INFLUENCING ASPECTS OF INFORMATION COMMUNICATION TECHNOLOGY IN RESEARCH AND DEVELOPMENT LIBRARIES

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ABSTRACT

Information and communication technology (ICT) is one of the influencing factor in building new global economy and construct swift changes in society. The effective application of ICT in research development libraries and information centres has improved the ways and techniques of research information controlling. The main objective of Research and Development Institutions (R&D) libraries is to employ appropriate methods to retrieve the information and to make available the much-required information to the research community. This study reveal the implementation and utilisation of Information Communication and Technology (ICT) methods in R&D libraries in Chennai region, and the level of the extent of ICT in these libraries and also suggested the modern techniques to be implemented. The results show that ICT could play an important role in the library system, to be used broadly in the R&D libraries. Government and Government aided institutions standards can improve drastically through this ICT enabled libraries and will help the researchers. As per the survey conducted among the librarians in the R&D Libraries in Chennai region , this paper suggests that more modern technology can be used in the R&D libraries which can augment the research community.

KEY WORDS : ICT librarians, Inforamation, Information Communication Technology, R&D Libraries, User studies.

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Introduction

The Information and Communication Technologies (ICTs) have great role in all areas of research and development libraries. Users feedback are accommodated in the day-to-day activities of library ; especially R&D library depends upon the success of a user getting the right resource at the right time. The librarians have to adopt all modern tools of ICT based on user's expectation & future needs.

The ICT tools have nowadays become an important technology in R&D libraries as it plays a very significant role in meeting information requirements of the research communities and institution as a whole. The success of good research and development in R & D institutions largely depends upon the information sources available and their usage in Libraries

Review of Literature

In their study on survey of the use and application of information and communication technology in research and development libraries in Tamil Nadu, Murugesan & Balasubramani (2011), suggested that the research and development institutions should give priority to consortia based subscription and boost the funds and recruitment of information technology trained staff for better ICT based services and product to their library users. Krubu & Osawaru (2011) had in their own study tried to ascertain the impact of ICT on Nigerian academic libraries. The researcher arrived at a conclusion that ICT has fulfil edits promise in academic libraries, that there is remarkable rise in the use of ICT. This has led to the speed on library operations. ICT has also help to cub the problem of information explosion in this information era. Quadri (2012) also opined that today libraries are shifting their role from the custodian of traditional information resources to the provider of service oriented digital information resources. Widespread use of computers, increased reliance on computer networks, rapid growth of the internet and explosion in the quality and quantity of information has compelled libraries to adopt new means and methods for the storage, retrieval and dissemination of information.

Objectives of the Study

1. To know the various areas of applications of information communication technologies in Research and development libraries.

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2. To understand the use of modern information communication technologies in Research and development libraries.

3. Identify the constraints in acquiring information and communication technology (ICT) skills by library professionals working in Research and Development Libraries in Chennai.

4. To assess the current state-of-the-art of ICT Infrastructure and physical facilities in the research and development libraries in Cennai region.

Research Methodology

There are 60 Research and Development libraries located in Chennai region. The study population consists of all the Government and Private R&D libraries in Chennai region. The researcher received responses from 48 out of 60 R&D Libraries .Questionnaire method was used for the present study to collect the necessary data. The rate of response was 80%.

Analysis of Data

This chapter deals with the analysis and interpretation of collected data, employing appropriate statistical tools and techniques wherever necessary. The collected data were classified, analysed and arranged under certain aspects which are discussed in the following paragraphs.

