USE OF ICT AMONG WOMEN LIBRARY PROFESSIONALS: AN EMPRICAL STUDY

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ABSTRACT

The aim of the study is to assess whether the development in information communication technologies have any influence among the women library professionals' in their professional carrier development. Out of the 150 questionnaire distributed 123 were received and the response rate is 82.0%. The view on ICT has an association with three factors such as Purpose, Utility and Barriers. These three factors put together will enhance the use of ICT. In this study nearly 29 variables under these three broad categories were considered. The reliability test using Cranbach's alpha (α) indicates that all the three category thus taken up for the study were acceptable since the Alpha value works out to more than 0.7114. The purpose of use of ICT by the women professionals were information storage, file sharing and information retrieval. The women professionals were indicated "To keep in touch with old friends"; "Get to know someone" and "Help to update the knowledge" has the first three preferences. Lack of scope for library professionals due to ICT applications; No support from administration in training library professionals; and Lack of infrastructure were indicated has barriers.

Keywords: **Use of ICT,** *perception on ICT; Women perception on ICT, Women LIS profession, Utility of ICT; Purpose of ICT.*

INTRODUCTION

ICT, a comprehensive and parallel concept has brought a phenomenal change in library and information services. The application of ICT in library and information centre's has revolutionized the boundaries of the library from four walls to virtual library. In the changing library scenario due to the advent of ICT the library and Information professionals must possess adequate ICT skills to manage the modern libraries, more specifically the academic libraries . They need to acquire continuous knowledge and skills on the fast changing Information Communication Technology to provide better library services to users

The aim of the study is to assess whether the developments in information communication technologies have any influence among the women library professionals' in their professional carrier development

This study explores the response and readiness of librarians to ICT applications. Attitudes represent the conceptual value of these technologies in the minds of the librarians, not the values of the technologies themselves.

Review of related study

According to Ramzan (2004) that the library professionals were not prepared to embrace the changes forced on them by new technologies; and that most of them were uncertain about ICT applications in their libraries and benefits for their organizations, because they had little knowledge ICT. The problems associated with this lack of knowledge are also discussed by Mohammed, et al. (1992), Khan (1995), Haider (1998), Mahmood (1999), and Saeed et al. (2000). According to Spacey, et al. (2003), Fine (1986), and Evald (1996), positive attitudes are fundamental in implementing new technologies.

Krbec and Pakia (1994) describe the advantages of ICT for library processes and user services. Igberia et al., in Popoola (2002), argue that the there is widespread fear and negative attitudes that have slowed the progress of ICT implementation. Attwell and Rule (1984) assert that many people resist using computers and other ICT technology.

According to Sun, Hao-Chang, et al (2010) implementing new information technology has expanded the role of librarians as educators and the collaboration with faculty member was to be an essential feature in successful implementation of ICT.

Antherjanam & Sheeja (2008) indicated the impact of ICT on LIS and its major shifts and practices in university libraries. The authors were also indicated that the users are making very good use of the available ICT facilities with the help of telephone, e-mail, Fax etc. The reference queries are answered faster than before. SDI, CAS etc. are also done faster than before. Issue & return of books, renewals are done faster than before. Book selection, price checking are also done very efficiently using ICT. About 90% of the users of the library search OPAC for getting information about the where about of books.

OBJECTIVES

The major objectives of the study are

1. To identify the views of the women professionals in regard to ICT specifically in the working environment.

2. To identify the views on utility of ICT among women LIS professionals

3. To identify whether similar opinion persist among the professionals working in different domain of institutions.

4. To elucidate the current challenges faced by women library professionals in managing the Libraries in the present day environment in respect of ICT.

5. To explore the ICT facilities expected by the women library and information science professionals and

6. To determine any association between category of LIS professionals and ICT views.

7. To study whether ICT has influenced professional development

HYPOTHESES

Based on the objectives the following hypotheses were formulated.

