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International Journal of Information Dissemination and Technology (2011-2015): A Bibliometric Study

Jamal Ahmad Siddiqui*, Narendra Singh, Deeksha Sharma*****

Received on 30.08.2016, **Accepted on** 15.09.2016

Abstract

The present study is a Bibliometric Analysis of International Journal of Information Dissemination and Technology from 2011-2015. The analysis covers the authorship pattern of articles published, yearwise publication of papers, statewise distribution of articles, citation pattern and credibility of authors. The results show that majority of the artcles i.e. 90% are contributed by either single author or two authors. It has been revealed that maximum number of articles i.e. 147 are published between 5-7 pages.

Keywords : Bibliometric Analysis; Citation Analysis; Quantitative Methods.

"Bibliometrics" is still considered as one of the most fascinating field of study among the library and information scientists. The study is popular because it helps to improve scientific documentation, information and communication activities by quantitative analysis of library collections and services. Besides its specific uses in the libraries, it also assists to contribute to a better understanding of the mechanism of scientific research as a social activity, a quantitative analysis of the generation, propagation and utilization of scientific information aspect. It is also being used as one of the techniques to evaluate and study the scientific works. It is surprising to note that till 1968 there was not even a single article on "Bibliometrics" which has got immense uses in various fields of study. But soon after that in 1980s quite a large number of works were published on the subject mostly in the form of journal articles. Historically, bibliometrics had its origin in the West and it was developed from the statistical studies of bibliographies. Specifically the technique was evolved by the efforts of earlier 20th century documentation to apply mathematical and statistical analysis to bibliometric units. However, the validity of data obtained through bibliometric studies continues to be debated despite general acceptance of the accuracy and objectivity of bibliometric technique. The most basic bibliometric technique still in use involves counting and categorizing the publications as regards to their type, country of origin and ranking of journals on the basis of their use by the scientists in a specific field of study.

International Journal of Information Dissemination and Technology (IJIDT), is peer-reviewed Quarterly Journal published on behalf of M.M. University, Mullana-Ambala. IJIDT publishes papers of original research work related to information- management, dissemination, communication, networking, information systems and technologies, knowledge and data management, record and archives management, integrated library systems, e-contents/ e-books/digital collections, digital preservation, artificial intelligence etc. The journal is published quarterly in the months of March, June September and December.

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Objectives of the Study

The following objectives are laid down for the present study:

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1. To determine the authorship pattern of the articles published during 2011-2015.
2. To find out the year wise publication of articles during the said period.
3. To assess the state wise distribution of contributors
4. To study the citation pattern of papers.
5. To examine the distribution of papers according to pages.
6. To assess the credibility wise distribution of papers.

Methodology

The data collected from the 20 issues of five years (2011-2015) comprises 260 articles published in International Journal of Information Dissemination and Technology. All the articles are evaluated for number of authorship pattern, year wise distribution of articles. Geographical distribution and citation pattern of articles.

Review of Literature

A literature review is actually an attempt to identify, locate and synthesize completed research report article book and other material relevant to the specific problem of a research topic has pointed out the importance of related literature as follows:

The survey of the literature is crucial aspect of the planning of the body and the time spend in such a survey invariably in wide investment. Chhatar (2014) analyses publication and citation patterns in the Journal of Information Literacy (JIL) an open access journal from 2007-2012. The results show that the number of research articles 68 (51.9%) is highest among other types of publications such as book reviews 36 (27.49), conference papers 27 (20.61%), etc. Bansal (2013) presents a bibliometric analysis of the journal to assess the pattern of growth of the research output published in the journal, pattern of authorship and geographic distribution of output, subjects covered and citation analysis of the references attached to the papers and change in them over two different periods (2001-2006) and (2007-2012). Kumar (2014) The Directory of Open Access Journals (DOAJ) provides open access to scientific and scholarly journals, that meat high quality standard by exercising pear review and is free to all from the time of publication based on the Budapest open access initiative. Using 36 fully open access electronic journals published uninterruptedly since 1991-2013 in the field of Gender studies. Siddiqui (2013) analysis of the Journal Annals of Library and information Studies for the period of 2006-2010. The study demonstrates and elaborates on the various aspects of the Journal, such as its distribution of article by year, authorship patterns distribution of contributions by institution, subject distributions, geographical distribution of contributions, citation patterns, types of publications cited and ranks of journals cited.

Data Analysis and Interpretation

Authorship Pattern

As per the formula given by K. Subramanyam to determine the degree of collaboration in qualitative terms, the present study followed the same formula which is as follows:

$$C = \frac{NM}{NM + NS}$$

Where C = Degree of Collaboration

NM = Number of Multi Authored Papers

NS = Number of Single Author papers

In the present study

NM = 25

NS = 20

Hence

$$C = \frac{25}{25 + 20} = \frac{25}{45}$$

C = 0.55

Thus, the degree of collaboration in IJIDT is 0.55 which shows the dominance upon single authors.

Table 1 shows that during the five years of publications (2011-2015) the maximum number of articles i.e. 121 (48%) were written by one author, followed by 107 (42%) were contributed by two authors. Whereas only 16 (6%) and 9 (4%) articles were authored by three and more than three authors respectively. Hence, we can say that the majority of the research papers published in International Journal of Information Dissemination and Technology (IJIDT) are written by one and two authors.

Table 2 shows year wise distribution of articles. It reveals that the maximum number of papers were published in 2014 which is 59 (22.69%) followed by 2012 and 2013 in which 55 articles were published in both these years. However, the least number of

articles were published during 2011 which is only 45 (17.30%). It is also observed that on an average 20 articles were published in each year.

Table 3 describes the length of papers published in IJIDT during the five years (2011-2015). It shows that the maximum pages of articles were published during 2014 which were 337 (23.59%) followed by 312 in the year 2012. The minimum number of pages were found during 2011, which were found 254 (17.78%). It has also been observed that during the five years period the total number of pages in 260 articles were 1428 i.e. 18 pages per issue.

Table 1: Authorship Pattern

No. of Authors	2011	2012	2013	2014	2015	Total Papers	Percentage
One	20	25	20	38	18	121	47.80
Two	17	22	22	20	26	107	42.20
Three	6	2	6	0	2	16	6.32
> Three	2	6	1	0	0	9	4.00
Total	**45**	**55**	**49**	**58**	**46**	**253**	**100.00**

Table 2: Year Wise Distribution

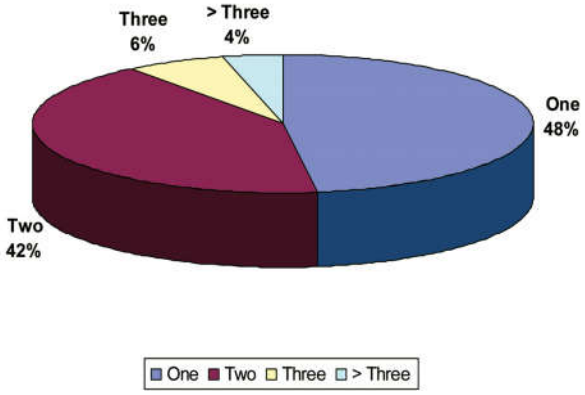
Year	No. of Articles	Percentage
2011	45	17.30
2012	55	21.15
2013	55	21.15
2014	59	22.69
2015	46	17.69
Total	**260**	**100.00**

Table 3: Length of Papers

Year	No. of Articles	Length of Papers	Average Papers/ Articles
2011	45	254	17.78
2012	55	312	21.84
2013	55	250	17.50
2014	59	337	23.59
2015	46	275	19.25
Total	**260**	**1428**	**100.00**

Table 4: Citation Pattern

Year	No. of Articles	Total Citation	Average No. of Citation paper
2011	45	512	11.37
2012	55	666	12.10
2013	55	611	11.10
2014	59	599	10.15
2015	46	586	12.73



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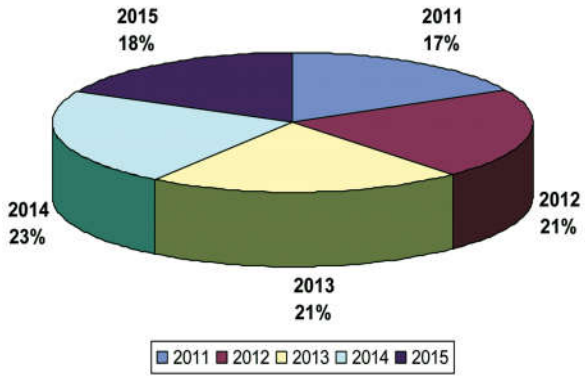

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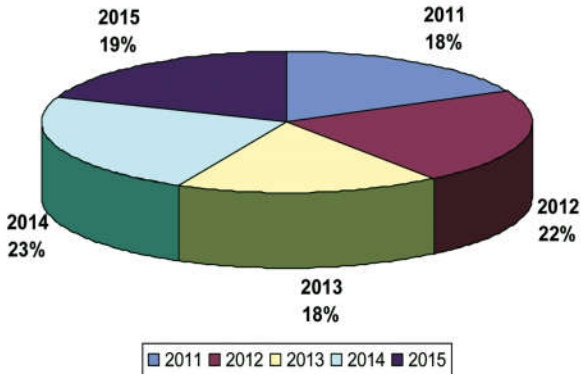

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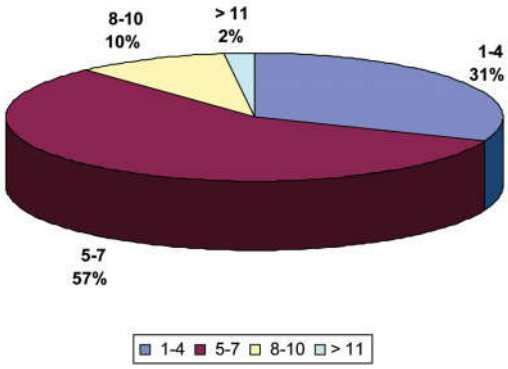

Fig. 4:

Table 5: Distribution of Papers according to Pages

No. of Pages	Contribution in year					Total Papers	Percentage
	2011	2012	2013	2014	2015		
1-4	16	14	17	16	13	76	31
5-7	19	31	34	37	24	142	57
8-10	10	9	3	5	8	25	10
>11	0	0	1	1	2	4	2
Total	**45**	**76**	**55**	**59**	**47**	**247**	**100**

Table 6: Credibility wise Distribution of Papers

S. No.	Credibility of Authors	Contribution in year					Total No. of Papers
		2011	2012	2013	2014	2015	
1.	Faculty Member	14	10	10	9	11	54
2.	Librarian	12	18	13	14	10	57
3.	Dy. Librarian	1	3	5	4	4	17
4.	Asstt. Librarian	6	12	5	7	11	41
5.	M.Phil/Ph.D. Scholars	6	6	6	7	13	38
6.	Others	10	8	6	10	9	43
	Total	**49**	**57**	**45**	**51**	**58**	**260**

Table 7: State wise Distribution of Papers

S. No.	Name of State	Contribution in year					Total Papers	% age
		2011	2012	2013	2014	2015		
1.	Assam				1		1	0.3
2.	Andhra Pradesh	1	3	2	1	2	9	3.4
3.	Delhi	5	3	2			10	4.0
4.	Gujarat		2	1	2	1	6	2.3
5.	Haryana	4	6	4	5	3	22	8.4
6.	Himachal Pradesh	2	2		1	1	6	2.3
7.	Jharkhand		1				1	0.3
8.	Jammu & Kashmir		1	1	3	2	7	3.0
9.	Karnataka	2	12	8	5	9	36	13.0
10.	Kerala	2	2	1	2	4	11	14.2
11.	Maharashtra	3	5	3	5	5	21	8.0
12.	Madhya Pradesh	1	2			1	4	2.0
13.	Mizoram				1		1	0.3
14.	Manipur				1	1	2	0.7
15.	Odisha	3	3	1			7	3.0
16.	Punjab	11	11	6	2	7	37	14.2
17.	Rajasthan	1	1	3		2	7	3.0
18.	Sikkim		2			1	3	1.1
19.	Tamil Nadu	3	3	5	6	3	20	8.0
20.	Uttar Pradesh	4	2	5	1	2	14	5.0
21.	Uttarakhand	1	2				3	1.1
22.	West Bengal	4	3	1	2	2	12	5.0
23.	Other countries	10	2	1	2	5	20	8.0
	Total	**57**	**68**	**44**	**40**	**51**	**260**	**100**

Table 4 shows the citation pattern of the cited documents. It reveals that the maximum citation were found in 2012 which were recorded as 666 in total 55 papers published during the year, followed by 611 citations in 55 papers which were published in 2013. The least number of citations were recorded in 45 papers published in 2011, which were only 512. The average number of citation per papers in 2011 was 11.37% in 2012 it was recorded 12.10 in 2013 it was 11.10 and in the years 2014 and 2015 the average number of citation per papers were recorded 10.15 and 12.73 respectively.

Table 5 depicts the distribution of papers according to the numbers of pages. It is found that the maximum research papers i.e. 142 were published in between 5 to 7 pages during 2011-2015, followed by 76 papers published in between 1 to 4 pages. Only four papers during the five years period (2011-2015) were published in more than 10 pages. 25 papers were published in 8 to 10 pages during the period. It is also noticed that maximum papers i.e. 37 were published in 2014 and were spread in 5 to 7 pages.

Table 6 analysis the credibility wise distribution of papers. It shows that maximum number of research papers i.e. during the five year period (2011-2016) were contributed by Librarians, followed by 54 papers by faculty members. It is also noticed that the least number of papers i.e. 17 were contributed b Dy. Librarians. Very surprisingly that 38 research papers were authored by M.Phil./Ph.D. scholars in IJIDT during the said period of five years.

Table 7 reveals that the papers have emanated from 22 Indian states and some are from other countries as well. The geographical distribution of papers has been decided on the basis of the affiliation and address of the first author. From the data analysis it is observed that the highest number of publications are from Punjab with 37 (14.2%) papers. Next come Karnataka with 36 (13%) papers followed by Haryana with 22 (8.4%) papers. Maharashtra ranks fourth in the list with 21 (8.0%) papers. It may be noted that the first four states are responsible for 43.6% of among 22 states. It is also noticed that the least number of papers i.e. only one paper was emanated by Assam and Jharkhand.

Major Findings

The maximum number of articles i.e. 121 (48%) were written by one author, followed by 107 (42%) were contributed by two authors. Whereas only 16 (6%) and 9 (4%) articles were authored by three and more than three authors respectively.