Analysis of data collected from the Library Professionals:

Table 5.1Demographic Profile of the librarians under study

S.No	Gender	Frequency	Percent
1	Male	34	70.83
2	Female	14	29.17
	Total	**48**	**100.00**
S.No	Age	Frequency	Percent
1.	From 25 years to 30 years	4	8.33
2.	From 31 years to 35 years		
3.	From 36 years to 40 years	12	25.00

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S.No		Frequency	Percent
4.	From 41 years to 45 years	18	37.50
5.	Above 45 years	10	20.83
	Total	**48**	**100.00**
S.No	**Educational Qualification**	**Frequency**	**Percent**
1.	Doctorate	17	35.42
2.	M.Phil	5	10.42
3.	Post Graduate	17	35.42
4.	Post Graduate Diploma	9	18.75
	Total	**48**	**100.00**
S.No	**Experience**	**Frequency**	**Percent**
1.	From 0 years to 5 years	2	4.17
2.	From 6 years to 10 years	4	8.33
3.	From 11 years to 15 years	10	20.83
4.	From 16 years to 20 years	19	39.58
5.	Above 21 years	13	27.08
	Total	**48**	**100.00**
S.No	**Subject area of the organization**	**Frequency**	**Percent**
1.	Engineering	17	35.42
2.	Medicine	15	31.25
3.	Science	6	12.50
4.	Social Science & Economics	6	12.50
5.	Agriculture	4	8.33
	Total	**48**	**100.00**
	Nature of Institution	**Frequency**	**Percent**
1.	Private	24	50.00
2.	State Govt	24	50.00
	Total	**48**	**100.00**

It is observed from the table that majority of the respondents (37.5%) are in the age group between 41 and 45 years. Next to this, 12 respondents (25%) of them are in the age group

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between 36 and 40 years. In this analysis, 70.83 percent of the library professionals are male and remaining 29.17 percent of them are female. Domination of male over female is the general trend prevailing in all types of study is applicable in this study also. It is very impressive point to note that the maximum of 35.42 percent each of the library professionals (17) are Doctorates and also post graduates. While analyzing the experience of the library professionals, it is found from the table that the maximum of 39.58 per cent of them (19) are having the rich experience between 16 and 20 years. 13 librarians are having the experience of more than 21 years of service. It is also found that, among the 48 institutions, 24 are managed by the Government and remaining 24 are managed by the Private. Out of 48 R&D Institutions 17 are belongs to Engineering, 15 are medicine, 6 of the institutions are Science and social science and 4 from Agriculture.
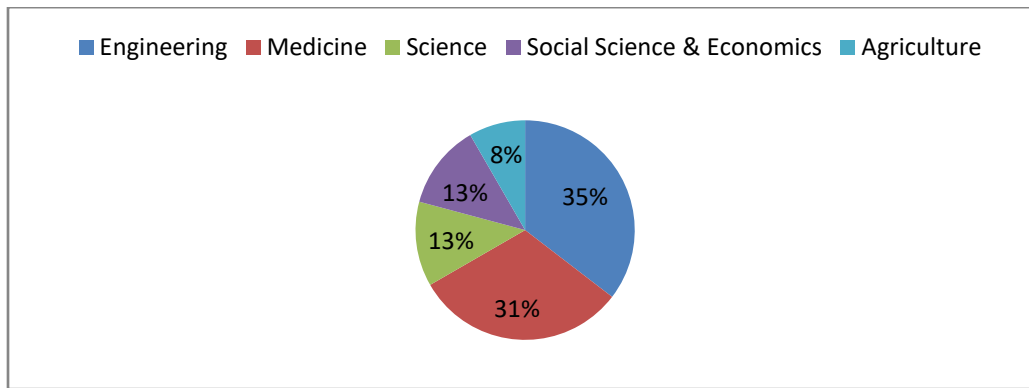

Table 5.2 Library basic facilities

Factors	Available		Not Available		Total
Stack Area	42	87.50	6	12.50	**100.0**
Reference Section	44	91.67	4	8.33	**100.0**
Periodical section	42	87.50	6	12.50	**100.0**
Back Volume Section	12	25.00	36	75.00	**100.0**
Digital Library Section	46	95.83	2	4.17	**100.0**
General Reading Hall	34	70.83	14	29.17	**100.0**
Conference/Seminar Hall	10	20.83	38	79.17	**100.0**
Discussion Hall	42	87.50	6	12.50	**100.0**
Wash Room /Toilet Facility	16	33.33	32	66.67	**100.0**
Staff Work room and Office (s)	48	100.00	0	0	**100.0**

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Library sections are identified in this table. All the libraries are having staff room and office. 95.8 percent of the research libraries are having the digital library facilities. 91.6 percent of the libraries are having reference sections. 87.5 percent each of the libraries are having stack area, periodical section and discussion hall. 25 percent of the libraries are maintaining the back volume section.

