Impact of information and communication technology (ICT) on library staff training: A comparative study

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Through a questionnaire survey, the study identifies and compares the impact of ICT on training of library human resources in two university libraries each of India and Iran. Descriptive and inferential statistics were used to analyse data. The findings show that though both Indian and Iranian library staff believe that introduction of ICT in libraries has created a need for training. Library staff from Iran have perceived the effect of ICT on their training needs more than their Indian counterparts. The article concludes that university libraries in both countries have to get their library staff trained in ICT.

Keywords: Library staff; information and communication technology; training

Introduction

'Training' is defined as the systematic development of employees' knowledge, skills, and attitudes that are required for an organization to meet its goals[1]. Information and communication technology is a term used to describe a range of equipment (hardware: personal computers, scanners and digital cameras) and computer programs (software: database programs and multimedia programs), and the telecommunications infrastructures (phones, faxes, modems, video conferencing equipment and web cameras) that allow us to access, retrieve, store, organize, manipulate, present, send material and communicate locally, nationally and globally through digital media[2].

With the advent of ICT, the world has changed into a "Global Village". Information and communication technology involves essentially the storage and communication of information. The greatest potentiality of ICT, thus, is its ability to serve as a tool to circulate information and to induce a qualitative change in the life of a man[3].

Application of ICT in libraries has become inevitable in an era of information explosion and widespread use of digital information resources. Effective application of ICT in libraries helps in performing their operations and services most efficiently. Libraries subscribe to e-journals, CD-ROM databases, online databases, web-based resources, and a variety of other electronic resources[4]. According to Saha et al[5], training is the most essential instrument of Library Human Resource Development (LHRD).

The success of any organization depends on its workforce, and to get the best from the workforce, it must be continuously trained and developed[6]. Development of human resources lies at the core of the knowledge-productive organisations, like libraries and universities. The process will inevitably involve participation of all employees in developing the knowledge of the organisation[7]. Further, it is imperative to recognise that factors that impact the library employee as an individual can impact his or her performance as a service provider as well[8].

It has also been noted that when a change occurs in the way employees handle information materials, services, and their users, there is bound to be some change in their perception of their work. Siggins[9] supports this view, arguing that the automation of operations and changes in stock or equipment and in the organisation of work have a direct impact on jobs and staff. Therefore, this study aims to investigate and compare the impact of ICT on training of library human resources in two universities from India and two universities from Iran.

Review of related literature

There are numerous studies on the impact of ICT on training.   This review presents some of studies regarding necessity of training due to introduction of ICT in libraries.

Sharma[10] states that IT has brought in many changes in LIS education and profession. To keep up with the technological development and learn to accept these changes and pressure they belong to, the library professionals need continuous training and development in IT skills. It is essential at this time of rapid IT driven changes to ensure that such training enables them to improve their job performance.

Ali[11] in his study on application of information technology in the educational media libraries in Delhi observed that there was a need of training library professionals to make use of the ICT based resources and services optimally. Moarefzadeh and Dehkordi[12] demonstrated, in order to keep up librarians with the information technology innovations, in-house and continuous training program was needed for them. Ajidahun[13] took a critical look at library education and training of human resources in information and computer technologies in twenty–one Nigerian university libraries. Result showed that many academic librarians and other categories of library staff were not computer–literate. Moreover, training programs for staff development in information technology in Nigerian university libraries was grossly inadequate. Udoh-Ilomechine[6] assessed the types of training programs available and the impact of training on the employees at the Petroleum Training Institute library. It was found that there was an awareness of the availability of training in the library. About half of the respondents had experienced long-term formal training, and nearly 70% have experienced short seminars and workshops. Nearly three quarters of respondents felt that they had acquired new skills that helped them with their work, and the same portion agreed that training helped motivation. More than half the respondents felt that lack of funding did not have a negative effect on the training programs. Moreover, the author stated that staff development was especially urgent in libraries because of the challenges posed by modern technology and the resulting information explosion. Technological advancement has rendered old skills obsolete.