1. The maximum number of papers were published in 2014 which is 59 (22.69%).
2. The maximum pages of articles were published during 2014 which were 337 (23.59%) followed by 312 in the year 2012. The minimum number of pages were recorded during 2011, which were found 254 (17.78%).
3. The maximum citation were found in 2012 which were recorded as 666 in total 55 papers published during the year, followed by 611 citations in 55 papers which were published in 2013.
4. The maximum research papers i.e. 142 were published in between 5 to 7 pages during 2011-2015, followed by 76 papers published in between 1 to 4 pages.
5. Maximum number of research papers i.e. during the five years (2011-2016) period were contributed by Librarians, followed by 54 papers by faculty members.
6. The papers have emanated from 22 Indian states and some are from other countries as well.

References

1. Bar-Ilan, Judit. The 'Mad Cow Disease, Usenet newsgroups and bibliometric laws. Scientometrics, 1997; 39(1): 29-55.
2. Borgman, C. Bibliometrics and scholarly communication: editor's introduction. Communication Research. 1989; 16(5): 583-599.
3. Garfield, Eugene. Bradford's law and related statistical patterns. Current Contents. 1980; 19: 5-12.
4. Hawkins, D.T. Unconventional uses of on-line information retrieval systems: on-line bibliometrics studies. Journal of American Society for Information Science. 1977; 28(1): 13-18.
5. Hood, William W. and Wilson, Concepcion S. The literature of bibliometrics, Scientometrics, and informatics. Scientometrics, 2001; 52(2): 291-314.
6. Lancaster, F.W. Bibliometric methods in assessing productivity and impact of research. Bangalore: Sarada Ranganathan Endowment for Library Science; 1991; p. 1, 51.
7. Mahapatra, Gayatri. Post Ranganathan era: a bibliometric analysis of Ranganathan's contributions IASLIC Bull. 1992; 37(3): 177-182.
8. Maheswarappa, B.S. and Rao, B. Surya. Journal literature of food science and technology: a bibliometric study. Ann. Lib. Sc & Doc. 1982; 29(3); 126-134.
9. Parvathamma, N. Trends in the growth of Indian earth science literature, 1978-88: a Bibliometric study. Gulbarga University, Gulbarga. pp. 207 (Unpublished

Ph.D. Thesis). 1990.

10. Singh, S.N. The use of social science literature in India: a bibliographic study. BHU, Varanasi: Ph.D. Thesis (Unpublished). 1983.
11. Subramanyam, K. Bibliometric studies of research collaboration: a review. J. Inf. Sc. 1983; 6: 33-38.
12. Taber, Mohamad (1989). A bibliometric analysis of the literature in the field of Islamic studies, Calicut University. (Ph.D. Thesis) (Unpublished)
13. Vickery, B.C. Bradford's law of scattering, J. Doc. 1948; 4: 198, 203.
14. White, Emilie C. Bibliometrics: from curiosity to convention, Special Libs. 1985; 35-42.
15. Wilkinson, E.A. Ambiguity of Bradford's law. J. Doc. 1972; 28: 122-130.
16. Worthen, D.B. The application of Bradford's law to monographs. J. Doc. 1975; 31: 19-25.

Original Article

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Collaborative endeavor of Poliomyelitis Research: An Image of PubMed, 2000-2015

Keshava*, Thimmaiah B.N.**

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Abstract

The research work made attempts to Scientometric analysis of 5045 papers reflected in PubMed, during 2000-2015 on poliomyelitis research literature. The collected data were record in Excel spreadsheets and analyzed to determine the Degree of Collaboration between authors, collaboration and authorship pattern. The result shows that 66.71 percent of the papers were multi authored of 5045 research papers, the highest number of papers (1629) (32.29 percent) was published by single authors followed by 12.69 percent of papers (640) with two authors, 10.80 percent of papers (545) by three authors and 5.89 percent of papers published by more than ten authors and only 1.88 percent of the papers published by ten authors.

Keywords: Author Pattern; Collaboration; Pub Med; Poliomyelitis.

Introduction

In the first half of the 20th century, poliomyelitis was widely feared. It often struck without warning, was highly contagious, and affected large, young populations, causing prolonged or permanent flaccid paralysis or death. There are arresting and disturbing accounts of the explosive nature of polio epidemics and the response of communities to these outbreaks [1]. The effective control of poliomyelitis throughout most of the world has been a remarkable story of scientific and social progress. However, "wild" poliomyelitis is still endemic in parts of sub-Saharan Africa and the Indian subcontinent, and it continues to occur sporadically elsewhere. In addition, there is a small incidence of vaccine induced polio in infants and adults. Global eradication remains a goal of the World Health Organization and of public health policies throughout the world, with the eventual discontinuation of routine immunization [2]. Acute poliomyelitisis now rarely encountered in the United Kingdom, but "imported"poliomyelitis still occurs and it is necessary to distinguish acute poliomyelitis from other causes of acute flaccid paralysis. Despite the obvious success of preventive policies, many patients who had poliomyelitis experience late functional deterioration after periods of prolonged stability the so called postpolio syndrome. The patterns of disability and their management present unique challenges to the multidisciplinary rehabilitation team [3].

In the recent times collaboration is an integral part of research. It is a mutual involvement of participants in a coordinated effort to overcome certain problems together. The collaborative interactions are characterized by shared goals, symmetry of structure and a high degree of negotiation, interactivity and interdependence. The sharing of goals may be interdisciplinary, inter departmental or inter institutional. The interdisciplinary collaboration has increased the productivity of research and encouraged the development of innovative new strategies in investigations [4]. Scientometric analysis the quantitative aspects of the generation, propagation and utilization of scientific information to contribute to a better understanding of the mechanism of scientific research activities The aim of the scientometrics is to reveal the characteristics of scientific phenomena and process in scientific

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research for more efficient management. Scientometrics is the science of Measuring and analyzing science using qualitative, quantitative and computational approaches. Scientometrics is a reliable method for the evaluation of scientific development. One of its main indices is the number of published articles or science production in a specific field of science, in this case, Poliomyelitis [5].

Objectives

The objectives of the study were to find:

- To know the Authorship Pattern;
- Degree of author Collaboration;
- Co-authorship patterns and author productivity

Methodology

The data was collected pertaining to the poliomyelitis research literature as reflected in PubMed database during period 2000-2015. The data were recorded in Excel spread sheet and analyzed as per the objectives of the study to determine the Degree of Collaboration between authors, collaboration and authorship pattern.

Table 1: The table and Figure shows that 5045

Table 1: Article contribution by year

Year	Total	Percentage
2000	338	6.70
2001	347	6.88
2002	299	5.93
2003	305	6.05
2004	345	6.84
2005	322	6.38
2006	323	6.40
2007	290	5.75
2008	268	5.31
2009	278	5.51
2010	308	6.11
2011	293	5.81
2012	312	6.18
2013	366	7.25
2014	469	9.30
2015	182	3.61
Total	**5045**	**100.00**

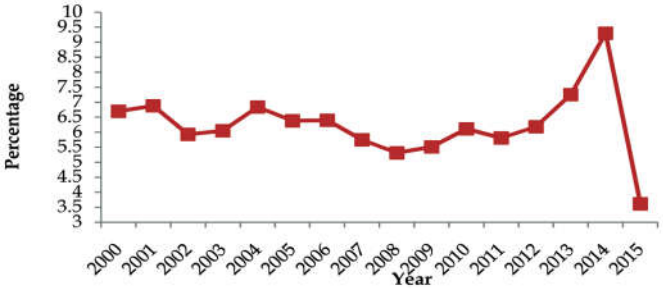

Fig. 1: Article Contributions by Year

Table 2: Authorship patternsa

Author	Total	Percent
Single	1629	32.29
Two	640	12.69
Three	545	10.80
Four	480	9.51
Five	379	7.51
Six	373	7.39
Seven	258	5.11
Eight	207	4.10
Nine	142	2.81
Ten	95	1.88
More than Ten	297	5.89
TOTAL	**5045**	**100.00**

research literature has contributed during 2000-2015. Poliomyelitis research literature growth is normally increasing .The highest number of research articles were published in the 2014 with 469(9.30%).

Table 2 & 3: The tables and figure shows that, 66.71% of the papers were multi authored of the 5045 research papers, the highest number of papers 1629 (32.29%) was published by single authors followed by 12.69 of papers with two authors, 10.80% of papers by three authors and 5.89% of papers published by more than ten authors and only 1.88% of the papers published by ten authors. The highest number of publication by single author from the year 2000-2006 and gradually increasing from 2007-2014.

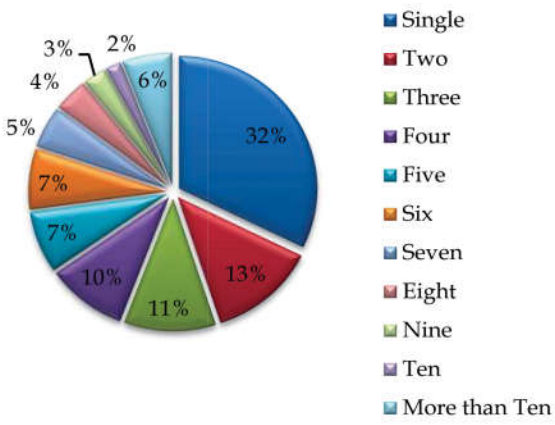

Fig. 2: Authorship pattern

Table 3: Year wise distribution of authorship pattern

Year	Single	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	>Ten	Total
2000	137	46	31	33	27	24	16	10	5	4	5	338
2001	138	47	33	34	16	32	20	8	7	5	7	347
2002	104	39	36	29	33	25	9	8	6	5	5	299
2003	109	28	33	32	24	20	23	15	6	5	10	305
2004	151	40	36	31	22	19	11	9	6	2	18	345
2005	119	34	35	37	19	25	13	16	10	5	9	322
2006	118	50	37	28	22	21	14	7	7	10	9	323
2007	90	37	33	28	23	24	15	10	9	7	14	290
2008	74	32	33	31	24	18	17	14	2	8	15	268
2009	94	36	33	23	24	15	18	11	9	1	14	278
2010	75	43	48	33	15	24	16	20	10	4	20	308
2011	80	42	29	23	19	28	19	13	11	3	26	293
2012	79	45	28	31	18	29	16	15	15	8	28	312
2013	106	47	32	33	34	31	24	10	11	9	29	366
2014	99	49	52	42	40	29	21	37	23	13	64	469
2015	56	25	16	12	19	9	6	4	5	6	24	182
Total	1629	640	545	480	379	373	258	207	142	95	297	5045

Table 4: Degree of Author Collaboration

Year	Single	Multiple Author	DC
2000	137	201	0.59
2001	138	209	0.60
2002	104	195	0.65
2003	109	196	0.64
2004	151	194	0.56
2005	119	203	0.63
2006	118	205	0.63
2007	90	200	0.69
2008	74	194	0.72
2009	94	184	0.66
2010	75	233	0.76
2011	80	213	0.73
2012	79	233	0.75
2013	106	260	0.71
2014	99	370	0.79
2015	56	126	0.69
Total	**1629**	**3416**	**0.67**

Degree of Collaboration

The formula suggested by Subramanyam (1993)[6] has used to find out the DC between the authors;

$$DC = \frac{Nm}{Nm + Ns}$$

Where, DC= degree of collaboration; Nm=number

of multi-authored papers; Ns = number of single-authored papers.

Table 4 shows that the DC of authors ranges from 0.59 to 1. The average DC is 0.67 during the period of study, and it clearly shows that there was a high level of collaboration between authors during this period.

The Table 5 shows the author productivity during the study period is given that the average number of author per paper (AAPP) is 3.86. The average productivity per author (APPA) is 0.26 productivity per author. The formula used to determine author productivity is as follows:

AAPP=number of authors/number of papers; APPA=number of papers/number of authors.

Table 5: Author Productivity

Year	Total no of Papers	No of Authors	AAPP	APPA
2000	338	1065	3.15	0.32
2001	347	1133	3.27	0.31
2002	299	1007	3.37	0.30
2003	305	1127	3.70	0.27
2004	345	1108	3.21	0.31
2005	322	1143	3.55	0.28
2006	323	1093	3.38	0.30
2007	290	1124	3.88	0.26
2008	268	1083	4.04	0.25
2009	278	1026	3.69	0.27
2010	308	1278	4.15	0.24
2011	293	1258	4.29	0.23
2012	312	1396	4.47	0.22
2013	366	1540	4.21	0.24
2014	469	2379	5.07	0.20
2015	182	794	4.36	0.23
Total	**5045**	**19554**	**3.86**	**0.26**

Conclusion

The study explores that the majority of papers by multi authors and Indian authors. There was poor international collaboration by Indian authors. The average page is 6.27 and it is the ideal for research papers. The Degree of collaboration (using Subramanyam's formula) indicates that there exists a high degree of collaboration. The average Co-Authorship Index for all the authors reflects the world average in the journal and improving trend of coauthored papers. The study revealed that the journal seems to be popular among the international research community with around 25% of papers.

References

1. Gould, Summer,T.A. Plague polio and its survivors, New Haven, CT: Yale University Press. 1995.
2. Heymann D.L, Aylward R.B. Eradicating polio. N Engl. Journal of Medicinal Chemistry 2004; 351:1275-7.
3. WHO. Geneva declaration for the eradication of poliomyelitis. Geneva: WHO, 2004. from http://www.who.int/en/ accessed on 16.02.2016.
4. Sangam, S.L. and Shivaranjini, S. Mogali. Research Collaboration in the field of social science, Scientometric, 2014; 197-206 ISBN: 978-81-7000-717-3
5. Grace, S.M.Santhankathikeyan S and Jeyshankar, R. Research publications to Indian journal of cancer: a scientometric analysis, Library Hi Tech News, 2014; 3:21-25.
6. Subramanyam, K. Bibliometric studies of research collaboration: a review. Journal of information science, 1983; 6(1):33-38.

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Library Services and Facilities in the Christian Missionary Colleges in Chennai in the ICT Environment: Implications for the Empowerment of Higher Education in Tamil Nadu

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Abstract

The Christian missionaries occupy the most important place in spreading education among the public. Colleges form the vital part of Higher education and libraries in colleges are the primary source of Information for all the learning activities. The colleges established by the Christian Missionaries contribute to the empowerment of higher education in India in general and Tamilnadu in particular. This paper presents a survey of 14 libraries attached to the Christian Missionary colleges in and around Chennai with the following objectives such as, To present the state-of-art- of the Libraries attached to Christian Missionaries in and around Chennai; To survey the library resources, services, manpower, and other infrastructure facilities available in the colleges under survey; To find out the extent of library automation in the colleges under survey and To offer suggestions for the improvement of libraries and in turn the implications for the empowerment of higher education in Tamil Nadu. Based on the survey a few suggestions are given that contribute for the empowerment of higher education in Tamilnadu.