Table 5.3 Other General facilities

Factors	Available		Not Available		Total
Generator Facilities / UPS	46	95.8	2	4.2	**100.0**
Drinking Water	48	100.0	0	0	**100.0**
Telephone/Intercom /Fax	46	95.8	2	4.2	**100.0**
Reprography	46	95.8	2	4.2	**100.0**
Fire extinguisher	48	100.0	0	0	**100.0**
Suggestion Box	46	95.8	2	4.2	**100.0**
Others	47	97.9	1	2.1	**100.0**

It is observed from the table that the basic facilities such as drinking water (100%) Generator/UPS (95.8%), Telephone/Intercom/FAX (95.8%) are provided in the libraries of the surveyed research institutions. The safety measure of fire extinguishers is provided in all the libraries under survey,

Table 5.4 Collection of library Resources

Factors	High Priority		Priority		Low Priority		Total
E- journals	24	50.0	8	16.7	16	33.3	**100.0**
e-books	21	43.8	12	24.9	15	31.3	**100.0**
Online Databases	23	47.9	8	16.7	17	35.4	**100.0**
Books	24	50.0	4	8.3	20	41.7	**100.0**
Print Journals	24	50.0	6	12.5	18	37.5	**100.0**
CD /DVD	13	27.1	26	54.1	9	18.8	**100.0**

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Among the various library resources and its collection, high priority is being given to e-journals, printed books and print journals with 50 percent of its total collections. Priority is given to procure CDs/DVDs with 54.1 percent. Now a days, low priority is given to purchase books (41.7%) print journal (37.5%) etc. Even though the e-resources and online resources are mostly used by the researchers, the existence of printed books and journals are also used at the maximum level and it is inevitable.

Table 5.5 Infrastructure in library - Hardware

Library Hardware facilities	Available		Not Available		Total
Computers servers	39	81.25	9	18.75	**100.0**
Workstations (Personal Computers)	45	93.75	3	6.25	**100.0**
Net server	31	64.58	17	35.42	**100.0**
CD server/CD ROM tower	17	35.42	31	64.58	**100.0**
Scanner for Digitization	26	54.17	22	45.83	**100.0**
Barcode Scanner	24	50.00	24	50.00	**100.0**
Barcode printers	23	47.92	25	52.08	**100.0**
LCD Projector	29	60.42	19	39.58	**100.0**
Web camera	15	31.25	33	68.75	**100.0**
Printers	44	91.67	4	8.33	**100.0**
Security system, RFID	21	43.75	27	56.25	**100.0**
UPS	20	41.67	28	58.33	**100.0**
VCR /VCP	21	43.75	27	56.25	**100.0**
Television	26	54.17	22	45.83	**100.0**
Flash Memory Sticks	30	62.50	18	37.50	**100.0**

Application of ICT in library services and in providing the e-resources with the infrastructural facilities available in the institutions surveyed. Among the Research institutions, more than 90 percent of the institutions are having Personal computers (93.75%) and printers (91.67%) in the libraries. 81.25 percent of the institutions are having Computer Servers. It is also found that 64.58 percent of the institutions are having net servers and 60.42 percent of them are having the LCD projector facilities. It is also observed that 64.58 percent of the surveyed institutions are not

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having CD Server/CD Scanner and 68.75 percent of institutions are not provided with web camera