Safahieh and Asemi[14] assessed the levels of computer skills and computer use experience of librarians in one of Iranian universities. The findings showed that the majority of the respondents did not possess a good level of computer skills and even their long duration experience of computer use had not necessarily improved their level of computer literacy skills. It was suggested that in-house and continuous training programs was needed for librarians to be adequately equipped with the computer literacy skills to take advantage of all computerized library facilities and enhance their work productivity. They stated that library managers preferred professionals and librarians who were computer literate because they were more productive and efficient at work than those who were not computer literate.

Objective of the study

- To identify and compare the impact of ICT on training of library human resources in university libraries of India and Iran.

Methodology

Two universities from India and two similar universities from Iran were compared. They are University of Hyderabad and University of Bangalore, India (including its two central and eight constituent libraries) as well as Ferdowsi University of Mashhad and Shiraz University, Iran (including its two central and eighteen constituent libraries). It should be noted that the mentioned universities are located in capital cities of their states; they are among the prominent universities in their countries; and they consist of central library and several constituent libraries. Further, their libraries have ICT facilities.

Data collection was made by administering questionnaire in person or via e-mail to all the library staff in the four selected universities in India and Iran. Of total 95 distributed questionnaires to the library staff in India, 78 usable questionnaires were received giving 82% response rate. Similarly, of total 140 distributed questionnaires to the library staff in Iran, 117 usable questionnaires were received giving 84% response rate. Data was analysed using SPSS version 16 for Windows. Necessary statistical techniques (e.g., frequencies, percentages, and contingency coefficient) were used in the analysis of the data. The significance values that fall below the 0.05 level are accepted.

Analysis

Job status

Data analysis indicates that about two third of the respondents (147; 75.8%) are professionals and around one fourth of them (47; 24.2%) are paraprofessionals. It is observed that there is a similar pattern in job status for both countries (CC=0.071, p=0.322>0.05), i.e., the majority of the respondents from both countries are professionals.

Gender

Figure 1 shows that about 93 (48%) respondents are male and 102 (52%) are female. In addition, data analysis reveals that this pattern of gender distribution is not similar for both countries (CC=0.365, p=0.000<0.05). In other words, there are more male library professionals in the two libraries in India (71.8%) than in the two libraries in Iran (31.6%). The female library professionals in the two libraries in Iran is 68.3%, much more than the number of women professionals in the two libraries in India (28.2%)

Age

The age of the respondents varies between twenty one years to above fifty one years. Although, the largest age group is between thirty one to forty years (70; 36.3%), it is followed respectively by the other age groups: forty one to fifty (55; 28.5%), twenty one to thirty (36; 18.6%), and above fifty one (32; 16.6%). Country-wise comparison reveals a dissimilar pattern in age groups for both countries (CC=0.495, p=0.000<0.05) i.e., the largest age group in India is above 51 years (31; 39.7%), while the largest age

group in Iran is 31-40 years (60; 52.2%). Moreover, there are more respondents in India having age in the range of 21-30 years and above 51 years (20.5% and 39.7%) than Iran (17.4% and 0.8%), whereas there are more respondents in Iran having age in the range of 31-40 years, 41-50 years (52.2% and 29.6%) than India (12.8% and 26.9%) (Figure 2).

Education level

Figure 3 indicates that approximately half of the respondents (89; 45.9%) hold Bachelor, more than one third of them (73; 37.6%) Master, 17 (8.8%) Ph.D. and 15 (7.7%) other education levels. Country-wise comparison reveals that there is dissimilar pattern in the education level for both countries (CC=0.508, p=0.000<0.05). There are more respondents holding Ph.D. and Master in India (15.6% and 66.2%) than in Iran (4.3% and 18.8%), while there are more respondents holding Bachelor and other education levels in Iran (68.5% and 8.5%) than in India.

Effect of ICT on training needs

A large number of the respondents (184; 97%) believe that introduction of ICT in libraries has affected their training need, while a small number of them (6; 3%) do not. Furthermore, country-wise comparison reveals that where 100% of Iranian and 91.5% of Indian respondents believe that introduction of ICT in libraries has affected their training need (Table 1).