Keywords: College Libraries; Christian Missionary College Libraries; ICT Environment; Higher Education; Tamilnadu; Chennai; Survey.

Introduction

The Christian missionaries occupy the most important place in spreading education among the public. Catholic and protestant missionaries, hailing mainly from Britain, America and Germany, worked with great success. Educational institutions are the logical extension of the Christian missionaries in the dome of education. As the Churches have always realized that the essential tool for development is education, they showed lot of interest in founding and managing educational institutions. When backward communities were deprived of education, it was the Christian missionaries who established educational institutions throughout India which opened the gates of their schools and colleges for the downtrodden.

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Impact of ICT on Libraries

In the recent years Information and Communication Technology (ICT) has made a significant change on all spheres of everyday human life. The impact of ICT has been changed activities of the service sectors such as banking, health, transportation, education, library and information services etc. In the library and information service, it has changed the management of resources as well as dissemination of information services. Application of ICT tools are used for housekeeping operations of Library and information centers such as acquisition, cataloguing, circulation control, serials control, OPAC services.

Role and Functions of College Libraries for the Empowerment of Higher Education

Colleges form the vital part of Higher education and libraries in colleges are the primary source of

Information for all the learning activities. The power of a college library convey a purpose not just to collect, but also to categorize, conserve and make information accessible to one and all. The role of the library is necessarily dependent upon the educational objectives of the institution. A college library serves two paired purposes to support the university curriculum, and to support the research of the faculty and students.

Some specific functions and objectives of college libraries include - the provision of materials, term papers, expensive research works, projects and supplementary readings for undergraduate and postgraduates students and materials for personal development. Other functions and objectives include to:

a. Provide up–to-date information resources to support the learning, teaching, research and consultancy activities of the university community.

b. To collect such information not only in book form but also in non-book such as slides, films, transparencies, government documents, tapes etc.

c. To give user-oriented service to the college community, by quickly disseminating the information collected to all who need it.

d. To aid the college to develop the humane liberal and social side of the scientist, by providing selected materials in the arts, humanities and social sciences.

e. To collect materials produced by the colleges in all its departments and programs and by its entire staff so as to preserve these for posterity and for future research activities.

f. To provide a centre of excellence of library collections in academic areas selected by the college, for use by the students, staff and researchers.

g. To participate or cooperate with other libraries within and outside the country in resources sharing and ICT capabilities.

Review of Literature

It is found in the literature survey that, a large number of surveys of different types of libraries have been reported. Since this paper is focusing on survey of libraries in Chennai attached to Christian missionary colleges, in this section only surveys pertaining to Tamil Nadu are considered.

While Ramesh Babu, Nageswara Rao and Baskar (2015) *presents the survey of libraries located in and around Chennai comprising of academic (government and private universities), public and special*, Asok Kumar and Ramesh Babu (2007) has surveyed the public libraries in Tamil Nadu with respect to District central libraries. As far as autonomous colleges are concerned, Nageswara Rao and Ramesh Babu (2008) and Nageswara Rao (2010) conducted a survey on Autonomous college libraries, their services, facilities and networking aspects. Similarly in the field of medical colleges, Ravisankar (2009), Joyson Soundararajan (2011) and Selvamani and Ramesh Babu (2014) made an extensive survey of libraries of medical and para-medical including pharmacy educational institutions. On the other hand, Vinayagamoorty, Ramesh Babu and Gopalakrishnan (2006) and Ramesh Babu and Subramaniyan (1999) surveyed engineering educational institutional libraries and Baskar & Ramesh Babu (2012) on manuscript libraries in Chennai.

All these studies focused on the state-of-the-art-of –libraries in Tamil Nadu and recommended for the complete automation, provision of e-services, manpower development and networking.

These studies relate to the different aspects of libraries particularly college libraries, including library administration, finance, document collection, library staff, services, and physical facilities. Results of the studies revealed that collection and service infrastructure of the libraries in sampled regions were not up to the mark and libraries were struggling to build digital collection and in disseminating digital information due to lack of ICT infrastructure, IT trained manpower and paucity of finances, etc. It is also found that no study on the survey of Christian Missionary colleges in Chennai has been reported and hence this paper bridges the gap and justifies the lacunae in the literature.

Scope and Objectives

The study covers all the Christian Missionary college libraries located in and around Chennai.

The Objectives Are-

- To present the state-of-art- of the Libraries attached to Christian Missionaries in and around Chennai.
- To survey the library resources, services, manpower, and other infrastructure facilities available in the colleges under survey.
- To find out the extent of library automation in the colleges under survey.

- To offer suggestions for the improvement of libraries and in turn the implications for the empowerment of higher education in Tamil Nadu.

Methodology

The present study involves the Christian Arts and Science colleges in Chennai only. A survey was done using a structured questionnaire as a tool. The email addresses of the institutions in the area were collected through formal and informal sources. A short structured questionnaire was emailed to these institutions.

Fifteen questionnaires were sent to Christian arts and Science college libraries based in Chennai only which included both Government Aided and Self Financing Colleges. Fourteen libraries responded and the response rate is 93.3% (Table 1). The state-of- the-art-of-the libraries surveyed in and around Chennai has been presented in Appendix-A.

Analysis and Discussion

Table 1: Number of questionnaires distributed and Responses received

S. No.	Description	No. of Colleges
1	Number of Questionnaires Distributed	15
2	Number of Questionnaires Responded	14
3	Number of Questionnaires Not Responded	1

Table 2: Year of Establishment of the colleges

S. No.	Description	No. of Colleges	Percentage
1	Established Before 1950	3	21.43%
2	Between 1951 and 1975	0	0
3	Between 1976 and 2000	7	50%
4	After the year 2000	4	28.57%

Table 3: Nature of Management of the colleges

S. No.	Description	No. of Colleges	Percentage
1	Catholic	8	57.14%
2	CSI	3	21.43%
3	Syrian	2	14.29%
4	Malayala Minority	1	7.14%

Table 4: Status of the Colleges

S. No.	Description	No. of Colleges	Percentage
1	Autonomous	3	21.43%
2	Self - Finance	11	78.57%

Table 5: Area of the Library

S. No.	Description	No. of Colleges	Percentage
1	Below 1,000 sq. ft.	2	14.29%
2	Between 1,001 and 5,000 sq. ft.	9	64.28%
3	Between 5,001 and 10,000 sq. ft.	1	7.14%
4	Above 10,000 sq. ft.	2	14.29%

Table 6: Staff Strength in the Library

S. No.	Description	No. of Colleges	Percentage
1	Below 5 Staff Members	10	71.43%
2	Between 6 and 10 Staff Members	1	7.14%
3	Between 11 and 15 Staff Members	2	14.29%
4	Not recruited	1	7.14%

Table 7: Number of Books in the Library

S. No.	Description	No. of Colleges	Percentage
1	Below 5,000 Books	2	14.29%
2	Between 5,001 and 50,000 Books	9	64.28%
3	Between 50,001 and 1,00,000 Books	0	0.00%
4	Above 1 Lakh Books	3	21.43%

Table 2 shows that 3 colleges (21.43%) were established prior to 1950 and between 1976 and 2000, 7 colleges (50%) were established and after the year 2000, only 4 colleges (28.57%) colleges were established.

The Table 3 indicates that 8 colleges (57.14 %) were managed by Catholics, CSI governed 3 colleges (21.43%) and 2 colleges (14.29%) were of Syrian Management while 1 college (7.14%) was administered by Malayala Minority.

Table 4 shows that out of 14 Christian arts and science colleges in Chennai, 3 colleges (21.43%) were autonomous while the remaining 11 colleges (78.57%) were self-financed.

The data in Table 5 shows that, only 2 colleges (14.29%) had library space of less than 1000 sq feet whereas 9 Colleges (64.29%) had library whose area was between 1000 and 5000 Sq feet and 1 college (7.14%) had library space between 5000 and 10,000 Sq feet, on the other hand, 2 colleges (14.29%) had their library space 10,000 Sq feet.

Table 6 shows that out of 14 colleges who responded, 10 college libraries (71.43%) had staff strength below 5 ,while 1 college library (7.14%) had staff count from 6 to 10 and 2 college libraries (14.29%) had staff strength from 11 to 15 and 1 College library (7.14%) had not yet recruited a Librarian

It is found in Table 7 that 2 college libraries (14.29%) had collection below 5000 in number and 9 college libraries (64.29%) had collection between 5000 and 50,000 and 3 libraries (21.43 %) had developed a collection of more than one lakh.

Table 8: Number of periodicals

S. No.	Description	National Journals		International Journals	
		No. of Colleges	Percentage	No. of Colleges	Percentage
1	Below 50 Periodicals	10	71.43%	11	78.57%
2	Between 51 and 100 Periodicals	2	14.29%	0	0.00
3	Between 101 and 500 Periodicals	1	7.14%	0	0.00
4	Periodicals not subscribed	1	7.14%	3	21.43%

Table 9: Number of back volumes

S. No.	Description	No. of Colleges	Percentage
1	Below 50 Back Volumes	2	14.29%
2	Between 51 and 100 Back Volumes	2	14.29%
3	Between 101 and 500 Back Volumes	2	14.29%
4	Between 501 and 1000 Back Volumes	1	7.14%
5	Between 1001 and 5000 Back Volumes	1	7.14%
6	More than 5000 Back Volumes	1	7.14%
7	Does not have any Back Volumes	5	35.71%

Table 10: Number of Audio /Video/CDs/DVDs

S. No.	Description	No. of Colleges	Percentage
1	Below 100	2	14.29%
2	101-500	6	42.86%
3	500-1000	2	14.29%
4	Not Available	4	28.57%

Table 11: Availability of E-books & E-Journals

S. No.	Description	No. of Colleges	Percentage
1	Ebooks Subscribed	9	64.29%
2	Ebooks not subscribed	5	35.71%
3	Ejournals subscribed	9	64.29%
4	Ejournals not subscribed	5	35.71%

The Table 8 shows that 10 College libraries (71.43%) had subscription of national journals of less than 50 while 2 libraries (14.29%) had national journal subscription between 50 and 100 and 1 library (7.14%) had national journal subscription in the range between 101-500 while 1 College library (7.14%) since its new had not started its journal subscription yet. The above table also shows that 11 college libraries (78.57%) had international journals below 50 while 3 libraries (21.43%) did not subscribe to any International journals.

Table 9 specifies that 2 College libraries (14.29%) had back volumes of periodicals below 50 while 2 libraries (14.29%) had back volumes in the range 51-100 in number and 2 libraries (14.29%) had back

volumes between 101-500 while 1 college library (7.14%) had back volumes in the range between 501-1000 in number and 1 college library (7.14%) had back volumes between 1001-5000 and 1 library (7.14%) had more than 5000 back volumes and 5 libraries (35.71%) did not have any back volumes.

The Table 10 points out that 2 college libraries (14.29%) had collection of audio visual materials below 100 while 6 libraries (42.86%) had A/V materials in the range of 101-500 ,while 2 college libraries (14.29%) had audiovisual materials in the range between 500 and 1000 and 4 colleges (28.57%) did not have any A/V materials.

Table 11 shows that 9 College libraries (64.29%) had both E-books and E-journals collection while 5 college libraries (35.71%) did not have any E-books and E-journals.

The data in Table 12 indicates that 9 college libraries (64.29%) had the policy for weeding out of library materials while 5 libraries (35.71%) did not follow any weeding out policy.

The Table 13 shows that 9 college libraries (64.29%) followed Dewey Decimal Classification (DDC) while 2 libraries (14.29%) followed Universal Decimal Classification (UDC) and 3 college libraries (21.43%) did not have any classification scheme in their libraries.

Table 14 shows that 9 college libraries (64.29%) followed OPAC and AACR in their libraries while 5 libraries (35.71%) did not follow any cataloguing code in their libraries.

Table 15 shows that while only binding was done in 8 college libraries (57.14%) for preserving their materials, Fumigation was carried out in only one college library (7.14%) while combination of Binding and Dusting and pesticides was done in 3 libraries (21.43%). One library did both Binding and Dusting while and one library (7.14%) did not follow any preservation method.

Table 12: Weeding out policy

S. No.	Description	No. of Colleges	Percentage
1	Availability of Weeding out policy	9	64.29%
2	Non Availability of Weeding out policy	5	35.71%

Table 13: Classification scheme followed

S. No.	Description	No. of Colleges	Percentage
1	DDC	9	64.29%
2	UDC	2	14.29%
3	No Classification	3	21.43%

Table 14: Cataloguing code adopted

S. No.	Description	No. of Colleges	Percentage
1	OPAC/AACR	9	64.29%
2	No Cataloguing	5	35.71%

Table 15: Preservation methods

S. No.	Description	No. of Colleges	Percentage
1	Only Binding	8	57.14%
2	Only Fumigation	1	7.14%
3	Binding, Dusting and Pesticides	3	21.43%
4	Binding & Dusting	1	7.14%
5	Preservation not yet started	1	7.14%

Table 16: Automation software used

S. No.	Description	No. of Colleges	Percentage
1	In-House	2	14.29%
2	Autolib	5	35.71%
3	e-BLIS	2	14.29%
4	Non Availability of the software	5	35.71%

Table 16 shows that 5 college libraries (35.71%) had automated their libraries using Autolib software while 2 libraries (14.29%) had e-BLIS as their automation software while two college libraries (14.29%) had their in house software for automating their library operations while 5 libraries (35.71%) had not automated their library.

Table 17 shows that 9 college libraries (64.29%) had digitized their library services while 5 libraries (35.71%) are yet to start their digitization.