Table 5.6 Status of library automation

Factors	Frequency	Percent
Fully automated	21	43.75
Partly automated	19	39.58
Not automated	8	16.67
Total	**48**	**100.00**

It is found from the table that 43.75 percent of the libraries are fully automated and 39.58 percent of the Research libraries are partly automated and it is in progress. It is also found that eight libraries are not yet automated
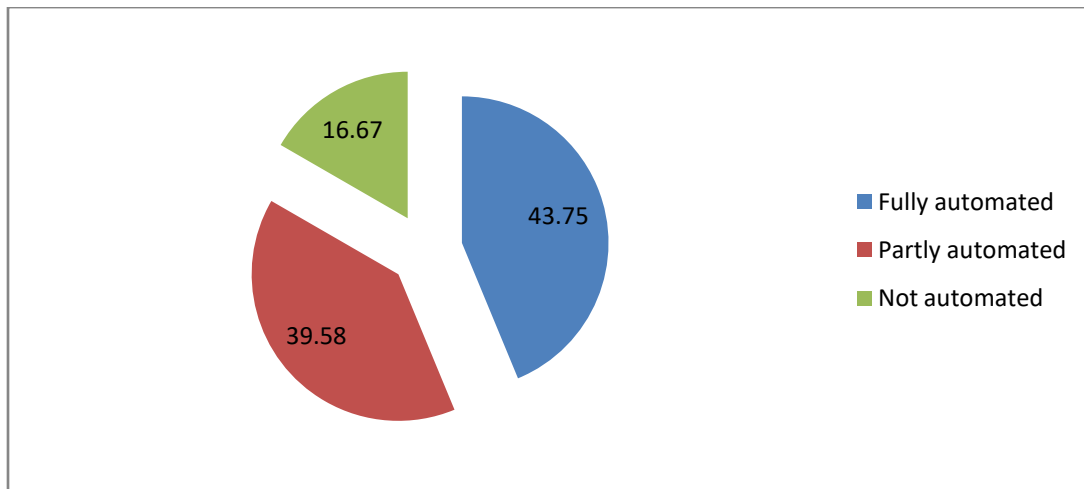

Table 5.7 Category of Automation software

Factors	Frequency	Percent
Commercial software	31	64.58
In house develop software	17	35.42
Total	**48**	**100.00**

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The above table explains about the nature of the library software being used by these libraries. It is found that 64.58 percent of the libraries are using commercial software and rest of the institutions is using in-house software prepared by them.

Table 5.8 Automation software used in library

Automation software	Frequency	Percent
Koha	22	45.63
Autolib	9	18.75
Others	17	35.62
Total	**48**	**100.00**

While enquiring about the software being used by the libraries, 45.63 percent of the libraries are using Koha software and 18.75 percent of them are using Autolib software. Remaining 17 libraries are using the different software prepared by them.

Table 5.9 Operating System used in library

Operating System	Frequency	Percent
Linux	29	60.42
Windows	19	39.58
Total	**48**	**100.00**

It is observed that Linux is the operating system used in 29 institutions (60.42%) and windows is being used by 19 libraries (39.5%)

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Table 5.10 Module used for Library Automation

Module used for library automation	Yes		No		Total
All modules used	16	33.33	32	66.67	**100.0**
Acquisition	14	29.17	34	70.83	**100.0**
Cataloguing	9	18.75	39	81.25	**100.0**
Serial Control	36	75.00	12	25.00	**100.0**
Circulation Control	23	47.92	25	52.08	**100.0**
Web OPAC / OPAC	30	62.50	18	37.50	**100.0**
Telecommunication and Networking					
Library have an independent network	34	70.83	14	29.17	**100.0**
Library connected to campus network	21	43.75	27	56.25	**100.0**
Library hosted Web OPAC	11	22.92	37	77.08	**100.0**
Barcode Technology being used in your library	5	10.42	43	89.58	**100.0**
Library website information					
Online Forum for Members	11	22.92	37	77.08	**100.0**
Podcast	13	27.08	35	72.92	**100.0**
RSS Feeds	9	18.75	39	81.25	**100.0**
Ask your Librarian	4	8.33	44	91.67	**100.0**
WebOPAC	4	8.33	44	91.67	**100.0**
Blog	10	20.83	38	79.17	**100.0**
Tag (metadata)	37	77.08	11	22.92	**100.0**
Chat with Librarian	42	87.50	6	12.50	**100.0**
Remote Access Facilities	29	60.42	19	39.58	**100.0**