Extent of ICT effect on training needs

Data analysis shows that regarding extent of ICT effect on training needs, the pattern of responses is
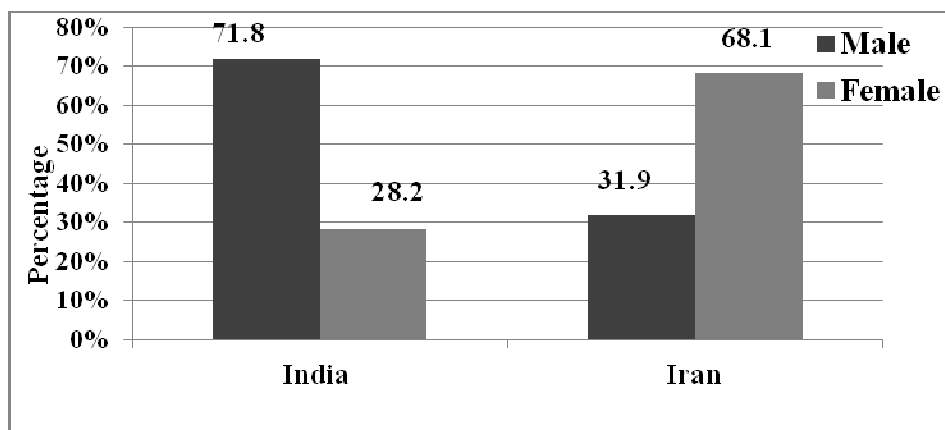

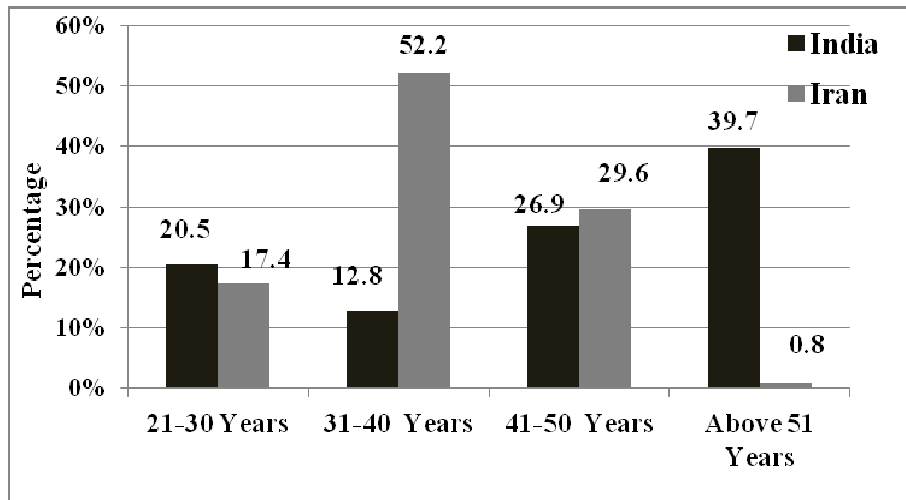Fig. 1—Gender-wise distribution of respondents by country

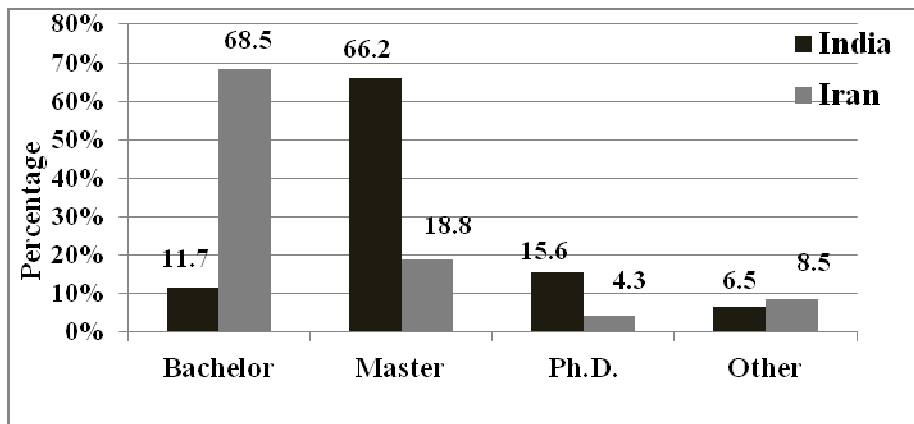Fig. 2—Age-wise distribution of respondents by country