- There exist significant differences in the purpose of ICT among the women LIS professionals irrespective of designation, experience and domain of institutions.

- There is no significant difference in their opinion in regard to the utility of ICT among the Women LIS Professionals irrespective of designation, experience and domain of institutions.

- There exist barriers in ICT implementation in implementing in academic institutions

DATA ANALYSIS

The views on ICT has an association with three factors such as Purpose, Utility and Barriers. These three factors put together will enhance the use of ICT. A well structured questionnaire was distributed among the library and information professionals working in higher educational institution libraries in Madurai Region in Tamil Nadu in India. Their opinions were obtained and analyzed using the SPSS Software.

Distribution of questionnaire

There exist number of higher educational institutions in different domain such as Arts & Science, Engineering and Technology, Medical sciences and other domain institutions. Towards a pilot study 30 questionnaires each were distributed to Arts & Science and Engineering women professionals. Similarly 40 questionnaires were distributed among women professionals working in Medical institutions and 50 questionnaires were distributed among women professionals working in different domains. The responses received from each domain has also shown in table 1 The percentage thus calculated between received and distributed in each domain is shown in table.

Table 1 Distribution of questionnaire

S.No	Domain	Distributed	Responses	%
1	Arts and Science	30	20	66.67 %
2	Engineering	30	27	90.00 %
3	Medical	40	33	82.50 %
4	Others	50	43	86.00 %
Total		150	123	82.0%

Out of the 150 questionnaire distributed 123 were received and the response rate is 82.0%. More over it can be seen that 66.67% of responses were received from Arts and Science, 90% from Engineering and Technology, 82.50% from medical institutions and 86.0% from other domain professionals.

Demographic Details

The demographic details of the respondents of domain specific were shown in Table 2.

Table 2 Demographic detail of respondents

S.No	Description	Arts and Science	Engineering	Medicine	Others	Total
Designation						
1	Librarian	8 (6.5)	18 (12.5)	17 (13.8)	10 (8.1)	53 (43.1)
2	Others	12 (9.8)	9 (7.3)	16 (13.0)	33 (26.8)	70 (56.9)
Age						
1	>30	1 (0.8)	1 (0.8)	7 (5.7)	1 (0.8)	10 (8.1)
2	31- 40	7 (5.7)	10 (8.1)	11 (8.9)	20 (16.3)	48 (39.0)
3	41-50	6 (4.9)	3 (2.4)	3 (2.4)	14 (11.4)	26 (21.1)
4	above 51	6 (4.9)	13 (10.6)	12 (9.8)	8 (6.5)	39 (31.7)
Experience						
1	below 5	11 (8.9)	7 (5.7)	7 (5.7)	12 (9.8)	37 (30.1)
2	6-10	1 (0.8)	2 (1.6)	9 (7.3)	21 (17.1)	33 (26.8)
3	11-15	4 (3.3)	0 (0.0)	14 (11.4)	8 (6.5)	26 (21.1)
4	16-20	4 (3.3)	12 (9.8)	1 (0.8)	2 (1.6)	19 (15.4)
5	21 above	0 (0.0)	6 (4.9)	2 (1.6)	0 (0.0)	8 (6.5)
Total		20 (16.3)	27 (22.0)	33 (26.8)	43 (35.0)	123 (100.0)

There are 53 (43.1%) responses received from Librarians and 70 (56.9%) are other librarian professionals. Out of 53 librarians, 8 (6.5%) were from Arts and Science institutions. It is followed by 18 (12.5%) from engineering institutions, 17 (13.8%) from medical institutions and 10 (8.1%) from other institutions. Based on their age the respondents are divided into 4 groups such as below 30 (10, 8.1%), 31 to 40 (48, 39.0%), 41 to 50 (26, 21.1%) and above 51 (39, 31.7%) years. The data were collected from Women Librarians and other Library Professionals only. Out of 123 responses received, 37(30.1%) are

having experience less than 5 years. It is followed by 33 (26.8%) are between 6 and 10 years of experience, 26 (21.1%) are between 11 and 15; 19(15.4%) are between 16 and 20 and 8 (6.5%) were 21 years and above.