Table 17: Digitization

S. No.	Description	No. of Colleges	Percentage
1	Digitization Done	9	64.29%
2	Digitization not done	5	35.71%

Table 18: Technical services

S. No.	Technical Services	No. of Colleges	Percentage
1	Only Circulation	4	28.57%
2	Circulation, Reference and Reprography	9	64.29%
3	Circulation & Reprography	1	7.14%

Table 19: ICT Based Services

S. No.	Description	No. of Colleges	Percentage
1	OPAC	3	21.42%
2	DBS	2	14.29%
3	OPAC & BLOG	2	14.29%
4	OPAC & E-J	2	14.29%
5	Non Availability of ICT	5	35.71%

Table 20: Participation in Networks

S. No.	Description	No. of Colleges	Percentage
1	INFLIBNET	8	57.14%
2	INFLIBNET /DELNET	2	14.29%
3	Non subscription to Networks	4	28.57%

Table 18 reveals that 4 College libraries (28.57%) had only circulation services while 9 college libraries (64.29%) had all three services namely Circulation, Reference services and Reprography and one college had both Circulation and Reprography in their libraries

The Table 19 exhibits that access to Online Public Access Catalog (OPAC) was available in 3 college libraries (21.42%). While DBS is followed in 2 college libraries (14.29%), 2 college libraries (14.29%) had combination of OPAC &BLOG. On the other hand OPAC and E-Journals were available in 2 colleges (14.29%). It is significant to note that, none of ICT based services were provided in 5 college libraries (35.71%)

The data in Table 20 indicates that 8 College libraries were members of INFLIBNET while two college libraries (14.29%) were members of both INFLIBNET and DELNET while 4 college libraries (35.71%) were not members of any networked community.

Implications for the Empowerment of Higher Education in Tamilnadu

The changes that are occurring in technology, in research, teaching and learning have created a very different context for the missions of academic and research libraries. This evolving context can afford a moment of opportunity if libraries and librarians can respond to change in proactive and visionary ways. There are diverse and unmet needs now arising within the academy many of which closely align with the traditional self-definitions of academic and research libraries. To the extent that libraries and their leaders can reposition themselves to serve these evolving needs which pertain in part to the centralized storage, description, and delivery of academic resources, and in part to the organization and support of scholarly communication within and across higher educational institutions, libraries will emerge as even more central and vibrant resources for their institutions.

In view of the information requirements of the college clientele, it is suggested that the libraries shall plan a functional and effective collection building program in the field of Arts, Commerce and Science and allied subjects. It is also suggested to acquire both print and non-print materials Realising the recent attempts at the global level towards the establishment of Digital / Virtual libraries, it is suggested that the Christian Missionary college libraries shall venture towards this direction. Of course, there may be preliminary obstacles in the Indian context. However, if it is implemented, there would be a better trend in the proper augmentation of the resources among the Christian Missionary college libraries.

Faculty - Librarian Collaboration

Ensure faculty really understands that faculty/ librarian collaboration is fundamental to successful research assignments and that without it the research process and assignment quality will suffer. Faculty must appreciate existing problem areas before collaboration can begin in earnest**!** Faculty

Appendix -A

State-of-the-art-of-the Libraries in Chennai

Name of the College	Year of Establishment	Nature of Management	Library Area in Sq.ft	Library Sta?	Books	Periodicals		Back Volume	Non- Book Materials		Weeding out Policy	Technical Processing		Preservation Methods	Automation Software	Digitization	Traditional Services	ICT Based Services	Participation in Networks
						National	International		Audio- Video	e-books	e-journals		Classi? cation	Cataloguing					
Alpha Arts & Science College	1996	Malayala Minority	4200	2	15658	48	8	0	420	NLIST	NLIST & DELNET	Y	DDC	OPAC	B	In-House	Y	C&RS&R	OPAC	INFLIBNET DELNET
Annai Voilet College of Arts & Science	1997	CSI	1800	2	10000	8	2	100	150	0	0	Y	UDC	OPAC	F	AUTOLIB	Y	C&RS&R	OPAC	INFLIBNET
Annai Veilakanni's College for Women	2000	Catholic	1420	2	12500	21	3	200	180	NLIST	NLIST	Y	DDC	NO	B	AUTOLIB	Y	C&RS&R	DBS	INFLIBNET
Chevalier T Thomas Elizabeth College for Women	1985	Catholic	2009	3	20000	24	5	500	100	NLIST	NLIST & SAGE	Y	DDC	OPAC	B&D&P	AUTOLIB	PARTIAL	C&RS&R	OPAC & BLOG	INFLIBNET
Loyola College	1925	Catholic	53745	13	1,15,000	103	43	0	900	145000	9000	Y	DDC	AACR	B	AUTOLIB	STARTED	C&RS&R	OPAC & E-J	INFLIBENT
Madras Christian College	1837	CSI	36000	6	1,67,500	66	15	8350	450	150000	8000	Y	DDC	AACR	B&D&P	e-BLIS	Y	C&RS&R	DBS	INFLIBNET DELNET
Madha Arts and Science College	2006	Catholic	2000	1	2500	10	0	0	0	0	0	N	NO	NO	B	NO	NO	C	NO	NO
Mar Gregorios Arts & Science College	1997	Malk.Syn Catholic	1356	2	12350	16	3	100	20	0	0	N	DDC	AACR	B	NO	NO	C	NO	NO
Nazareth College of Arts and Science	2000	CSI	600	1	5700	25	0	0	0	NLIST	NLIST	N	UDC	NO	B	NO	NO	C	NO	INFLIBENT
Patrician College of Arts and Science	2001	Catholic	3132	2	15800	24	5	25	260	NLIST	NLIST	N	DDC	OPAC	B	MODILIB	Y	C&RS&R	OPAC BLOG	INFLIBNET
St..Thomas College of Arts and Science	1999	Orthodox Syrian	2000	2	9000	8	2	30	20	1000	300	Y	DDC	AACR	B	AUTOLIB	Y	C&RS&R	OPAC	INFLIBNET
Stella Maris College	1947	Catholic	6500	15	1,35,000	87	10	3444	808	NLIST	NLIST	Y	DDC	OPAC	B&D&P	e-BLIS	Y	C&RS&R	OPAC, E-J	INFLIBNET
St. Anne's Arts and Science College	2014	Catholic	500	0	2000	0	0	0	0	0	0	N	NO	NO	NO	NO	NO	C	NO	NO
St. Joseph's College (Arts & Science)	2005	Catholic	2000	2	16000	10	3	1000	0	0	0	Y	NO	NO	B/D	NO	NO	C&R	NO	NO

Binding – B; Dusting – D; Fumigation – F; Pesticides – P; Circulation – C; Current Awareness Service – CAS; Database Search – DBS; Document Delivery Service – DDS; E-Journal – E-J; E-Mail Alert – EMA; Electronic Thesis Dissertation – ETD; Institutional Repositories – IR; Lamination –L; Reference Service – RS; Reprography – R; Social Networking Sites- SNS; Translation – T

misconceptions regarding student research skills: often assume research skills sufficient or can be easily learned. Existing faculty perceptions of librarians: often do not see us as equal partners in research or teaching process. Student perceptions of librarians and library: Lack clear perceptions of reference function, experience considerable library anxiety but faculty don't necessarily realize this.

Librarians will take a more active role in programmes aimed at improving retention, persistence, and student success. Grow partnerships with instructional faculty and direct support of curricular goals. Continue development of assessment that is tied directly to course learning outcomes. Libraries will continue to morph into collaborative learning centers with mixed-use space. Librarians will continue to adapt to the changing landscape of higher education. The ready availability of information on the Internet, and its widespread use, really presents Librarians with an opportunity, not a threat. Technology Savvy users realize they need help, which Librarians can provide. Librarians now face difficulties and complicity challenges due to new trends in information access. In the present technological/Internet era the professionals have to change themselves as the information profession is being changed. Now information specialists have to work as e-information resources in which various professional groups are expected to map strategies that lead to produce, manage, maintain and service the information (Ramesh Babu, 2011).

However, these are a few lukewarm measures taken at the state or aggregate level. Given the intensity of the nexus between high fees combined with poor quality and no accountability of the private institutions, the state does make an attempt but an effective one because of the nature of dynamic and complex relationship among education, finance and polity.

Conclusion

This study brought to notice that majority of the libraries did not have collection development policies. Lack of constant training for librarians, inadequate staff and lack of support from administration were some of the major problems found. It was further found that majority of the libraries did not involve their users in formulation of policies and did not implement these for collection development. Study revealed the need to train librarians on collection development. Libraries of the 21st century can help to fight poverty and narrow the gap between rich and poor. And libraries are taking a central role in this notable movement through providing opportunities to the poor in gaining knowledge. India is a land of diversity and the prime importance of India is national integration. Library is the best agent for the national integration in India through its innumerable services. The roles of the library and the librarian in a knowledge society cannot be underestimated. In this era of information explosion and the increasing virtual access to knowledge, libraries and librarians need to be up-to-date in meeting the information expectation of their users. Challenges brought by this information explosion will make the library and librarians stand up to their professional responsibility to meet with the challenges of information provision in the knowledge society. Above all, the institutions, colleges and universities need to invest further to develop the state of the art of infrastructure facilities with information commons areas where users can plug and play networked environment inside and outside the library for greater access to all types of information resources.

As an integral part of the campus, the academic library will be profoundly affected by changes in the academy itself. Thus it is important that the library, while implementing and managing internal change, continues to look outward at the university as a whole (CETUS, 1997: 3). Changes in higher education, the new student-centered paradigm and new learning and teaching approaches have also created a need for a reconceptualisation of the roles and responsibilities of the librarians.

References

1. Allen, Nancy. Assessment in Higher Education. The Reference Librarian, 1992; 17(38):57-68.
2. Asok Kumar, S.K. and Ramesh Babu, B. Structure and functions of District Central Libraries in Tamil Nadu: An Empirical Study. Journal of Information Management, 2007; 38(4):181-199.
3. Baskar, K. and Ramesh Babu, B. Manuscript Libraries in Chennai: An overview. Granthalaya Sarvaswamu, 2012; 73(7):12-15.
4. CETUS. The Academic Library in the Information Age: changing roles. (Discussion Series). Consortium for Educational Technology for University Systems, California State University, City University of New York, State University of New York. 1997.
5. Gandhi, M. K. Christian missions, their place in India; edited by Bharatan Kumarappa / [2d rev. ed.] / Ahmedabad: Navajivan Publications. 1957.
6. www.logbaby.com/directory/abubakar-tafawa-

bale_13377.html

7. http://www.ala.org/
8. http://www.collegesintamilnadu.com/
9. http://www.eoabraham.com/contribution-of-christian-community-in-the-field-of-education-in-india
10. http://www.gvsu.edu/library/librarylights/winter02/ChangingRoles.htm
11. http://www.legalservicesindia.com/articles/chris.htm
12. Joyson Soundrarajan, D. Use pattern of E-Resources by Health Science Professionals in Christian Mission Hospitals in Tamil Nadu. Chennai: Department of Library and Information Science, University of Madras, PhD Thesis. 2012; p.111-156.
13. Nageswara Rao, P. and Ramesh Babu, B.Role of Autonomous College Libraries in the Contemporary Society: A case study of Tamil Nadu. Pearl: Journal of Library and Information Science, 2008; 2(3):54-63.
14. Nageswara Rao, P. Autonomous College Libraries in Tamil Nadu: Services, facilities and Networking, edited by B. Ramesh Babu, Chennai: Vinayaga Publications. 2010.
15. Nageswara Rao, P.; and Ramesh Babu, B. "Autonomous College Libraries in Chennai: A Survey of Faculty Perceptions", Library Herald, 2008; 46(1): 1-20.
16. Ramesh Babu, B. Role of academic Libraries in the utilization of Library Resources and Services for Improving Student- Centered Learning. IN: Managing College Libraries: Issues and Trends, edited by N S Harinarayana et al. Mysore: JSS College of Arts, Commerce & Science. 2011; 172-190.
17. Ramesh Babu, B. and Subramaniyan, N. Self-Financing Engineering Colleges in Tamil Nadu: State-of-the-Art. The Indian Journal of Technical Education, 1999; 22(4):1-6.
18. Ramesh Babu, B. Nageswara Rao, P and Baskar, K. Libraries in Chennai on the Threshold of the Third Millennium: Information and Communication Technology Issues and Challenges. DESIDOC Journal of Library & Information Technology, 2015; 35(4):245-257.
19. Rastogi Umesh C. Changing dimensions in academic libraries, Lucknow Christian College. 1989; p.109 130.
20. Ravisankar, G. ICT Facilities and Services in Libraries of Medical Education Institutions in Tamil Nadu: An Analytical Study. Department of Library and Information Science, University of Madras, PhD Thesis. 2009; p.128-201.
21. Reddeppa, S. The role of Christian missionaries in Madras Presidency – A Historical study, Indian Journal of Applied Research, 2014; 4(2): 4-6.
22. Selvamani, J. and Ramesh Babu, B. Pharmacy Educational Institutions' Libraries in Tamil Nadu: Suggestions for improvement. Indian Journal of Agricultural Library and Information Services, 2014; 30(2):53-58.
23. Vinayagamoorty, P., Ramesh Babu, B. and Gopalakrishnan, S. Digital library initiatives engineering educational institutions in Tami Nadu: A Survey. The Indian Journal of Technical Education, 2006; 29(1):68-77.

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The Use of Online Resources by the Students, Faculty and Research Scholars of Kannur University, Kerala

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Abstract

The present study assessed the use behaviour of the academic community of Kannur University, Kerala with regard to various online resources. It also assessed the awareness and satisfaction of them with respect to the online resources and identified various problems of them in accessing the online resources. A survey of 158 members of academic community was conducted through a questionnaire. The analysis of the study revealed that a majority of the academic community are aware of the various online resources. The highest percentage of them acquires usage skill of online resources through self learning. Only nearly half of them are satisfied with the online resources. The study concluded that online resources are the important information resources to update the information and knowledge of the academic community.

Keyword: Online Resources; Academic Community; Use Behaviour; Usage Skill.

Introduction

In the present knowledge era; students, faculty and research scholars need to find the recent and relevant information as quickly as possible.To meet this requirement, libraries have to provide ICT enabled more information services especially information resources in electronic mode, both offline and online. The online resources which include e-journals, e-books, e-theses/dissertations, OPACS, e-newspapers, e-magazines, online databases etc which can be accessed through internet. The relevance and importance of online information resources have increased in the digital era and they become the more reffered sources than print media.

Objectives of the Study

The objectives of the present study are:

- To assess the use behaviour of the students, faculty and research scholars of Kannur University with regard to various online resources,
- To assess the awareness and satisfaction of the academic community of Kannur University with respect to the online resources.
- To find out the various problems of the academic community in accessing the online resources.

Scope of the Study

The present study is confined to the post graduate students, faculty members and research scholars of Kannur University. Kannur University is one of the newly formed universities in Kerala. The University has several teaching departments belonging to the faculties of Science, Social Science and Humanities. Most of the teaching departments are research centres in their subject also.