The table above explains the details about the various modules of library automation being used by the libraries of the surveyed institutions. It is found that maximum of 36 libraries (75%) are using the module of Serial Control. 30 Institutions (62.5% of the libraries are using Circulation

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module. It is also noted that 81.25 percent of the libraries are not maintaining the cataloguing system with the existing library software. 62.5 percent of the libraries are using OPAC/WebOPAC.

Table 5.11Library connected with other network resources

Description	Yes		No		Total
INLIBNET	1	2.08	47	97.92	**100.0**
DELNET	1	2.08	47	97.92	**100.0**
MALIBNET	23	47.92	25	52.08	**100.0**
DESINET	2	4.17	46	95.83	**100.0**
CSIRNET	3	6.25	45	93.75	**100.0**

It is observed from the table that 47.92 percent of the libraries 923) are connected with MALIBNET and 6.25 percent of the libraries (3) are using CSIRNET. Two libraries (4.17%) are using DESINET.

Table 5.12 Library Consortium

Description	Yes		No		Total
UGC INFONET	12	25.00	36	75.00	**100.0**
CSIR –DST Consortium	7	14.58	41	85.42	**100.0**
Library Consortium of ISRO	11	22.92	37	77.08	**100.0**
ISI Library Consortium	5	10.42	43	89.58	**100.0**
IIM Library Consortium	6	12.50	42	87.50	**100.0**
FORSA (Forum for Resource Sharing in Astronomy)	7	14.58	41	85.42	**100.0**

It is observed from the table that 25 percent of the libraries are the members of UGC-INFONET consortium. Next to this, 22.92 percent of the libraries are using the library consortium of ISRO. 14.58 percent of the libraries are using CSIR-DST consortium and Forum for Resource Sharing in Astronomy (FORSA). 12.5 percent of the libraries are using IIM Consortium.

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Table 5.13 Current ICT status or level of the Library / Information centre

Description	Frequency	Percent
Advanced	17	35.42
Moderate	7	14.58
Medium	19	39.58
Normal	5	10.42
Total	**48**	**100.00**

Level of usage of ICT facilities are enquired from the librarians about the users of the libraries. It is obtained that 39.5 percent of them are using these facilities in medium level and 35.42 percent of them are using these facilities in advanced level.
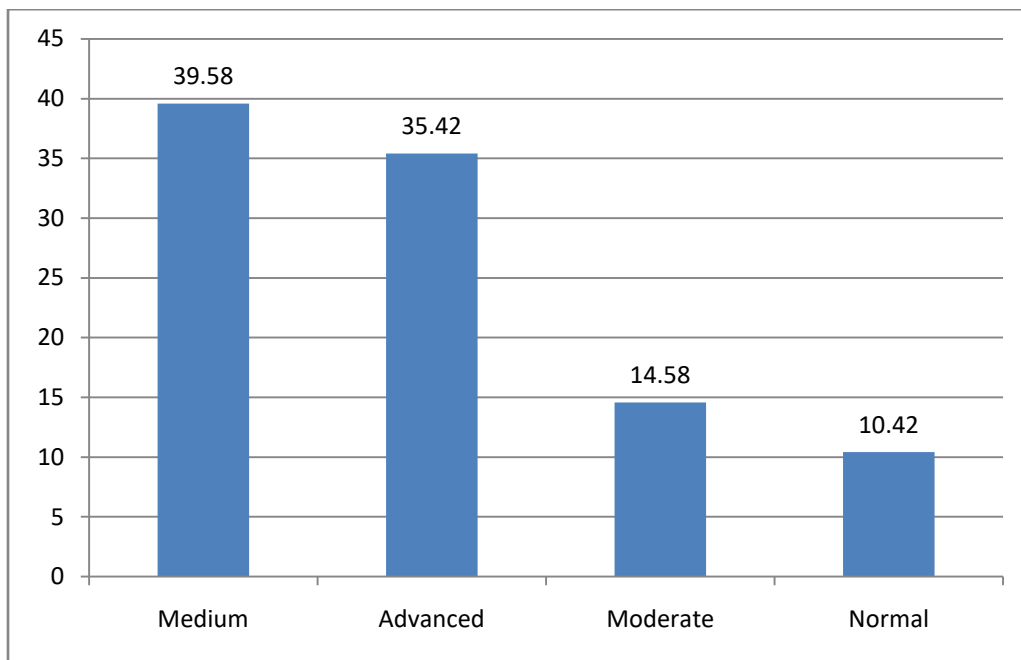
Findings &Conclusion

