offline databases two times more than the Saudi Arabian users. 70.2% of the British users used e-mail as none of the Saudi Arabians did. The users of

the two countries used word processing, data analysis software and graphics. Half of the users in both countries used IT with the purposes of information seeking, communicating and doing research works.

Mook Oh and Meadows (1998), studied “The Usage of Information Technology in South Korean Universities.” They sent questionnaires to all academic staff, research students and research assistants in six selected universities. Results showed that the majority of respondents (70%) had less than ten years experience of using computers. It indicated that engineers made more use of IT than scientists did. It showed respondents used IT for: data collection, statistical analysis, graphical display, word processing, personal database, electronic mail, bulletin board, file transfer, telnet, OPAC, CD-ROM search, campus database, nationwide database and international databases. The survey also investigated the problems respondents faced in their use of IT.

Chifwepa (2003), investigated “Use of the Internet and Intranet among Academic Members and Staffs at the University of Zambia.” Questionnaire was used for data collection. Findings revealed that Zambia University had a well-developed network for both intranet and the internet that was established to foster communication and access to both internal and external information. There is a potential for full utilization of the networks providing that a policy to integrate the networks and ICT in general university management and running was developed and implemented.

Al-Ansari (2006), worked on “Internet Use by Faculty Members of Kuwait University.” This study investigated the patterns of the internet use by the faculty including purposes for use, its impact on teaching and research, the internet resources that they use, and the problems faced while using the internet. A questionnaire was used to collect data. Half of the 491 potential participants were selected as the sample, with a response rate of 62.6%. Findings showed that a large majority have been using the computer and the internet for more than five years. They used the internet mostly for, and gave importance to, e-mail, search engines, and www resources mainly for communication, research, and publication. It has helped them to save time, find up-to-date information, and cooperate with their colleagues. Slow speed, lack of time, and lack of access from home were the major problems. Most of them were interested in improving the internet use skills through formal training.

Olatokun (2007) did a study on “Availability, Accessibility and Use of ICT by Nigerian Women Academics.” A questionnaire was administered on 246 women academics in six universities. Findings revealed that the use of ICT facilities such as computers, printers, internet, individual websites, photocopiers, telephones and mobile phones was relatively high among respondents compared to the use of scanners, facsimiles, videoconferencing and teleconferencing. Also, the women academics used the ICT facilities for various tasks notably for statistical analyses, word processing, internet browsing and information searching, electronic communications and preparation of course materials. The study recommends some

policy options and strategies that the government and the management of the surveyed institutions should adopt.

Some related researches have been carried out in Iran as follows:

Vakilimofrad (1999) did a research on "Use of Information Technology by Heart Specialists in Medical Universities of Iran, Tehran and Shahid Beheshti." Descriptive analytical research method was used and 90 questionnaires were distributed among respondents. The response rate was 75.5% (68 questionnaires). Results showed that 68% of heart specialists used IT. The most used technologies among respondents were Video-films (78%), educational discs (65%), internet (61%) and on-disc databases (48%). They used IT in hospital libraries, hospitals and homes. The main purposes of using IT were teaching, treatment and getting up-to-date information.

Tavassoli, Lakbala and Zare (2002) studied "The Use of Internet among Physicians in Hormozgan University of Medical Science." 65 questionnaires were distributed among physicians. Results showed that 43.3% of physicians had internet access at home and 21.8% had access both at home and at work. Half of respondents (53.3%) used internet three times or more per week. Web-based search and e-mail were the dominant activities among physicians (48.3%). 45.3% of respondents did not use internet due to time limitation and lack of training.

Saberian and et.al (2003) surveyed "The Internet Use by Faculty Members in Semnan University of Medical Science." Descriptive method was used and 100 questionnaires were distributed among respondents. 62 questionnaires were replied. Collected data was analyzed by SPSS. Results showed that 91.9% of respondents used the internet. 68.3% of respondents used the internet at home and 30% at university. 50.8% of faculty members used the internet less than one hour daily. 66.7% of faculty members reported that the internet speed was undesirable. 74.2% of respondents used the internet for research activities. 50% of faculty members believed that the internet training workshop courses were necessary.

Research Methodology

Taking the above points into consideration, the circumstances and objectives of the study, descriptive-analytical (survey) method was used as the research method. A questionnaire was employed as the main tool for the data collection. However, indirect studies of records were adopted for collection and analysis of relevant data to supplement the data collected through questionnaires to enhance and strengthen its reliability and to gather some additional information on specific aspects of ICT deployment by faculty members of departments of Education in Iran.

Population and Sample of the Study

The population of this study comprises all full-time faculty members of departments of

Education in universities of Iran in the academic year 2007-2008, so the total population of the present research is full-time faculty members-600 (Lecturers, Assistant Professors, Associate Professors and Professors). As the total population of faculty members was 600 and it was a small population, all the 600 faculty members were selected as the research samples. Questionnaires were distributed among the samples and 410 of respondents replied and completed the questionnaires and the response rate was 68.3%.