Sampling

Kannur University Central Library conducted a National Seminar on "Online Resources: the Powerful Tool in Teaching, Learning and Research". All the students, teachers and research scholars of Kannur University are invited to participate in the seminar. Altogether 158 members in the faculty of Science,

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Social Science and Humanities were attended the seminar. This group forms the sampling for the study.

The Table 1 shows that the highest percentage of the academic community belongs to the faculty of Humanities (44.30%) has participated in the survey. This was followed by Science (37.97%) and Social Science (17.73%).

Table 1: Break-up of the Academic Community (Faculty-wise)

Faculty	Number	Percent
Science	60	37.97%
Social science	28	17.73%
Humanities	70	44.30%
Total	158	100%

Table 2: Break-up of Academic Community (Status-wise)

Status	Number	Percent
PG Student	22	13.92%
Faculty	60	37.98%
Research Scholars	76	48.10%
Total	158	100%

The data in Table 2 reveal that the highest percentage of the academic community belong to the status of "research scholars"(48.10%) have participated in the survey. The second highest group the" faculty"(37.98%) and "post graduate students" (13.92%) the lowest participated in the study.

Methods of Data Collection

In the present study, a survey was conducted for the collection of data regarding the various aspects of use of online resources by the students, faculty members and research scholars. For this purpose questionnaires were distributed among the participants in the national seminar belong to the faulties of Science, Social Sciences and Humanities. All of them responded to the questionnaire.

Use Behaviour of the Academic Community

Preference to the Media of Information Resources

The data in the table show that a vast majority of the students, teachers and research scholars in Science (93.33%), Social science (91.67%) and Humanities (96.77%) give high preference to both print and electronic media to gather information.

As the p-value is .092 there is no difference among the academic community in the subjects of Science, Social Science and Humanities in their preference to the media to gather information.

Table 3: Preference to the media of information resources

Media	Science	Social science	Humanities	Total
Electronic	4 (6.67%)	0 (0.00%)	0 (0.00%)	4 (2.74%)
Print	0 (0.00%)	2(8.33%)	2 (3.23%)	4 (2.74%)
Both	56 (93.33%)	22 (91.67%)	60 (96.77%)	138 (94.52%)
Total	60 (100%)	24 (100%)	62 (100%)	146 (100%)

Pearson Chi-square : 10.8674, df = 6, p = .092598

Table 4: Use of internet by the academic community, faculty-wise

Faculty	Use of Internet		Total
	Usual	Not usual	
Science	60 (100%)	0 (0%)	60 (100%)
Social Science	24 (85.71%)	4 (14.29%)	28 (100%)
Humanities	62 (88.57%)	8 (11.43%)	70 (100%)
Total	146 (92.4%)	12 (7.59%	158 (199%)

Pearson Chi-square:4.09172, df =2, p =.129286

Use of Internet

The data in the above table show that all the students, research scholars and faculty members in the Science subjects(100%) and the vast majority of Social Science groups (85.71%) and Humanities (88.57%)are the usual users of internet.

Since the p-value is 0.129, it is clear that there is no difference in the use of internet among the academic community belonging to different subjects. This finding shows that the internet is an useful tool for the academic community to get their required information and knowledge.

Purpose of the Use of Internet

The data analysis indicates that a majority of the academic community belonging to the subject groups of Science (93.33%), Social Science (85.71%) and Humanities (88.57%) use the internet for the use of online resources. Their next importance is sending

Table 5: Purpose of the Use of Internet (Faculty -wise)

Purpose	Science	Social science	Humanities	Total
Use of online resources	60 (93.33%)	24 (85.71%)	62 (88.57%)	152 (89.87%)
Chating	10 (16.67%)	8 (28.57%)	20 (28.57%)	38 (24.05%)
E-mail	48 (80%)	20 (71.43%)	40 (57.14%)	108 (68.35%)
Entertainment	26 (43.33%)	12 (42.86%)	20 (28.57%)	58 (36.71%)
Other	6 (10.00%)	0 (0%)	10 (14.29%)	16 (10.13%)

the e-mail (68.35%), followed by entertainment (36.71%), chating with friends, colleagues and subject experts (24.05%) and other purposes (10.13%).

Awareness of Various Online Resources

Table 6 reveals that a majority of the academic community belonging to the Science subjects (73.33%), Social Science (85.71%), Humanities (61.43%) are aware with the various online resources.

Table 6: Awareness of various online resources by the academic community (Faculty-wise)

Level of awareness	Science	Social science	Humanities	Total
Aware	44 (73.33%)	24 (85.71%)	43 (61.43%)	111(65.82%)
Not aware	16(26.67%)	4 (14.29%)	27(38.47%)	47(29.11%)

Pearson Chi-square: 9.12293, df=4, p=.058123

Since the P-values is .058, there is no significant difference in the level of awareness among the academic community belongs to the different subject groups regarding various online resources.

Different Formats of Online Resources Referred

The analysis of the data show that most of the students, faculty members, and research scholars in Science subjects (60%) prefer e-journals and e-books as their major knowledge resources. The Social Science groups prefer electronic newspapers for their information updation, whereas the Humanities groups mostly use e-books to update their knowledge.

Various Online Resources Referred by the Academic Community

The study indicates that 50% of the Social Science groups and only 40% of the Science group and 26.67% of the Humanities are aware of the UGC Infornet E-Journal consortium. More than one third of Science group (36.67%) are aware of IEEE online resource but 20% of them are aware each of CSIR E-Journal consortium, Elsevier Science Direct and Web of Science. As many as more than quarter of the academic community belongs to Social Science subjects (28.57%) and Humanities (25.71%) are aware of Pro-quest full text theses. Only a meager percentage of academic community in different faculty groups are aware of Ebsco online database, J-gate, Emerald full text, INDEST consortium, Nature and IIM consortium

Methods of Acquiring the Usage Skills of Online Resources

It is observed from Table 7 that highest percentage of the academic community in the faculties of Science (66.67%), Social science (85.71%) and Humanities (45.71%) acquire the usage skill of online resources through 'self learning'. Other ways to acquire the skills are 'learned from friends' (32.91%), training got from the institutes (25.32%) and learned from other sources (16.16%).

Table 7: Methods of acquiring the usage Skills of online resources

Methods	Science	Social science	Humanities	Total
Training from the institution	12 (20%)	9 (35.71%)	18 (25.71%)	40 (25.32%
Self training	40 (66.67%)	24 (85.71%)	32 (45.71%)	96 (6076%)
Learned from friends	26 (43.33%)	8 (28.57%)	18 (25.71%)	52 (32.91%)
Learned from other sources	4 (6.67%)	4 (14.29%)	18 (25.71%)	26 (16.16%)

Table 8: Place of Accessing the Online Resources (Faculty-wise)

Place	Science	Social Science	Humanities	Total
Library	56 (93.33%)	24 (85.71%)	38 (54.29%)	118 (74.68%
Computer Lab	12 (20.00%)	6 (21.43%)	16 (22.86%)	34 (21.52%)
Cyber café	2 (3.33%)	4 (14.29%)	14 (20.00%)	20 (12.66%)
Home	34 (56.67%)	12 (42.86%)	26 (37.14%)	72 (45.57%)

Place of Accessing the Online Resources

From the Table 8 it is found that most of the academic community in Science (93.33%) and Social Science (85.71%) and only a little above the half of Humanities group (54.29%) access the online resources from the institutional 'library'. Nearly quarter of them (21.52%) access the online resources from the 'computer lab' and 12.66% from the 'Cyber café' and 45.57% from 'home'.

Frequency of Use of Online Resources

From the table 9 it is found that half of the students, faculty members and research scholars in Science faculty (50%), 42.86% in Social Science 48.57% in Humanities use online resources more than once a week. As many as 43.33% of Science groups, 35.71% of Social Science groups and 22.86% of Humanities group refer the online resources once a week. As many as 15.19% of the academic community consult the online resources more than once a month, a meager number (2.53%) refer everyday and once a month (1.27%).

Since the P-value is 0.404, no significant difference is observed in the frequency of use of online resource by the academic community in all subject groups.

Table 9: Frequency of use of online resources

Frequency	Science	Social Science	Humanities	Total
Everyday	0 (0.00%)	0 (0.00%)	4 (5.71%)	4 (2.53%)
More than a week	30 (50%)	12 (42.86%)	34 (48.57%)	76 (48.10%)
Once a week	26 (43.33%)	10 (35.71%)	16 (22.86%)	52(32.91%)
More than once a month	4 (6.67%)	6 (21.43%)	14 (20.00%)	24 (15.19%)
Once a month	0 (0.00%)	0 (0.00%)	2 (2.86%)	2 (1.27%)

Pearson chi-square: 8.30069, df = 8, P = .404691

Duration of Use of the Online Resources

From the Table it was observed that 40% of the Science group, 21.43% of Social Science and 42.86% of Humanities spend on an average of 1-2 hours a day for the use of online resources. The data in the table also indicate that 26.67% of Science students, teachers and research scholars spend on an average of less than one hour a day for the use of online resources. The corresponding percentage of Social Science and Humanities are 42.88% and 25.71% respectively. The academic community in Science (33.33%), Social Science (35.71%) and Humanities (25.71%) spend on an average of more than two hours a day for consulting the online resources.

As the P-value is 0.499, no significant difference is observed in the duration of use of online resources among the academic community in different subjects.

Table 10: Duration of use of online r esources

Duration	Science	Social Science	Humanities	Total
Less than one hour	16 (26.67%)	12(42.88%)	18 (25.71%)	46 (29.11%)
1-2 hours	24 (40%)	6 (21.43%)	30 (42.86%)	60 (37.97%)
More than 2 hour	20 (33.33%)	10 (35.71%)	18 (25.71%)	48 (30.38%)

Pearson chi-square : 5.35267, df = 6, P = .499453

Saving Pattern of Information

As seen in Table 11, a vast majority of the students, faculty members and research scholars in Science subjects (80%), Social Science (85.71%) and above half of the Humanities (57.14%) registered a high preference for saving the retrieved articles from the online resources in the computer itself. The academic community give second preference to 'take the print out' of the retrieved articles (37.97%) and last preference is to store the articles in any external storage device (24.05%).

Table 11: Saving Pattern of Information(Faculty-wise)

Saving pattern	Science	Social Science	Humanities	Total
Save in Computer	48(80%)	24(85.71%)	40(57.14%)	112(70.89%)
Take printout	28(46.67%)	10(35.71%)	22(31.43%)	60(37.97%)
Download in storage device	14(23.33%)	6(21.43%)	18(25.71%)	38(24.05%)

B Satisfaction with the Online Resources

The data in Table 12 show that more than half of the students, faculty members and research scholars in the Science subjects (53.33%) are satisfied with the online resources. The corresponding percentage with regard to Social Science is 42.86% and Humanities is

48.57%. As many as 46.67% of Science group, 42.86% of Social Science and 45.71% of Humanities are partly satisfied with the online resources. None of the academic community in Science and a small percentage in Social science (14.29%) and Humanities (5.71%) are not satisfied with Online resources.

Since the p-value is 0.385, there is no significant difference is seen among the different faculties with regard to the satisfaction with the online resources.

Table 12: Satisfaction with the online resources(Faculty-wise)

Status	Science	Social Science	Humanities	Total
Not satisfied	0 (0.00%)	4 (14.29%)	4 (5.71%)	8 (5.06%)
Partly satisfied	28 (46.67%)	12 (42.86%)	32 (45.71%)	72 (45.57%)
Satisfied	32 (53.33%)	12 (42.86%)	34 (48.57%)	78 (49.37%)

Pearson Chi-square : 4.15096, df = 4, P =. 385980

Problems in Accessing Online Resources

Around half of the academic community in Science subjects (53.33%), Social Science (50%) and Humanities (54.29%) reported that their major problem of accessing online resources is "the difficulty in finding relevant information" from the vast online resources. To the Science groups (36.67%), Humanities (34.29%) and Social Science (14.29%) "Overload of information on the internet" is also a problem of accessing online resources. A small percentage of the students, faculty members and research scholars in Science subjects (16.67%), Social Science (14.29%) and nearly one third of Humanities (31.43%) reported that "not many resources in my subject is available online". A meager percentage of Science groups (3.33%) and Humanities (5.71%), whereas 21.43% of Social Science subjects reported that "assistance is not obtained from the library professionals for accessing online resources."

Conclusion

The study concludes that most of the academic community in the subjects of Science, Social science and Humanities are aware of important online resources on their subjects. But they require awareness programmes or seminars to be acquainted with more online resources that will help them to update their knowledge. They have the problems of overload of information in the internet and they also find difficult in getting relevant information from the vast information in the online resources.

References

1. Prakash S. Bodke and Shrish S. Sane. Use of Digital/ Electronic Resources in Engineering College Environment: A Case Study of K. K. Wagh Institute of Engineering Education & Research, Nashike. In H.K.Kaul and Mayank J.Trivedi, ed.: Knowledge, Library and Information Networking NACLIN 2012. New Delhi: Delnet, 2012; 156-168.
2. Arun Kumar. Use and Usage of Electronic Resources in Business Schools in India: FIIB. In Globalizing Academic Libraries. International Conference on Academic Libraries, 2009: Pre-conference volume. Ed by Delhi University Library. New Delhi: Mittal, 2010; 573-578.

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Automated Circulation Systems in Indian Institutes of Higher Learning

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Purpose: To evaluate the status of automated Circulation Systems in Central Universities of Northern India with a view to explore the benefits of technological transformation along with feedbacks from the users. *Scope:* The analysis made in this study regarding staff and user's opinion will be helpful for the librarians of developing countries. It will also provide guidelines for the libraries which are planning to automate their services. *Objectives:* This paper seeks to reveal the current status of automated Circulation Systems in most prominent Indian Universities. *Methodology*: The paper report a survey of automated libraries in Central Universities located in the Northern part of India. The data collected through questionnaire was analyzed qualitatively and quantitatively. Discussion is made and conclusions were drawn. ***Approach:*** Investigators have also interviewed the library staff and user to elicit their opinion regarding library automation.

Keywords: Library Automation; Library Management Software; Libsys; IT Applications; Central Universities; India**.**

Library Automation

According to Webster Dictionary, "The techniques of moving in apparatus, a process or a system operate automatically is called automation". Encyclopedia Britannica defines automation as "The name given to an automatic system of working. The difference between automation and mechanization, a related term, is being mainly one of degree". Automation is a technique to make a system or a process self active. The main base of automation is the computer. We may say in simple terms that automation is the application of computers and utilization of computer based products and services. When we talk of library automation, we mean the application of computers to perform the several routines, repetitive and clerical work involved in different library functions and services. Before the birth of computers, other types of machines, e.g. punched cards, unit record, were used to automate library functions. Significantly, the application of computers in libraries first appeared, in 1950s in the United States of America. Notably, pioneering work in the application of computers to libraries was done in the USA followed by UK and other countries of Europe due to the availability of best infrastructure in telecommunications and other technologies. However, in India Library automation had started around 1970s.