It is clear from the finding of the current study that the emerging trends of the research and development libraries of Tamilnadu, India appreciate the services provided by the library but at

the same time expect more. It is very impressive point to note that the maximum of 35.42 percent each of the library professionals (17) are Doctorates and also post graduates. While analyzing the experience of the library professionals, it is found from the table that the maximum of 39.58 per cent of them (19) are having the rich experience between 16 and 20 years. 13 librarians are having the experience of more than 21 years of service. It is also found that, among the 48 institutions, 24 are managed by the Government and remaining 24 are managed by the Private. Out of 48 R&D Institutions 17 are belongs to Engineering, 15 are medicine, 6 of the institutions are Science and social science and 4 from Agriculture. . It is found that 64.58 percent of the libraries are using commercial software and rest of the institutions is using in-house software prepared by them. It is found from the table that 43.75 percent of the libraries are fully automated and 39.58 percent of the Research libraries are partly automated and it is in progress. Level of usage of ICT facilities are enquired from the librarians about the users of the libraries. It is obtained that 39.5 percent of them are using these facilities in medium level and 35.42 percent of them are using these facilities in advanced level. The study pointed out that greater part of the researchers working in these institutions has shown positive preference toward application of ICT.

References

1. Murugesan, N. and Balasubramani, R (2011).Application of ICT Based Resources and Services in Research and Development Libraries in Tamilnadu: An Analytical Study, *European Journal of Social Sciences,23(1),*2011, 157-164.

2. Olaifa Taye Paul1, Oyeniyi J. Oluwakemi Research Library Development in Nigeria: The Role of Information Communication and Technology (ICT*).International Journal of science and Research (IJSR)* 256-259

3. Kumar,K Knowledge on ICT Skills among LIS Professionals of Engineering Institutions of Andhra Pradesh State: A Survey. *DESIDOC Journal of Library & Information Technology, 33(6)* 2013, 480-487.

4. Kattimani, Shivaputrappa Fakkirappa and R.Ramesh (2013). Evaluation of librarianship and ICT skills of library and information professionals working in the engineering college libraries in Karnataka, India: a survey. *Program: Electronic Library & Information Systems.. 47(4),*2013, 345-369.

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International Research Journal of Human Resources and Social Sciences (IRJHRSS)

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5. *Shahnaz Khademizadeh* Use of Information and Communication Technology (ICT) in Collection Development in Scientific and Research Institute Libraries in Iran: A study *International Journal of Advancements in Research & Technology, 1(3)*, 2012, 1-12

6. Senthamilselvi, A etc Emerging Trends in Functioning of ICT based Research Libraries in Tamilnadu : An Analytical Study*, NACINPROSE*, 2013.

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