Data Analysis

The data was analyzed statistically using descriptive and inferential statistics. The descriptive statistics including frequency and percentage were used to provide a general picture of the current major trends in respect to the use of ICT by the study respondents. Important findings as revealed by the data analysis are as follows:

Respondents' general information

Findings showed that 64% of the respondents were males and 36% females. It revealed that 43.3% (maximum) of respondents were in 40 - 49 age group followed by 29.6% in 30 - 39 age group, 12.2% in 25 - 29 age group, 12.2% in 50 - 59 age group and 2.7% were 60 years old and above 60. Regarding the respondents' academic degree, findings displayed that 54% of respondents had Ph.D. degrees and 46% Master degrees. It indicated that 46.5% of the studied faculty members were lecturers followed by 25.4% assistant professors, 19.5% associate professors and 8.6% (minimum) professors.

Respondents' information location

Figure 1 shows that 53.3% of faculty members located their information in books, journals and databases followed by 15.2% books and journals, 12.7% only books, 7.3% journals, 6.6% only databases and 4.9% (the minimum) journals and databases.

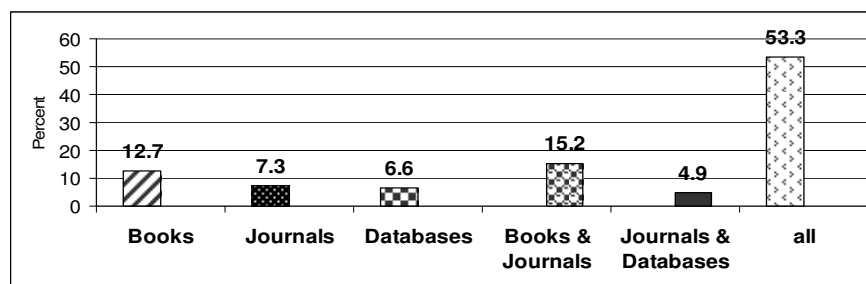


Figure 1. Faculty members' information location wise

Faculty members' awareness and use of ICT

Figure 2 represents that 97% of respondents used ICT, followed by 2% not using and 1% not knowing of it. It shows that the majority of respondents use ICT.

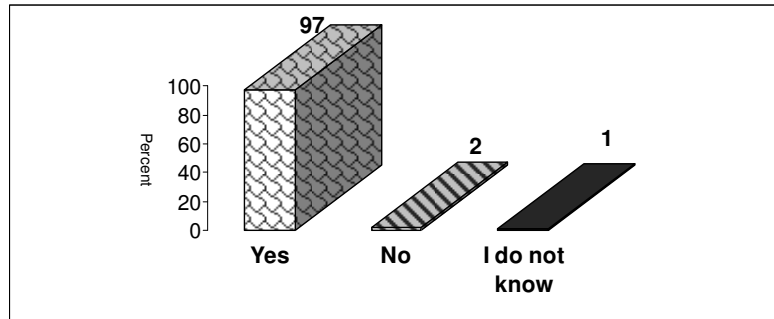


Figure 2. Distribution of ICT use by faculty members

Reasons for not using ICT

Findings showed that 48% of the ICT non-users reported that they did not have facilities to access ICT and 52 % had not been familiar with ICT. It indicated that unfamiliarity and inaccessibility were the two top reasons for not using ICT by non-user respondents.

Respondents' purposes of ICT use

The data indicated that 32.2% of faculty members used ICT mostly for doing research, information seeking, classroom lectures, communicating and planning followed by 19.3% only research, 15.9% information seeking, 14.1% classroom lectures, 7.6% both information seeking & research, 5.1% only communicating and 3.4% (minimum) planning. 2.4% of respondents did not specify any purposes.

Use of ICT tools and services

Table 1 indicates that 96.4% of respondents used computer followed by 96% the internet, 69.8% intranet, 68.8% on disc databases, 72.9% online databases, 60.3% multimedia, 88.3% CDs & DVDs, 73.5% software tools, 76.4 data projectors, 94.9% digital printers, 91% digital scanners, 80.9% digital cameras, 66.3% E-boards and 43.2% expert systems.