Fig. 3—Education level-wise distribution of respondents by country

Table 1—Effect of ICT on training needs

Country		Yes	No	Total
India	No.	65	6	71
	%	91.5	8.5	100.0
Iran	No.	116	0	116
	%	100.0	0.0	100.0
Total	No.	181	6	187
	%	96.8	3.2	100.0

CC=0.227, p=0.001<0.05

found to be different for Indian and Iranian respondents (CC=0.266, p=0.011<0.05), where Iranian respondents have perceived the effect of ICT on library staff training needs more than their Indian counterparts. Furthermore, the respondents who believe that introduction of ICT have affected their training needs 'To a Very High Extent' and 'High Extent' are larger in number (14% and 64.9%) than India, while in India the respondents who opine that introduction of ICT have affected library staff' training needs 'To a Moderate' and 'Low Extent' are greater in number (39% and 5.1%) than in Iran (17.5% and 1.8%) (Table 2).

Long-term plan for staff training on using ICT

More than half of the respondents (101; 53%) have stated that there is no long–term plan for staff training on using ICT in the library, while 85 (44.5%) respondents have mentioned that there is a long–term plan for staff training on using ICT in the library. Further, a small number of respondents (5; 2.5%) do not know in this regard. This pattern of distribution is not similar for both countries (CC=0.394, p=0.000<0.05), where in India more respondents

(71%) have mentioned that there is a long–term plan for staff training in using ICT than in Iran (28%) (Table 3).

Training on using ICT

A large number of the respondents (158; 82%) have received training on using ICT for meeting the patrons' needs, while only 34 (18%) respondents have not. This type of response pattern is found to be similar for both Indian and Iranian respondents (CC=0.103, p=0.150>0.05). In other words, a majority of both Iranian and Indian respondents have received training on using ICT (Table 4).

Means and methods of training

Data analysis indicates that 'Self study/self learning' (42; 22%) is a popular mode among librarians as medium of updating skills of ICT in Indian libraries (Fig. 4) It is followed by methods such as 'attending workshop/seminar' (40; 21%), 'On-the-job training' (40; 21%), 'Training by vendors/suppliers' (35; 18%), 'Friends/colleagues guidance' (32; 17%) and 'Other' ways (1; 0.6%). This finding shows similarities to the results reported by Babu et al[15], who reported 'Self-study' as a popular mode among librarians in Tamil Nadu as medium of learning and updating their knowledge and skills of ICT, which was followed by methods such as attending workshops/seminars, through colleagues, and training at workplace. In addition, the findings of present study are in accordance with those reported by Farahi & Gandhi[16], who found that 'Self-study' was the most popular mode updating ICT skills among medical librarians from India. It was followed by methods such as 'Training at work place' and 'Attending workshops/seminars'.

Table 2—Extent of ICT effect on training needs as perceived by Indian and Iranian respondents

Country	To a very low extent		To a low extent		To a moderate extent		To a high extent		To a very high extent		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
India	1	1.7	3	5.1	23	39.0	29	49.2	3	5.1	59	100.0
Iran	2	1.8	2	1.8	20	17.5	74	64.9	16	14	114	100.0
Total	3	1.7	5	2.9	43	24.9	103	59.5	19	11	173	100.0

CC=0.266, p=0.011<0.05

Table 3—Long-term plan for staff training on using ICT by country

Country		Long term plan for ICT training			Total
		Yes	No	I do not know	
India	No.	53	22	0	75
	%	70.7	29.3	0.0	100.0
Iran	No.	32	79	5	116
	%	27.6	68.1	4.3	100.0
Total	No.	85	101	5	191
	%	44.5	52.9	2.6	100.0

CC=0.394, p=0.000<0.05

Table 4—Training on using ICT

Country		Yes	No	Total
India	No.	58	17	75
	%	77.3	22.7	100.0
Iran	No.	100	17	117
	%	85.5	14.5	100.0
Total	No.	158	34	192
	%	82.3	17.7	100.0