Reliability Test

In this study nearly 29 variables under three broad category were considered. To ensure that the research produces reliable findings and results, a reliable tool would need to be employed. Moreover, the exploratory nature of this study necessitated the need to conduct some form of test to check whether items used in the measures are tapping into the same construct (variables) or not. Such test was accomplished through the use of factor analysis. According to Coakes and Steed(2003), factor analysis is a data reduction technique used to reduce a large number of variables to a smaller set of underlying factors that summarize the essential information contained in the variables. Two widely used methods in factor analysis are Principal Components and Principal Axis Factoring. However, this study adopted the former and applied it to all variables that employed multi-items measures.

Reliability is concerned with consistency of a variable. There are two identifiable aspects of this issue: external and internal reliability. Nowadays, the most common method of estimating internal reliability is Cronbachs alpha (α). The formula used is

$$\alpha = \frac{K}{K-1}\left(1 - \frac{\sum_{i=1}^{K}\sigma_{Y_i}^2}{\sigma_X^2}\right)$$

A commonly accepted rules for describing internal consistency using Cronbachs alpha (Cronbach, Lee and Shavelson 2004)[8] are α≥0.9 (Excellent), 0.9>α≥ 0.8 (Good), 0.8>α ≥0.7 (Acceptable), 0.7>α ≥0.6 (Questionable), 0.6>α ≥0.5 (Poor) and 0.5>α (Unacceptable).

The concepts taken up for the study, variables and the Cronbach alpha value are shown in table 3.

Table 3:Reliability Test

S.No	Description	No. of variables	Alpha value
1	Purpose	9	0.9659
2	Utility	10	0.7114
3	Barrier	10	0.9578
		29	

The reliability test using Cranbach's alpha (α) indicates that all the three category thus taken up for the study were acceptable since the Alpha value works out to more than 0.7114.

Purpose of use of ICT

In order to ascertain the purpose of use of ICT, the respondents were asked to response to nine variables namely knowledge sharing, internal communication, repository, file sharing, information storage, information retrieval, information processing, information management and information services in a five point scale such as strongly disagree, disagree, no opinion, agree and strongly agree. The mean and standard deviation were calculated based on the responses. Ranks were assigned based on mean and standard deviation. The responses on a five point scale, mean, standard deviation and rank were shown in table 4.

Table 4: Purpose of use of ICT

S.No	Description	Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree	Mean	Std	Rank
1	Knowledge Sharing	8 (6.5)	5 (4.1)	20 (16.3)	54 (43.9)	36 (29.3)	3.85	1.092	8
2	Internal Communication	8 (6.5)	2 (1.6)	21 (17.1)	59 (48.0)	33 (26.8)	3.87	1.040	7
3	Repository	2 (1.6)	7 (5.7)	37 (30.1)	52 (42.3)	25 (20.3)	3.74	.904	9
4	File Sharing	2 (1.6)	6 (4.9)	14 (11.4)	61 (49.6)	40 (32.5)	4.07	.885	2
5	Information Storage	2 (1.6)	8 (6.5)	13 (10.6)	55 (44.7)	45 (36.6)	4.08	.937	1
6	Information Retrieval	2 (1.6)	9 (7.3)	18 (14.6)	51 (41.5)	43 (35.0)	4.01	.971	3
7	Information Processing	6 (4.9)	3 (2.4)	27 (22.0)	49 (39.8)	38 (30.9)	3.89	1.031	6
8	Information Management	2 (1.6)	4 (3.3)	31 (25.2)	49 (39.8)	37 (30.1)	3.93	.912	5
9	Information Services	2 (1.6)	4 (3.3)	26 (21.1)	60 (48.8)	31 (25.2)	3.93	.861	4

The mean value of all the variables ranges between 3.74 and 4.08 which indicates that all the variables are lies between agree and strongly agree. The standard deviation value ranges between 0.881 and 1.092 indicates that there were no deviation in the respondents opinion. Among the nine variables, the respondents were given information storage has their first preferences. It is followed by file sharing and information retrieval. Least preferences were given for repository and knowledge sharing.