Table 1

Faculty Members' Use of ICT Tools and Services

Use Status Type of ICT	Not known		Not used		Used		Not mentioned		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Computer	-	-			394	96.4	16	3.6	410	100
The Internet	-	-	-	-	393	96	17	4	410	100
Intranet	37	9	70	17.1	286	69.8	17	4	410	100
On Disc Databases	21	5.1	64	15.6	282	68.8	43	10.5	410	100
Online Databases	10	2.4	40	9.8	299	72.9	61	14.9	410	100

Use Status Type of ICT	Not known		Not used		Used		Not mentioned		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Multimedia	41	10	53	12.9	247	60.3	69	16.8	410	100
CDs & DVDs	2	.5	18	4.4	362	88.3	28	6.8	410	100
Software Tools	23	5.6	51	12.4	301	73.5	35	8.5	410	100
Data Projector	10	2.4	45	11	313	76.4	42	10.2	410	100
Digital Printers	-	-	7	1.7	389	94.9	14	3.4	410	100
Digital Scanners	-	-	19	5	375	91	16	4	410	100
Digital Cameras	4	1	54	13.2	332	80.9	20	4.9	410	100
E- Boards	25	6.1	81	19.8	272	66.3	32	7.8	410	100
Expert Systems	95	23.2	89	21.7	177	43.2	49	11.9	410	100

Use of the Internet services

Table 2 shows that 85.6% of the respondents used web followed by 95.9% E-mail, 65% digital publishing, 83.9% search tools, 93.8% news services, 75.9% videoconference, 73.2% discussion groups, 76.3 newsgroups and 72% online shopping.

Table 2

Faculty Members' Use of the Internet Services

Use Status The Internet Services	Not known		No Used		Used		Not mentioned		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Web	4	1	23	5.6	351	85.6	32	7.8	410	100
E - mail	-	-	3	.7	393	95.9	14	3.4	410	100
Digital Publishing	56	13.7	57	14	267	65	30	7.3	410	100
Search Tools	11	2.7	23	5.6	344	83.9	32	7.8	410	100
News Services	-	-	10	2.5	385	93.8	15	3.7	410	100
Video-conferencing	8	2	71	17.3	311	75.9	20	4.8	410	100
Discussion Groups	10	2.4	75	18.3	300	73.2	25	6.1	410	100
Newsgroups	13	3.2	66	16.1	313	76.3	18	4.4	410	100
Online Shopping	11	2.7	79	19.3	295	72	25	6	410	100

Respondents' Articles on the Internet

Figure 3 illustrates that 65% of faculty members published academic paper on the internet, 30% did not have any article on the internet and 5% did not specify anything.

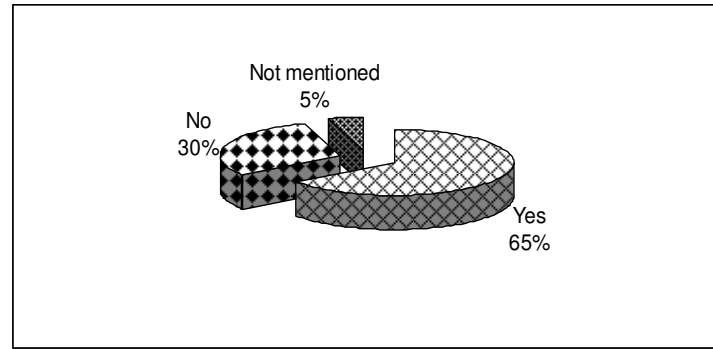


Figure 3. Distribution of faculty members' articles on the internet

ICT encouraging factors

Figure 4 illustrates that 27.8% (majority) of the faculty members believed that “teaching how to use ICT” helped them increase use of ICT followed by 21.2% “easy accessing to ICT”, 17.3% “introducing ICT”, 13.4% “practicing ICT” and 12.2% all the above mentioned factors. 7.8% of respondents did not specify anything.