CC=0.103, p=0.150>0.05

Table 5—Need for regular ICT training

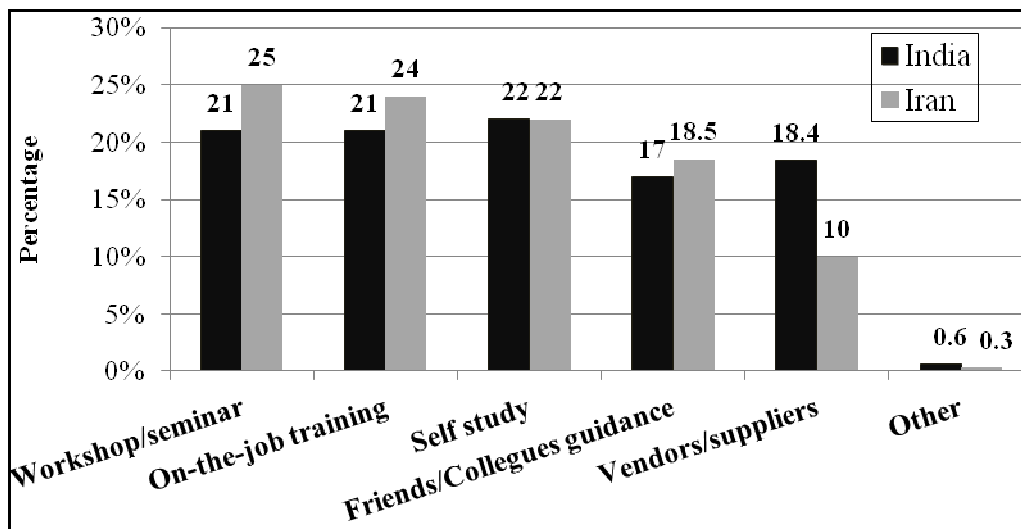| Country		Yes	No	Total
India	No.	58	19	77
	%	75.3	24.7	100.0
Iran	No.	107	7	114
	%	93.9	6.1	100.0
Total	No.	165	26	191
	%	86.4	13.6	100.0

CC=0.256, p=0.000<0.05

Fig. 4—Means and methods of training by country

The respondents from Iran have received training through the following means and methods: 'Attending workshop/seminar' (80; 25%), 'On-the-job training' (76; 24%), 'Self study/self learning' (70; 22%), 'Friends/colleagues guidance' (59; 18.5%), 'Training by vendors/suppliers' (32; 10%), and 'Other' ways (1; 0.3%). These findings are in accordance with those reported by Farahi & Gandhi[16], who found that 'Attending workshops/seminars' and 'On-the-job training' were the most popular modes among medical librarians from Iran as medium for acquiring IT skills (Fig. 4)

Need for regular training

Data analysis reveals that the majority of the respondents (165; 86.4%) need regular training for effective use of ICT facilities in the library, while a small segment of them (26; 13.6%) do not. This type of response pattern is not similar for both countries (CC=0.256, p=0.000<0.05), i.e., more Iranian respondents require training on ICT than their Indian counterparts as 94% of Iranian respondents as against 75% of Indian respondent require training for effective use of ICT facilities in the library (Table 5). This finding is similar to the result reported by Farahi & Gandhi[16] who found that a majority of medical librarians from India and Iran needed ICT training to develop their IT skills. Moreover, this finding is in accordance with the several authors' opinion (e.g., Ali[11]; Moarefzadeh and Dehkordi[12]), who stated that to keep up with the ICT innovations the LIS professionals needed continuous ICT training.

Preferred mode of training

It is observed that Indian respondents consider the following as preferred means and methods of training (in order of priority): 'On-the-job training' (34; 29%), 'Workshop/seminar' (30; 26%), 'Vendors/suppliers' (28; 24%), 'Friends/colleagues' (22; 19%) and 'Other' means and methods of training (3; 2%). While Iranian

respondents have priorities as given below: 'On-the-job training' (75; 35%), 'Workshop/seminar' (73; 33%), 'Friends/colleagues' (37; 17%), and 'Vendors/suppliers' (36; 16%). It is worth noting that 'On-the-job training' and 'Workshop/seminar' are the first and second preferred modes of training by both Iranian and Indian library staff.

Obstacles of ICT training

Data analysis from Table 7 shows that Indian respondents have rated the obstacles of ICT training as follows: 'Lack of policy for continuous training' (40; 20.3), 'Lack of time' (25; 12.6%), 'Long working hours of library staff' (24; 12.1%); 'Insufficient library staff' (24; 12.1%); 'Lack of support from supervisor/manager' (23; 11.6%); 'Lack of financial support' (22; 11.1%); 'Lack of trainers in the organization' (21; 10.6%) and 'Lack of interest' (18; 9.1%).