HIERARCHICAL CLUSTER ANALYSIS FOR PURPOSE

The hierarchical cluster analysis for purpose of ICT has been carried out and the dendrogram using average linkage has been drawn. The same is shown in figure 1

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      * * * * H I E R A R C H I C A L   C L U S T E R   A N A L Y S I S * * * *


   Dendrogram using Average Linkage (Between Groups)

                  Rescaled Distance Cluster Combine

    C A S E      0         20        40        60        80       100
   Label    Num  +---------+---------+---------+---------+----+----+

   QII108     8
   QII109     9
   QII107     7
   QII102     2
   QII103     3
   QII105     5
   QII106     6
   QII104     4
   QII101     1
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Figure 1 DENDROGRAM FOR PURPOSE OF ICT

There exist two clusters at 90% level. This indicates that all the variables were important purpose since it almost formed as one cluster.   Cluster one consists of three variables such as Information Processing; Information Management and Information Services. The same can be named as *library service based purpose*. The remaining six variables Knowledge Sharing; Internal Communication; Repository; File Sharing; Information Storage and Information Retrieval were formed as second cluster that can be named as *library function based purpose.*

Utility of ICT

The opinion on the utility of ICT realized by women LIS professionals were ascertained using ten variables in a five point scale such as strongly disagree, disagree, no opinion, agree and strongly agree. The mean and standard deviation were calculated based on opinion. The ranks were assigned based on mean and standard deviation. The opinion, mean, standard deviation and rank were shown in Table

Table 5 : Utility of ICT in Library

S.No	Description	Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree	Mean	Std	Rank
1	Provides a platform for discussing the professional issues	12 (9.8)	41 (33.3)	12 (9.8)	46 (37.4)	12 (9.8)	3.04	1.224	6
2	Help to improve the professional developments	33 (26.8)	49 (39.8)	10 (8.1)	17 (13.8)	14 (11.4)	2.43	1.325	7
3	Help to update the knowledge	15 (12.2)	9 (7.3)	4 (3.3)	54 (43.9)	41 (33.3)	3.79	1.314	3
4	It is an opportunity to interact with friends and experts	31 (25.2)	55 (44.7)	2 (1.6)	24 (19.5)	11 (8.9)	2.42	1.299	8
5	Resolve disagreements	33 (26.8)	50 (40.7)	20 (16.3)	8 (6.5)	12 (9.8)	2.32	1.217	9
6	Facilitates to make important decision	35 (28.5)	70 (56.9)	18 (14.6)	0 (0.0)	0 (0.0)	1.86	.644	10
7	Get to know someone	2 (1.6)	2 (1.6)	16 (13.0)	38 (30.9)	65 (52.8)	4.32	.881	2
8	Exchange of confidential or sensitive information	21 (17.1)	2 (1.6)	45 (36.6)	17 (13.8)	38 (30.9)	3.40	1.389	5
9	To keep in touch with old friends	0 (0.0)	1 (0.8)	19 (15.4)	42 (34.1)	61 (49.6)	4.33	.763	1
10	Time saving	17 (13.8)	13 (10.6)	12 (9.8)	27 (22.0)	54 (43.9)	3.72	1.463	4

The mean value of all the ten variables ranges between 1.86 and 4.33. The mean value of the variables to keep in touch with old friends; get to know someone were 4.33 and 4.32 which indicates these two opinions were strongly agreed by the respondents. The variables facility to make important decision (mean value 1.86); resolve disagreements (mean value 2.32); it is an opportunity to interact with friends and experts (mean value 2.42) were either strongly disagree and disagree by the respondents. The standard deviation ranges between 0.644 and 1.463 in a five point scale which indicates that there is no significant deviation in their opinion. The women professionals were indicated "To keep in touch with old friends"; "Get to know someone" and "Help to update the knowledge" has the first three preferences. The least preferences were given for "Facilitates to make important decision", "It is an opportunity to interact with friends and experts" and "Resolve disagreements".