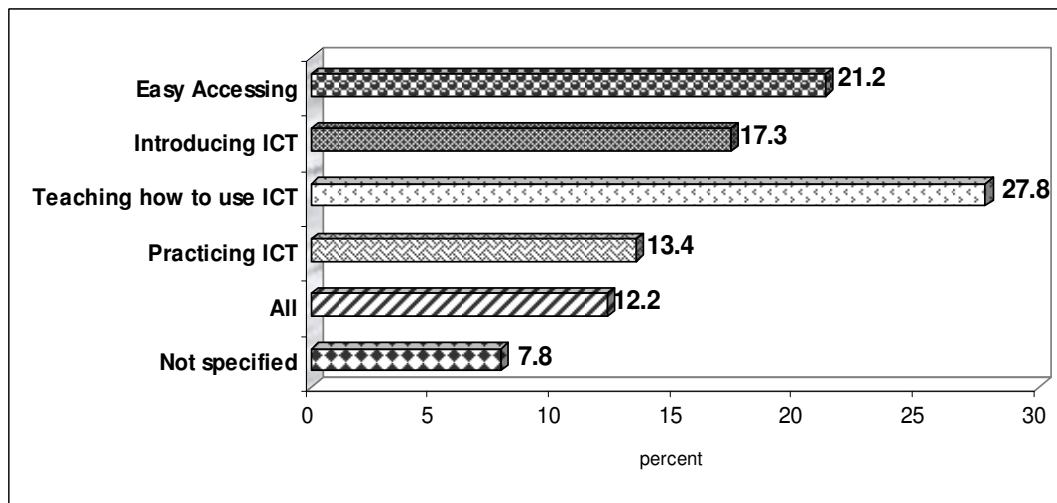


Figure 4. Distribution of encouraging factors

Respondents' problems of using ICT

The most important problems reported by faculty members were as follows: Computers, printers, software tools and supplies were inadequate. There were problems of bandwidth, the internet speed and low speed. They believed that full-text databases were inadequate to perform their academic jobs. They reported that sometimes they were faced technical problems such as internet and networking disconnection. ICT training courses for faculty members have been inadequate. They mentioned that some classrooms were not equipped with the projection systems and audio visual aids.

Discussion

1. Considering the general information of respondents, it was revealed that the majority (64.3%) of respondents were males. It also depicted that the majority (43.3%) of academics were of the 40 – 49 age groups while the minimum were 60 years old and above. It was observed that more than half (54%) of the respondents had Ph.D. degrees while 46% had Master degrees. It was found that 46% of faculty teachers were lecturers and 8.6% (minimum) were professor.

2. Considering the first objective of the study, it was shown that 97% of respondents used ICT and it can be concluded that the majority of the academic members used ICT.

3. Considering the 2nd objective of the study, it was found that 96.4% of the respondents used computer followed by 96% the internet, 69.8% intranet, 68.8% on-disc databases, 72.9% online databases, 60.3% multimedia, 88.3% CDs & DVDs, 73.5% software tools, 76.4 data projectors, 94.9% digital printers, 91% digital scanners, 80.9% digital cameras, 66.3% e-boards and 43.2% expert systems. It can be concluded that among the ICT services computer, the internet, digital printers and scanners, CDs & DVDs technologies were the most used ICT services being utilized by the investigated faculty members while e-boards, multimedia and expert systems have been the least used services. It was also observed that 85.6% of academics used web followed by 95.9% e-mail, 65% digital publishing, 83.9% search tools, 93.8% news services, 75.9% videoconference, 73.2% discussion groups, 76.3 newsgroups and 72% online shopping. It can be concluded that web, e-mail, news services and search tools were the most used internet services being utilized by respondents while digital publishing and online shopping have been the least used services.

4. With regards to the 3rd objective of the research, it was found that the majority of faculty members used ICT mostly for doing research works, information seeking, classroom lectures, communicating and planning.

5. Based on the 4th objective of the survey, it was revealed that the majority of academics believed that “teaching how to use ICT”, “easy accessing to ICT”, “introducing ICT” and “practicing ICT” were the factors that motivate and encourage faculty members to increase deployment of ICT. It can be concluded that the academic departments should offer frequent ICT learning courses and workshops so that faculty members can update their ICT knowledge.

6. Based on the 5th objective of the study, it was observed that inadequacy of computers and related supplies, low speed and bandwidth of the internet, inadequacy of full-text databases, the internet and networks disconnection, lack of projection systems and audio visual aids in classrooms had been the main problems reported by the respondents.

Conclusion

Findings of this study underscore the need to offer more learning opportunities for

faculty members to demonstrate how ICT can be used in their teachings. Departments of Education need to ensure teaching staff to support effective classroom capacity for the use of new technologies specially ICT. It will not only affect the relationship among professionals in Education but also budget and curriculum development. Consequently, the higher education system must be modified to suit the next generation of faculty members in terms of professional demands and expectations of the students. Faculty members must play an important role in their job and update their ICT knowledge continuously. New ICT constitutes new means, new challenges and better opportunities.

Suggestions

Based on the findings of the study, the following suggestions and recommendations have been offered:

1. ICT facilities should be provided in every department of Education in Iran and classrooms should be equipped with advanced audio-visual aid facilities.

2. Faculty members at the departments of Education should be encouraged to access ICT and appropriate information services. They should learn how to operate ICT tools and services.

3. Faculty members should use ICT frequently, not only for classroom lectures but also for writing, research works, and workshop presentations. They should be more aware of the many resources on the internet that can benefit them academically.

4. The speed of the internet should be increased and more bandwidth should be sought so as to provide faster access that will save much of the users' time and become a source of motivation to use the internet.

5. It is essential to develop databases in the related field to suit faculty members' demands and also provide and subscribe to full-text databases.

6. Academic members should be encouraged to publish articles/papers in the journals accessible on the internet.

7. This study is restricted to ICT utilization in the departments of Education. Hence, it is suggested to investigate ICT utilization in other academic departments.

8. It is recommended to include ICT in Education curriculums.

9. Future studies on various aspects of ICT viz., the internet, computer, databases, networks, multimedia, etc. is recommended

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