Methodology

The present study is based on primary as well as secondary sources. Primary data for the present study have been collected through questionnaire. The information from the survey has been updated through interviews with library professionals of individual university libraries. For the purpose of presentation, tabulation and analysis of the data, MS-Excel was used. The population of the present study consists of Central University Libraries in Northern India. There are eight Central Universities in the

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Northern India *viz*. Allahabad University (AU), Allahabad; Aligarh Muslim University (AMU), Aligarh; Banaras Hindu University (BHU), Varanasi; Baba Bhim Rao Ambedkar University (BBAU), Lucknow; Delhi University (DU), Delhi; Indira Gandhi National Open University (IGNOU), New Delhi; Jamia Millia Islamia (JMI), New Delhi and Jawahar Lal Nehru University (JNU), New Delhi.

Data Collection Techniques

The present study has been carried out using a questionnaire designed for university librarians and other library staff actively involved in the automation process.This questionnaire was pilot-tested. The purpose of this pilot study was to test the validity of the questionnaire both as a data collection tool and as a statistical measurement device. This pilot-testing proved helpful in refinement of the questionnaire. The questionnaire has been divided into two parts. Part A contained general questions regarding factual information about hardware and software used by the library. Part B of the questionnaire covered questions related to the application of circulation module of the Library Management software. One of the investigators personally visited the above-mentioned libraries and after gathering data tabulation and analysis has been done using MS-Excel.

Interview Technique

Interview technique has also been used for the present study. This was done to remove the doubts regarding the terminology used in the questionnaires. Interview was conducted to the personnel of the surveyed libraries along with the Chief Librarian. It was found that interview technique helped staff of the library to understand some questions. Thus, interview technique brought objectivity in the study.

Observation Technique

One of the researchers had visited circulation sections of these libraries and observed that there is some gap in the information provided and application of the circulation module of library management software. Therefore, necessary rectification has been made in order to bring more objectivity in the present study.

Review of Related Literature

An enormous amount of literature is available with regard to library automation. Pre-dominant available literature cover the studies related to developed nations. This owe to the fact that the concept of library automation has been originated in the developed nations notably in the USA and later on in England. Nevertheless, in the last decade of the last century and particularly in the first decade of the present century, authors in the developing world have also started writing on the theme, 'Library Automation'. Significantly, the works of Indian authors have also appeared in the form of books and articles. Central Universities of Northern India includes the best universities in the country. Hence; there was a need to conduct an in-depth study related to the status of automation. Therefore, an attempt has been made to explore the latest scenario vis-à-vis automation process in these universities. In the following paragraphs, few studies have been reviewed:

Library Automation assured a great deal of importance in libraries in the mid-1960s. Since then it has become a household word in librarianship. Library automation may be defined as the application of automatic and semi-automatic data processing machines to perform library functions like acquisition, cataloguing, circulation, serials control, etc.(Daniels,1980). Methodology and technology related to library automation has been discussed in some early works. (Salmon, 1968) edited the papers presented at the Preconference Institute on Library Automation. The different papers deal various topics such as the future of library automation and information networks, library systems analysis and design, etc.(Heiliger and Henderson ,1973) also discussed the prospects for library automation along with the several issues related to automation in different sections of library. However, these works are too old and since then many changes have been taken place in the field of library automation. In the mid 1980s, Adams produced a thought-provoking analysis of the issues surrounding the training and skills requirements of future information workers. (Adams, 1986) argues that the future librarian will need skills which are close to those of the information scientist. These might be designing and developing systems; retrieving and integrating data to provide usable information, and the education of users. He also argues that "certain personality traits" should be sought by recruiters, and suggests that there may be a mismatch between those who are attracted to the library environment and the personal qualities which are actually required. Marsterson examined the role of the librarian, with particular reference to the impact of information technology. He (Marsterson, 1986) refers to IT as "an ever-growing cuckoo in the nest", replacing the traditional techniques of librarianship-such as classification and cataloguing. IT is perceived as an all pervading influence which reinforces the

role of the reference librarian as communicator or interpreter of on-line information. Reynolds discussed historical perspective of library automation. He analyzed the impact of IT on libraries (Dennis, (1985). The work is relevant for the present study as it covered many important aspects of library automation. In a keynote address at the XXth IASLIC Conference Neelameghan mentioned the potential of information and communication technologies for the developing countries particularly in India. (Neelameghan,1996). Gopinath examined the functional aspects, social aspects and system dynamics of library automation (Gopinath,1995). Ravichandra assessed the challenges in the field of library automation in India (Ravichandra,1995). Dhaka and Arora discussed the factors involved in transforming the traditional libraries into electronic libraries and the future role of librarians (Dhaka and Arora,1995). Significant developments in library automation have also been reported by Abdul Rashid (Abdur Rashid,1996). Paper by Chowdhury and Chowdhury covered features and facilities provided by ten library automation software packages including Libsys (Chowdhury and Chowdhury,1996). Gowri gave a detailed account of the software to automate the Indian Institute of Science Library's Circulation System. This study again an old one and many changes, since then, have been occurred in this prestigious institute of India. Among the other Indian authors, the work of Sharma is an attempt towards bringing computer awareness among librarians (Sharma Pandey, 1993). However, the large portion of the book covered topics related to CDS/ISIS and dBASE and hence not much useful for the present study. Ramana argued that IT is a driving force for change and transformation in libraries (Ramana, 2004). This work is relevant for the present study. The impact of technology on Library Collection in different continents has been analyzed in an edited work of Sharma. This book has a chapter entitled, 'The impact of information technology on university libraries in India' (Sharma.2006) . One more recent work of Hilal and Mehtab (2016) too is also relevant for the present study as it had covered some prominent institutes in India with regard to library automation. Apart from these books, many articles have also appeared in different journals covering the theme, 'Library Automation'.

Aligarh Muslim University

Sir Syed founded the Madrasatul Uloom in a small city named Aligarh in India. Establishment of this institute which was later known as Mohammedan Anglo-Oriental College marks one of the most important events in the educational and social history of modern Indian Muslims. In 1920,Aligarh muslim University (AMU) had gained the status of a Central University through an Act of Indian Legislative Council. Maulana Azad Library (central library of AMU), is one of the oldest libraries of the Indian sub-continent. The library was established in 1877 and named earlier after Lord Lytton, the Viceroy and Governor General of India, who laid the foundation stone of the college on 8 January 1877. (Ishrat,1989). It was renamed,in 1960, as Maulana Azad Library in the memory of Maulana Azad,a great scholar and the first Education Minister of India. Maulana Azad Library has introduced state of the art information technology and it is fully automated with LibSys software which connects almost all 9,500 computers within the University. The Library provides access to about 18,00,000 volumes of books.In addition, over 60 subject gateways drawn from the public domain of Internet may also be accessed by the users. The Library has developed its Institutional Repository containing more than 9,000 Ph.D. Theses & Dissertations and plans to upload more of its rare and invaluable holdings in digital format (Maulana Azad Library, 2016).

University of Allahabad

Allahabad University was restored to the status of a Central University by the University of Allahabad Act, 2005 passed by the Parliament in the year 2005. Allahabad University is the oldest university amongst all the existing Universities of U.P. and is also the oldest university of Northern India barring the Calcutta University. The central library has a large collection of Books & other materials. Library has approximately 7 lac books, 15000 Ph.D. Theses, and more than 400 Journals are being subscribed. Library has installed Libsys, library automation software. Creation of database is in progress in Libsys. Records of more than 3 lacs books have already been created as on 8-8-2016 while creation of theses database has already been completed. Significantly, digitization of old documents is in progress and approximately 25,000 books have already been digitized.

Banaras Hindu University

Banaras Hindu University (BHU) is an internationally reputed temple of learning, situated in the city of Varanasi. BHU was founded by the great nationalist leader, Pandit Madan Mohan Malviya, in1916 with cooperation of great personalities like Dr Annie Besant, who viewed it as the University of India. Banaras Hindu University was created under the Parliamentary

legislation BHU Act 1915. Presently the Banaras Hindu University Library System consists of Central Library at apex and 3 Institute Libraries, 8 Faculty Libraries, 25 Departmental Libraries, with a total collection of over 13 lakh volumes to serve the students, faculty members, researchers, and technical staff of fourteen faculties consisting of 126 subject departments of the university. Central library which is named as Sayaji Rao Gaekwad library is having around six lac books,more than one lac bound volumes of journal in addition to over 14 thousands theses and seven thousands manuscripts. (Central Library, Banaras Hindu University). Central library started the process of automation with New GenLib software. However, it switched over to Libsys but at present, library is using SOUL2 software.

Babasaheb Bhimrao Ambedkar University

The Babasaheb Bhimrao Ambedkar University, (BBAU) Lucknow is one of the premier central Universities in the country. The jurisdiction of this residential University is over the entire state of Uttar Pradesh. Babasaheb Bhimrao Ambedkar University is a Central University, established on 10th January 1996. (www.bbau.ac.in accessed on 06-8-2016). Central Library of BBAU is known as Gautam Budhha Library and has more than fourty five thousands (45,000) books. Notably, the library had started the process of automation selecting KOHA software. However,the staff of library has revealed that they, at present, are not using this software as decision has already been taken to select another software. And soon necessary formalities such as calling different vendors for the demonstration of their products will be completed. Though, around fourty thousands records have been entered using KOHA.

Delhi University

The University of Delhi is the premier university of the country which was established in 1922 as a unitary, teaching and residential university by an Act of the then Central Legislative Assembly. The President of India is the Visitor, the Vice President is the Chancellor and the Chief Justice of the Supreme Court of India is the Pro-Chancellor of the University. Total Collection of the Delhi University Library System is more than 15 lacs.

Indira Gandhi National Open University

Indira Gandhi National Open University (IGNOU) was established in 1985 to democratize higher education. IGNOU has around six lacs students with extremely varied profiles, spread throughout the length and breadth of the country.

The IGNOU library is the most resourceful information centre in the country in the field of Distance Education. The library has the largest collection of books, journals and other related materials in the field of Distance Education, throughout the country. It was established in 1986 in tune with the objectives of IGNOU. The Central Library is the main library which co-ordinates the effective functioning and development of RCLs and SCLs. The Central Library has been using the Libsys, an integrated Library Management software package with all the modules for the library housekeeping operations. The IGNOU library is having more than one lac books and over 15 thousands journals.(Library and Document Division, IGNOU The People's University,2016) .

Jamia Millia Islamia

Jamia Millia Islamia (JMI), an institution originally established at Aligarh in 1920. It became a Central University by an act of the Indian Parliament in 1988. Dr Zakir Husain Library named after the former President of India, Late Dr. Zakir Husain, is the Central Library of the Jamia Library System. The Library has a collection of 3.70 lakh books comprising various subjects taught in the university. Library's book collections are arranged subject wise on respective floors. The Library has a valuable collection of 2230 manuscripts in Arabic, Persian, Urdu, Pushtoo, Punjabi and Hindi languages- Brij-Bhasha. Apart from these categories of document library is also having bound volumes of journals, Current journals in print form,Theses, Reports,Conference Proceedings etc. (Zakir Husain Library, Central library, 2016).

Jawahar Lal Nehru University

JNU was established in 1969 and since then considered one of the premier universities of India. The central library of JNU has a collection of about 5 lacs, which includes books, periodicals, serials and non-book material. The collection is housed subject-wise under three major streams, viz. Social Sciences, Sciences and Humanities. Library is subscribing around 800 journals and few online databases. The library is a depository of all Govt. publications and publications of some very important International agencies like World Health Organization, UNESCO etc. Significantly, within the premises of the library a *Cyber library* has been established in which huge database of online journals can be accessed via 150

terminals. Significantly, library subscribe material worth five crore rupees for the *Cyber library* useful for research scholars and faculty members.

Background Information about Automation

S.N.	Name of University	Library Software Used	Year of Installation	Server Used
1	AMU	Libsys	2001	Linux
2	AU	Libsys	2002	Windows
3	BHU	SOUL	2013	Linux
4	BBAU	KOHA	2012	Windows 7
5	DU	Troodan	2006	Windows 2003
6	IGNOU	Libsys	1996	Linux
7	JMI	Libsys	2002	Linux
8	JNU	Virtua	2006	SUN SOLARIS