Barriers

In order to identify the barriers among the respondents, ten variables responses were obtained in a five point scale. The mean and standard deviation were calculated based on responses. The ranks were assigned based on mean and standard deviation. The respondents opinion, mean, standard deviation and rank were shown in table 6.

Table 6: Barriers in ICT

S.No	Description	Strongly Disagree	Diasagree	No Opinion	Agree	Strongly Agree	Mean	Std	Rank
1	Inadequate training in ICT applications	6 (4.9)	7 (5.7)	33 (26.8)	52 (42.3)	25 (20.3)	3.67	1.020	10
2	Lack of infrastructure	3 (2.4)	6 (4.9)	13 (10.6)	61 (49.6)	40 (32.5)	4.05	.922	3
3	No support from administration in training library professionals	2 (1.6)	8 (6.5)	13 (10.6)	55 (44.7)	45 (36.6)	4.08	.927	2
4	Lack of support from authorities for implementing ICT applications in library	5 (4.1)	9 (7.3)	15 (12.2)	51 (41.5)	43 (35.0)	3.96	1.017	5
5	Lack of co-ordination among library staff	5 (4.1)	7 (5.7)	33 (26.8)	53 (43.1)	25 (20.3)	3.70	.991	9
6	No initiative from professional associations to conduct specialized training programs	4 (3.3)	6 (4.9)	12 (9.8)	61 (49.6)	40 (32.5)	4.03	.958	4
7	Lack of scope for library professionals due to ICT applications	2 (1.6)	8 (6.5)	13 (10.6)	55 (44.7)	45 (36.6)	4.08	.937	1
8	Lack of interest on the part of users	5 (4.1)	9 (7.3)	15 (12.2)	51 (41.5)	43 (35.0)	3.96	1.067	7
9	Fear of ICT applications	7 (5.7)	3 (2.4)	26 (21.1)	49 (39.8)	38 (30.9)	3.88	1.060	8
10	Other problem	4 (3.3)	4 (3.3)	29 (23.6)	49 (39.8)	37 (30.1)	3.90	.979	6

The mean value ranges between 3.67 and 4.08 which indicates that all the variables lies between agree and strongly agree. The value of standard deviation also ranges between 0.922 and 1.067 which indicates that there exit no deviation among the respondents. Lack of scope for library professionals due to ICT applications has been indicated as a first barrier by the women library professionals. It is followed by "No support from administration in training library professionals" and "Lack of infrastructure". The least preferences were given for Inadequate training in ICT applications and Lack of co-ordination among library staff.

Table 7:   Barriers in ICT – Correlation analysis

S.No	Description	1	2	3	4	5	6	7	8	9	10
1	Inadequate training in ICT applications	1									
2	Lack of infrastructure	.679 (**)	1								
3	No support from administration in training library professionals	.696 (**)	.840 (**)	1							
4	Lack of support from authorities for implementing ICT applications in library	.658 (**)	.802 (**)	.889 (**)	1						
5	Lack of co-ordination among library staff	.883 (**)	.788 (**)	.732 (**)	.740 (**)	1					
6	No initiative from professional associations to conduct specialized training programs	.665 (**)	.945 (**)	.792 (**)	.724 (**)	.770 (**)	1				
7	Lack of scope for library professionals due to ICT applications	.696 (**)	.840 (**)	1.000 (**)	.889 (**)	.732 (**)	.792 (**)	1			
8	Lack of interest on the part of professionals	.658 (**)	.802 (**)	.889 (**)	1.000 (**)	.740 (**)	.724 (**)	.889 (**)	1		
9	Fear of ICT applications	.554 (**)	.593 (**)	.695 (**)	.735 (**)	.612 (**)	.553 (**)	.695 (**)	.735 (**)	1	

| 10 | Other problem | .641 (**) | .605 (**) | .643 (**) | .726 (**) | .722 (**) | .581 (**) | .643 (**) | .726 (**) | .699 (**) | 1 |