Moreover, Iranian respondents have rated the obstacles of ICT training as follows: 'Lack of policy for continuous training' (79; 20.2%); 'Lack of financial support' (65; 16.6%); 'Lack of time' (57;

14.5%); 'Long working hours of library staff' (53; 13.5%); 'Lack of support from supervisor/manager' (53; 13.5%); 'Lack of trainers in the organization' (32; 8.1%); 'Insufficient library staff' (30; 7.6%); and 'Lack of interest' (22; 5.6%).

This finding is similar to that of Farahi & Gandhi[16], who found that lack of policy for training as the major constraint and 'Lack of interest' as a minor constraint to ICT training among Indian and Iranian medical librarians.

Discussion

The aim of this study is to identify and compare the impact of ICT on training of library human resources in the university libraries of Hyderabad and Bangalore University in India and Ferdowsi University of Mashhad and Shiraz University in Iran. In order to meet this goal, a questionnaire was made and distributed to the all library staff at the selected universities. Data analysis shows that Iranian library staffs are more than their Indian counterparts. It may be due to the fact that in Iran, in each university in

Table 6—Preferred mode of ICT training

Preferred mode of training	India		Iran		Total	
	No.	%	No.	%	No.	%
On-the-job training	34	29	75	34	109	32.0
Workshop/seminar	30	26	73	33	103	30.5
Vendors/suppliers	28	24	36	16	64	19.0
Friends/colleagues	22	19	37	17	59	17.5
Other	3	2	Nu	Nu	3	01.0
Total	117	100.0	221	100.0	338	100.0

Note: Respondents marked multiple answers, Nu=No user

Table 7—Obstacles of ICT training by country

Obstacles	India		Iran		Total	
	No.	%	No.	%	No.	%
Lack of policy for continuous training	40	20.3	79	20.2	119	20.2
Lack of time	25	12.6	57	14.5	82	14.0
Long working hours of library staff	24	12.1	53	13.5	77	13.0
Insufficient library staff	24	12.1	30	07.6	54	09.1
Lack of support from supervisor/manager	23	11.6	53	13.5	76	12.9
Lack of financial support	22	11.1	65	16.6	87	14.7
Lack of trainers in the organization	21	10.6	32	08.1	53	09.0
Lack of interest	18	09.1	22	05.6	40	07.0
Total	197	100	391	100.0	588	100

Note: Respondents marked multiple answers

addition to a central library there are one or more constituent libraries attached to faculties or colleges so the number of library staff in Iranian libraries are more than their Indian counterparts. Further, it is observed that university library staff in Iran and India differ regarding gender and age group. The findings show that though both Indian and Iranian library staff believe that introduction of ICT in libraries has affected their training needs, Iranian library staff have perceived the effect of ICT on their training needs more than their Indian counterparts. Further, it is found that in India more respondents have mentioned that there is a long–term plan for staff training in using ICT than in Iran. Although, a majority of both Iranian and Indian library staff have received training on using ICT, there is a need for regular training on ICT for both Iranian and Indian library human resources. Moreover, it is worth noting that lack of policy for continuous training, lack of time, and long working hours of library staff are the most important obstacles of ICT training and lack of interest is the least one in both countries.

Conclusion

Libraries play a vital role in meeting users' information needs. In this information era, university libraries use ICT in day-to-day library operations to serve the library patrons effectively. The study concludes that, ICT training programs for library staff in Indian and Iranian university libraries is inadequate. Therefore, it is essential for Indian and Iranian university libraries to initiate regular ICT training programs for library human resources to keep up with ICT rapid developments.

Since, on-the-job training and workshop/seminar are the most preferred modes of training by both Iranian and Indian library staff, ICT training through these two modes is preferable. It seems that both Indian and Iranian library staff are interested in ICT training. On the other hand, ICT training for library staff needs strong support from supervisors/managers. In addition, the development of training policy for both university libraries of India and Iran and modification of their library staff working hours are strongly recommended.

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