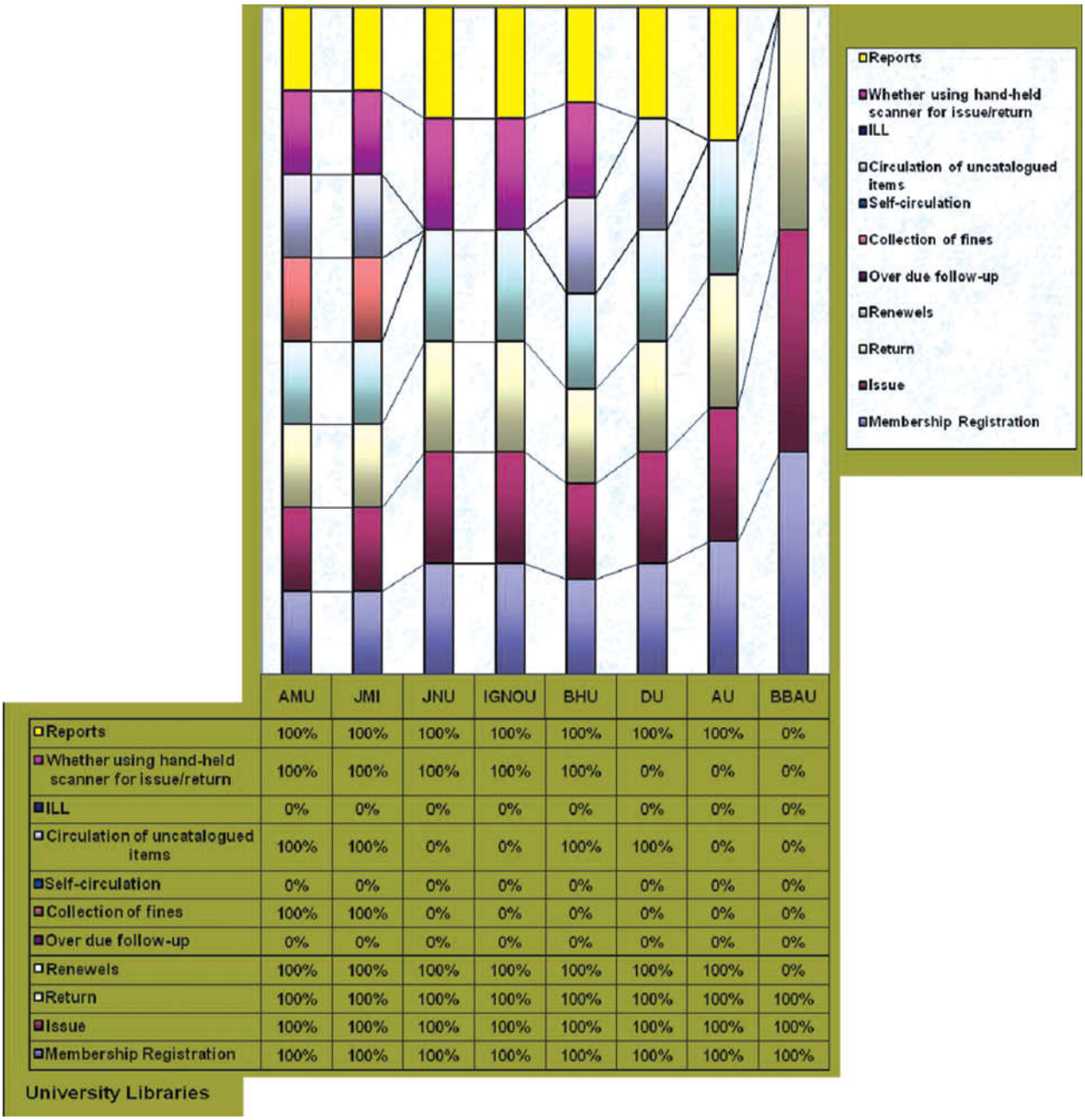

Fig. 1: Application of circulation module

Note: Among these Libraries, there are three libraries *viz*. JMI and JNU which have switched over from one software to another. JMI initially started computerization with Libsys software in 1991 and opted for Virtua in the year 2001 and again went back to Libsys in the next year i.e. 2002. On contrary, JNU started using Virtua in 2006 after initial use of Libsys. While BHU library has opted for Libsys after using New Gen Lib. Subsequently, the library has installed SOUL.

Impact of Circulation

As mentioned elsewhere in the paper, Circulation control was one of the first applications to be automated in many libraries in the west during the 1960. There are several aspects to handling circulation transactions, and an automated system should be able to allow for all of the following functions:-

One of the first online circulation systems had been introduced in Illinois State library in 1966. Another early online circulation system was implemented in late 1967 at Midwestern University in Texas (Dennis, 1985). However; the outstanding example during the early 1970s of an online circulation system was demonstrated by Ohio State University's Library Control System. The entire philosophy behind the design and application of the system for the Ohio State University Libraries was, as described by Hugh Atkinson, "that the system should be one which would speak to the problems of its users rather than simply the problems of the library". The impact of this online system on library service was probably best exemplified by the fact that, during the first 18 months it was in operation, circulation at the Ohio State University libraries increased by more than 40 percent (Hugh,1972).

Discussion

Automation has affected many aspects of Indian life. However, influence of automation is less seen in libraries than that of Bank Sector, Airways, Railways, industries etc. Present study that covered Central Universities in Northern India has come up with not so appreciable findings. Central Universities are given larger funds in comparison to State and Deemed Universities in India. As a result, they are better in terms of infrastructural facilities. Moreover, teaching standard is better while being compared with State and Deemed Universities. Incidentally, the Central Universities that are located in Northern part of the countries such as AMU, BHU, BHU and AMU are best universities in India. It is worthy pointing out here that these universities have been pioneer with respect to library automation. Circulation is very important activity particularly in academic libraries where students and faculty members borrow books for home reading against the public library tradition of reading the books in reading -halls. Against the findings shown in the above it may be concluded that all the features related to Circulation have not yet applied. We have watched that as integrated library management software have developed libraries in countries such as America, Australia and England have moved to automate circulation section. In Australia, data conversion in most universities was done in the decade from 1975 to 1985 to automate their circulation procedure (Hans, 2004). While in America, automation of circulation section was done almost a decade before Australia. If we take a look at the other parts of the world, libraries in South Africa have also started automating their activities prior to India (Olatunde, 1999). Even in Nigerian Universities, automation process had started earlier than India(Abdulrahim, 2005). In the following paragraphs, we will now discuss certain other issues.

Switching Over Problems

Selection of the software should be given serious thoughts. Out of eight surveyed libraries, four have changed the application software. And one has changed it twice. This is problematic not only for staff of the libraries but also for the users. Staff of these libraries confirmed that circulation activities hamper most because of this scenario. In-charge of circulation section in one of these libraries have disclosed that migration of membership data was not done properly and therefore library staff had to enter all the records manually in the software chosen later.

Difference

Obviously, all the libraries would go for membership registration in order to start Check-out and Check-in activities. One library was not using reports which provide very useful information to take a policy decision or change the existing policies. Surprisingly, not all libraries are using hand-held scanner. On being asked, staff of these libraries admitted that certainly cost is not hindrance but they have not given a proper demonstration regarding its uses. However; no library is using Inter Library Loan (ILL) facility. Staff of majority of libraries revealed that staff deployed at circulation counters is averse introducing any new service due to heavy workload. Surprisingly, demand from the user side has also

never came in any of these libraries.

Backup Problem

Respondents in all libraries have reported that they are feeling worried in absence of any printed proof regarding who has issued what. Nevertheless, no library has faced any problem from any user in this respect. That is why, it seems more a psychological problem on the part of library staff.

However, benefits of automation have also been seen as below:

Improved Accuracy and Efficiency

Staff deployed on circulation counter of all the surveyed libraries have reported that automation of circulation section brought a high degree of efficiency and accuracy. The manual method was prone to errors and inefficiency. The staff of all these libraries was facing difficulty in filing and arrangement of thousands of borrower cards as well as book cards.

Increased Usage of Library Collection

Regarding the increase of library collection, staff of each library has been asked to reveal the approximate percentage. AU, AMU, BBAU, BHU and JMI, have reported that around 35 percent circulation has been increased in an automated environment. On the other hand, DU and JNU library has reported an increase of approximately 15 percent circulation while in case of IGNOU the corresponding figure is only 5 percent. On being examined, it was found that under graduate students of AMU and JMI are fascinated with the automatic transaction as it reduced their waiting time in ling queries. Now with the automated circulation counters, they come and issue the books even if their one period is leisure. Noteworthy to mention, prior to automation, these students were not interested to come in the libraries while having one leisured period. Another interesting point of view related to the staff of both the libraries is that they still enjoy more leisure time on their desks as automation resulted in elimination of long queries even during rush hours. In comparison to AMU and JMI, the increase in circulation in JNU is less than half. The primary factor for this difference is that the community of borrowers belongs to DU and JNU is considered active users of library collection even before circulation system was automated. Reported increase of 15 percent, owe to under graduate students of these universities due to the reasons cited-above, in case of five libraries. In case of IGNOU, no substantial increase has been reported in circulation as the nature of borrower community of the university. Since IGNOU imparts education through distance mode and having no residential halls. Therefore, only staff residing in the campus is bona- fide members. Among the staff category, only faculty members actively use the resources of the library which they also used to do during manual operations.

Greater Control over Loaned Item

Staff of all the surveyed libraries have reported that due to automation, greater control over the items that are checked-out has been obtained. Staff of these libraries has revealed that sending reminder for overdue items was tedious job in manual section. With the facility of e-mail sending reminders became easier and less time consuming.

Helpful in Building Acquisition Policy

Staff of all the libraries reported that automation helps in the analysis of the circulation transaction date. This feature helps in examining the acquisition policies in the library. For instance, if a book is issued or reserved ten times or more during the last three months, the staff of these libraries advises acquisition section to procure some more copies of the same item.

Feedbacks from Users

Users were approached in order to know their feedbacks. Almost all the respondents from all the libraries have acknowledged that their precious time could be saved not only searching the documents but also at the automated issue and return counter. In the manual environment, lots of time was required in searching the documents through card catalogue. However, in an automated environment, it takes less than a minute to search the documents. Nevertheless, user have made a complain that due to improper shelving of the books, in few libraries, lots of time has gone wasted. Moreover, staff deployed in the stack area is not efficient in locating the material. Ironically, in some libraries, user have complained that staff in the stack area is busy with mobile and they are not sincere in locating the book even after Call Number and other bibliographic information is produced. This is very serious matter, and hence, libraries should orient the staff matter towards giving better services. Some faculty members have also revealed that senior staff is more sincere in comparison to junior lot with respect to service.

Conclusion

Library Automation has brought noticeable changes in libraries. But in the fast changing environment, expectations of people have been increased with the passage of time. Country such as India with more than 1.25 billion population that is still a low-middle income country, according to the World Bank estimate, on per capita income and GDP will definitely need to provide more benefits for the users to justify the huge involvement of funds in the process of automation. Undoubtedly, it has changed the very complexion of traditional libraries, but in order to satisfy the user community, these libraries have to deliver more. Retrieval part has been made quite simple in the automated environment. However, reading habits, in general, are declining among various strata of Indian society, notably among young generations who are more occupied with the use of smart phone. Millions of books are gathering dust containing the tentative solutions of the various problems faced by the society. Unfortunately, libraries are not making serious efforts for the utilization of these valuable resources. And, if this is not done, the benefits of automation will soon be wiped away from the minds of the users and also policy makers of the nation.

Note

Some of the university libraries are in the process of designing the new websites. Hence, as and where required, the information was collected from the competent authorities using personal contacts.

References

1. Abdulrahim, Sani. Evaluation of automated services in Nigerian universities.The Electronic Library, 2005; 23(3):274-288.
2. Abdul Rashid. Library automation: an overview. Library Science with a Slant to Documentation, 1996; 33(1):45-54.
3. Adams, R. Information technology and libraries: A future for academic libraries. Kent: Croom Helm. 1986.
4. Aligarh Muslim University Available at: www.amu.ac.in (accessed 20 April 2016).
5. Babasaheb Bhimrao Ambedkar University 2016 Available at http://www.bbauindia.org/library.htm (accessed on 6 August, 2016).
6. Banaras Hindu University Available at http://www.bhu.ac.in/bhulibrary/index.html (accessed on 4 August,2016)
7. Chowdhury, G.G. and Chowdhury, Sudatta. Text retrieval and library management software in India. Program, 1994; 28(3):253-261.
8. Delhi University Library system,2016 Available at http://crl.du.ac.in/ (accessed 12 August, 2016).
9. Dennis, Reynolds. Library Automation: issues and applications.New York: R. Bowker: 1995; 43-44 & 403.
10. Dhaka, R.P.S. and Arora, Kamlesh. Electronic library: a myth or a reality. Annals of Library Science and Documentation, 1995; 42(4):152-59.
11. Gopinath, M.A. Library automation: change for productivity in service. DESIDOC Bulletin of Information Technology, 1995; 15(2):27-30.
12. Gowri, R. Automation of library circulation. Library Science with a slant to Documentation. 1987; 23(3):127-51.
13. Haravu, L.J. Automation:Design,Principles and Practice,New Delhi:Allied, 2004; 68-69.
14. Hans W Groenewegen. Four decades of library automation: recollections and reflections.The Australian Library Journal. 2004; 53(1):39-53.
15. Hilal M and Mehtab Alam Ansari. Library Automation in India: an Evaluative Study, Delhi: Ane Books. 2016.
16. Hugh C. Atkinson. On-line Circulation System.Paper presented on Library Application of Data Processing Conference, July 1972 at Urbana, America. 1972.
17. Ishrat, A Q.1989. The Maulana Azad Library, a major library of the World 1877-1988: with a comparative study in relation to the libraries of Banaras and Delhi Universities. Aligarh: Anwar:13.
18. Library and Document Division,IGNOU,2016 Available at http://www.ignou.ac.in/ignou/aboutignou/division/ldd/introduction(accesssed 8 August, 2016).
19. Maulana Azad Library (2016). Available at http://www.amu.ac.in/amulib.jsp?did=10066&lid=About%20the%20Library (accessed 4 August, 2016).
20. Marsterson, William.1986. Information Technology and the role of the librarian. Beckenham, Kent: Croom Helm.
21. Mehtab Alam ,Ansari and Amita. Awareness and use of OPAC in five Delhi Libraries. The Electronic Library, 2008; 26(1):111-129.
22. Neelameghan, A. Information and communication technologies and developing countries, IASLIC Bulletin, 1996; 41(1):9-24.
23. Olatunde, R Adeniran, Library Software in use in Southern Africa: a comparative analysis of search engines, database fine-tuning and maintenance tools. The Electronic Library, 1999; 17(1):27-37.
24. Ramana, VP. Information Technology Applications

in Libraries. New Delhi: Ess Ess. 2004.

25. Ravichandra I.K. Library automation what is expected of?" DESIDOC Bulletin of Information Technology, 1995; 15(2):3-10.
26. Salmon, S R. ed. Library Automation: A State of the Art Review. Chicago: American Library Association. 1938.
27. Sharma Pandey S.K. Library Computerization: theory and practice. New Delhi: Ess Ess. 1993.
28. Sharma, R. N. ed. The impact of Technology on Asian, African, and Middle Eastern Library Collections. Lanham: Scarecrow. 2006.
29. Wesley, S. Automation of cataloguing Procedures in: Salmon, S R. ed. Library Automation: A State of the Art Review. Chicago: American Library Association: 1968; 44.
30. Woods, R.G. Library automation in British Universities, Program, 1982; 20(4):359-381.
31. Zakir Husain Library, Central library, 2016 Available at http://jmi.ac.in/studyatjamia/library/zhl/introduction (accessed 12 August 2016).

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Impact of ICT on Reading Habits of Engineering Students: A Study

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Abstract

The developments in the Information and Communication Technologies (ICT) have changed education system or curriculum around the world rapidly. The global changes particularly the ICT has impact on reading habits of students. ICT refers to any device or product which enables the "capturing, storing, transmitting and displaying data and information electronically." This study ensures whether ICT influencing the reading habits of the engineering students. On the basis of the findings discussed impact of ICT on reading habits of students. It is evident from the study that 100% of the respondents have the reading habits. 91% of respondents agreed that the ICT has made an impact on their reading habit.It is notable that more than half of the respondents (65%) use the internet to read e-books.