** Correlation is significant at the 0.01 level (2-tailed).

Normally the correlation value lies between -1 and 1. The negative value indicates negative correlation and positive value indicates positive correlation. It can be seen from the table 7 that all the variables were significant at 99% level (2 tailed) correction analysis. All the variables correlation value lies between 0.553and 1.000 which indicates that the variables are positively correlated. Out of the ten variables the following two pair of variables highly positive perfect correlation.

- Lack of scope for library professionals due to ICT applications Vs No support from administration in training library professionals

- Lack of interest on the part of professionals Vs Lack of support from authorities for implementing ICT applications in library.

Findings

The findings of the study are as follows:

- Out of the 150 questionnaire distributed 123 were received and the response rate is 82.0%.

- The view on ICT has an association with three factors such as Purpose, Utility and Barriers. These three factors put together will enhance the use of ICT.

- Nearly 29 variables under these three broad categories were considered.

- The reliability test using Cranbach's alpha (α) indicates that all the three category thus taken up for the study were acceptable since the Alpha value works out to more than 0.7114.

- The purpose of use of ICT by the women professionals were information storage, file sharing and information retrieval.

- The hierarchical cluster analysis for purpose of ICT has shown two clusters. First Cluster consists of three variables such as Information Processing; Information Management and Information Services. The same can be named as *library service based purpose*. The remaining six variables Knowledge Sharing; Internal Communication; Repository; File Sharing; Information Storage and Information Retrieval were formed as second cluster that can be named as *library function based purpose.*

- The women professionals were indicated "To keep in touch with old friends"; "Get to know someone" and "Help to update the knowledge" has the first three preferences towards the purpose of ICT.

- Lack of scope for library professionals due to ICT applications; No support from administration in training library professionals; and Lack of infrastructure were indicated has barriers.

- All the ten variables thus taken up for barriers were significant at 99% level (2 tailed) correction analysis.

- Out of the ten variables the following two pair of variables highly positive perfect correlation.

o Lack of scope for library professionals due to ICT applications Vs No support from administration in training library professionals

o Lack of interest on the part of professionals Vs Lack of support from authorities for implementing ICT applications in library

CONCLUSION

This study sought to examine the use of ICT among Women Library Professionals. Most of the objectives are met within the results. The hypotheses thus framed based on the objectives were holds good in this study.

There is considerable impact of ICT among women library professionals. Good training programmes results in positive attitudes towards ICT among them. Using ICT with their own will increases a positive attitudes towards their work. use ICT to work environment will enable to show more efficiency. ICT increases efficiently in planning and preparation of work due to more collaborative approach between women professionals.

The use of ICT tools to collect and disseminate information has been in a slow pace among women professionals primarily due to the perception on ICT. Over a period of time, the women LIS professionals build several barriers within themselves especially in the use of ICT and in relation to others. As a result, they tend to become either too aggressive, thus, closing themselves to other's ideas, or too submissive and accept everything that is told to them, which stunts innovation. Unless and until their attitude strikes a balance, one cannot be open to ideas and talk, nor their productivity.   The women LIS professionals must understand the ways to learn new concepts and ideas, constantly seek the new opportunities to learn additional skills, acquire systematic knowledge with scholarly application and to overcome the limitations such as feminine, cultural and environmental limitations. The women library professionals encourage themselves to work cooperatively as a team.

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