Keywords: Engineering Students; ICT; Reading Habits; Internet; E-Journals.

Introduction

Reading helps in all-round development of a person from his birth to death. It adds new sight to eyes and new wisdom to mind. A dump person becomes a communicator and alame climbs mountains of knowledge through reading. Reading loads the mind with newsoftware (Satija, 2002). Reading is a tool of acquisitive mind; it is a vehicle for obtaining ideas that cannot be transmitted verbally. Reading habit is an essential and important aspect for crating the literate society in this world.

Every new media of information and communication technology (ICT) has been a threat to student's interest in reading. The radio, television, cell phone, computer and the Internethave captured a big slice of time and reading has taken a back seat. It is visible thatpeople have reduced their contacts with the world of books and other reading materials. The students in particular, are carried away by the new media in their leisure time. Today computer technology is integrated into almost every aspect of learning in higher education textbooks arrive with CD-ROMs; homework is delivered and granted on the world-wide-web (www) and assignment are designed to be completed collaboration through electronic mail.

In fact "The internet becomes as important part of college students lives, not only for their studies and daily sootiness, but as a tool for getting to know other people and the rest of the world" (Chou &Ssiao) 2000 p. 66.

Computer technology had an impact on engineering students. It shapes the personality of an individual and it helps them to develop the proper thinking methods and creating new ideas.

Literature Review

The direct link between ICT use and students' study habit and academic performance has been the focus of extensive literature during the last two decades. Therefore, the scholars from all over the world conducted researches to identify how far the new technology has succeeded in effecting/replacing the reading habits. Let us have a look on the scholarly

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articles of world personalities on this issue.

Koskimaa (2003) is of the opinion thatreading of books might be decreasing, people are reading other types of texts instead, most notably magazines and Internet pages.

Dykeman (2008) observed that the World Wide Web has had a negative impact only on certain kinds of reading like, magazine and newspaper reading. However, thetime spent reading books for pleasure has stayed constant, although people are managingto read fewer books per year (from 24.4 books per year in 1991 to 16.6 books per year by2005).

Broddason (2006) in his 35 years of long study conducted in Iceland indicated theconstant increase in the percentage of non-readers from 11% in 1968 to 33% in 2003. The demising numbers of heavy readers of books are also apparent, with the most dramaticdownturn from 8% to 3% occurring from 1997 to 2003. He argued that there is not onlydecrease in book reading but overall print reading due to the introduction of Internet.

The findings of the relevant data provide confirmed information that the reading habitsare declining parallel to advancement of new technology.

There is even speculation that students are wasting their time surfing the net for unproductive purposes (see, for example, Alhajjar, 2014; Iqbal, Noor, &Mian, 2014). The study reported here attempts to find out whether the respondents are reading online, and if so, why and what materials they view most often.

Bobda (2011) while investigating the reading habits of some postgraduate school student-teachers in Yaounde stated that the lack of reading in Africa and specifically in Cameroun is a phenomenon often decried in popular opinion.

Aruna (2011) investigated the influence of teachers on students leisure reading habits with a view to finding solution to the contentious view that Botswana do not have a reading culture.

In Nigeria, *Ibode&Isiugo-Abanihe (2011)* in their study on redressing poor reading culture among youths in Nigeria laments the phenomenon of poor reading culture, especially among youths in Nigeria. The study investigated the extent to which teachers in the secondary schools in South-West are implementing research based strategies for improving reading culture among youths. Again, five years after an initial study suggesting a substantial decline in reading in the United States, the national Endowment for the Arts (NEA) published its 2009 report, Reading on the rise, focusing on literary reading for leisure. The NEA suggested that young Americans aged 18-24 have "undergone a particularly inspiring transformation from a 20 percent decline in 2002 to a 21 percent increase in 2008 (Cull, 2011).

Purpose of the Study

Students now a days, spend the better part of their time in colleges on one information technology device or the other such as laptops, desktops, palmtops, iPods, and blackberry. On close enquiry, one usually finds out that they are networking socially with friends, reading dailies and rarely getting information in their various college courses.

This seems to have reduced interest in reading of printed materials, vocabulary development and general knowledge, broadmindedness which an individual gets from having a good reading habit. Virtually, information sought is subjected to the use of these technological media especially for pleasure, to while away time and to interrelate with friends and pen pals on face book, twitter etc. This then, is the cause for concern and the need for this study.

Scope & Limitations

The scope of the study focuses on the impact of ICT on reading habits of engineering students. The study restricted to final year engineering students of Adhichunchungiri Institute of Technology of Chikmagalur Dist. Karnataka.

About AIT College

Adichunchanagiri Institute of Technology (AIT) was established in 1980 at Chikmagalur (240 km from Bangalore), with the blessings of revered Jagadguru Padmabhushana Sri SriSri Dr. Balagangadharanatha Maha Swamiji, pontiff, of Sri AdichunchanagiriMahaSamsthana Math to provide technical and other professional education in the rural area of Chikmagalur, The land of Coffee. Chikmagalur city is 30 kms from the world- famous sculpture Belur Temple. The renowned temple of Sringeri Sharadamba and Sri Shankaracharya Mutt is just 100 kms away. Spread out over 65 acres of land with green surroundings and picturesque hillocks, the college has the Conducive atmosphere for education. The motto of the college is 'Prosperity through Technology'. The institution had UG and PG courses with many more combination.

The Institute has a well equipped library housed in a spacious building which has a collection of about 46,000 volumes covering all branches of Science, Engineering and Management subjects. There are

about 120 subscribed Technical Journals and periodicals at the reference section.The library has a separate reading room providing technical and non-technical, general, magazines and newspapers to improve the general awareness among the students. Institute is a member of DELNET sponsored by AICTE and has a Computerized Library Information System. Apart from the Central library, each department has its own association library.

Objective of the Study

The objectives of the study are;

- To determine why students read and when they do.
- To determine the students what type of sources they prefer to read.
- To determine how frequently and how long students stay on internet.
- To determine for what purpose students using the Internet.
- To determine whether ICT has made impact on reading habits of engineering students.
- To compare printed books with internet access information.

Methodology

In order to collect the comprehensive and relevant data for the study, the questionnaire method is used. A structured questionnaire designed for the purpose of impact of ICT on reading habits of engineering students of AIT. List of questions was formulated keeping in view the objectives of the study. 125 Questionnaires were distributed randomly among the five departments of final year engineering students and 114 of them were received back.

Data Analysis and Interpretation

Table 1 indicates that response rate is more than 90%, among respondents 59(52%) students are belongs to rural and 55(48%) students are from urban back ground. Table also shows that 98% of students having e-mail ID's.

Table 1: Back ground of students and percentage of respondents

Branch	Total no. of Questionnaire distributed	Total no. of questionnaire received	Percentage	Rural Students	Urban students	Total no. of Students having e-mail Id
Civil	25	24	96	18	6	23
Computer Science	25	24	96	12	12	23
Mechanical	25	20	80	12	08	20
Environmental Engineering	25	21	84	4	17	21
Information Science	25	25	100	13	12	25
Total	**125**	**114**	**91.2 %**	**59 (52%)**	**55(48%)**	**112(98%)**

Table 2 indicates that 100% of the respondents having the reading habit. And the data reveals that 32 (28%) respondents use the college library weekly for their reading purpose. More than half of the respondents (53%) & (62%) daily reads in their home and class room. It is very notable that more than half the respondents (68%) never goes or rarely visit the public library for their reading purpose.

Table 2: Frequency of reading and place of reading (Reading Habit): N=114

Place	Daily	Twice in a Week	Weekly	Monthly	Occasionally
College Library	20 (18%)	19 (17%)	32 (28%)	18 (16%)	25 (22%)
Home	60 (53%)	18 (16%)	17 (15%)	05 (4%)	13 (12%)
Class Room	71 (62%)	10 (9%)	04 (4%)	01 (0.8%)	28 (24%)
Public Library	02 (2%)	05 (4%)	17 (15%)	12 (11%)	78 (68%)
Friends/Neighbour's Home	06 (5%)	12 (11%)	10 (9%)	19 (17%)	67 (59%)

It is very evident from the Table 3 that majority of the respondents (49.12%) use to read 0-2 hours in a day,38% of the respondents uses 2-4 hrs for reading and nearly 8% of the respondents uses 4-6 hrs in a day for their reading purpose. It is only 4% of respondents uses more than 6 hrs in a day for reading.

Table 3: Time spent in a day for reading:

Time spent for reading	No. of respondents	Percentage
0-2 hrs	56	49.12
2-4 hrs	44	38.60
4-6 hrs	09	07.90
More than 6 hrs	05	04.38
Total	**114**	**100**

Table 4: Sources prefer for reading: N=114

Source	Daily	Twice in a Week	Weekly	Monthly	Occasionally
Text Books	50 (44%)	28 (25%)	18 (16%)	12 (11%)	06 (5%)
Magazines	14 (12%)	23 (20%)	38 (33%)	20 (18%)	19 (17%)
Journals	18 (16%)	14 (12%)	30 (26%)	31 (27%)	21 (19%)
Reference Books	10 (9%)	34 (30%)	29 (25%)	20 (18%)	21 (19%)
Recreational	18 (16%)	12 (11%)	15 (13%)	12 (11%)	57 (50%)

Table 5: Purpose of reading: N=114

Purpose	To full Extent	To little Extent	To some Extent	Not at all
For Exam Purpose	74 (65%)	17 (15%)	18 (16%)	05 (4%)
To prepare Notes	44 (39%)	38 (33%)	24 (21%)	08 (7%)
It is my hobby	34 (30%)	28 (25%)	36 (32%)	16 (14%)
To learn new words	43 (38%)	36 (32%)	26 (23%)	09 (8%)
To get ahead in my Studies	61 (54%)	30 (26%)	22 (19%)	01 (0.9%)

Table 6: Frequency of using computer& place of use: N=114

Place	Daily	Twice in a week	Weekly	Monthly	Occasionally
Home	87 (76%)	16 (14%)	03 (3%)	00	08 (7%)
College	26 (23%)	50 (44%)	16 (14%)	05 (4%)	17 (15%)
Browsing centre	11 (10%)	11 (10%)	19 (17%)	11 (10%)	62 (54%)
Friends/Neighbours home	06 (5%)	07 (6%)	08 (7%)	11 (10%)	82 (72%)

Table 7: Time spent in a day for using computer: N=114

Time spent for Using Computer	No. of respondents	Percentage
0-2 hrs	64	56.14
2-4 hrs	39	34.21
4-6 hrs	08	07.02
More than 6 hrs	03	02.63
Total	**114**	**100**

Table 8: Gender wise distribution of respondents regarding use of Internet

Gender	Do you use Internet?			
	Yes	Percentage	No	Percentage
Male	66	98.50	01	1.49
Female	44	93.61	03	6.38

Table 9: Place of web surfing and frequency of use:N=110

Place	Daily	Twice in a week	Weekly	Monthly	Occasionally
Home	77 (70%)	15 (14%)	07 (6%)	02 (2%)	09 (8%)
College	30 (27%)	27 (25%)	15 (14%)	11 (10%)	27 (25%)
Browsing centre	07 (6%)	13 (12%)	12 (12%)	15 (14%)	63 (57%)
Friends/Neighbours home	02 (2%)	04 (4%)	11 (10%)	11 (10%)	82 (75%)
Mobile	79 (72%)	05 (4%)	10 (9%)	04 (4%)	12 (11%)

Table 4 shows that nearly half of the respondents 44% daily read the text books, 33% of the respondents read the Magazine weekly, 27% of the respondents read journals monthly and half of the respondents reads the recreational books occasionally. It is very notable that 9% of the respondents read the reference books daily.

Table 5 clearly depicts that more than half of the respondents (65%) read for their exam purpose to full extent, 39% of the respondents read to prepare their notes for full extent. It is notable from the table that more than half of the respondents (54%) read to get

ahead in their studies to full extent.

Table 6 shows that maximum number of respondents uses the computer daily at their home (76%) and nearly half of the respondents use the computer twice in a week in their colleges.

It is very evident from the Table 7 that majority of the respondents (56.14%) uses the computer 0-2 hours in a day, 34.21% of the respondent's uses 2-4 hrs for using computers and nearly 7% of the respondents use 4-6 hrs in a day for using computers. It is only 2.63% of respondent's uses computer more than 6 hrs in a day.

From the Table 8 it is clear that 98.50% of the male respondents are familiar with the use of Internet and only 1.49% of the male students are not using the internet. Among female respondents 93.61% were familiar with the use of internet and still 6.38% female respondents are not using the Internet.

Table 9 reveals that nearly ¾ of the respondents (72%) & (70%) access the web daily from mobile & home itself. About one fourth of the respondents (27%) access the internet from the college and very few (6%) and (2%) access the web daily from the browsing centre and friends/neighbours home. It is notable that three fourth (75%) and half of the respondents use the internet occasionally at friends/neighbours home and browsing centre.

It is very evident from the Table 10 that majority of the respondents (72.73%) use internet 0-2 hours in a day, 20% of the respondent's uses web between 2-4 hrs in a day and nearly 6.37% of the respondent's uses internet 4-6 hrs in a day. It is only 0.9% of respondents uses Internet more than 6 hrs in a day.

Table 10: Time spent in a day for using internet: N=110

Time spent for Using Computer	No. of respondents	Percentage
0-2 hrs	80	72.73
2-4 hrs	22	20
4-6 hrs	07	06.37
More than 6 hrs	01	0.9
Total	**110**	**100**

Table 11: Purpose of using Internet:N=110

Sl. No.	Purpose	No. of Respondents	Percentage
01	To read e-books	71	65
02	To read e-journals	28	25
03	To read news papers	49	44
04	To read Magazines	22	20
05	To check e-mails	101	92
06	For chatting	62	56
07	To listen Music	44	40
08	For playing games	37	34
09	To Use face book	87	79

Table 12: Gender wise distribution of respondents regarding the use of ICT has made an impact on your Reading Habits?: N=110

Gender	Use of ICT has made an impact on your Reading Habits?			
	Yes	Percentage	No	Percentage
Male	61	92.42	05	7.57
Female	40	90.90	04	9.09

If yes, Use of Internet has made M=101

Sl. No.	Particulars	No. of respondents	Percentage
01	Easy to read e-books	55	54.45
02	I can download any books on web	71	70.29
03	I get maximum information on any subject	81	80.19
04	Hyperlinks are helpful to access information	33	32.67
05	Locating & searching is very easy	75	74.25
06	I can prepare notes more effectively	61	60.39
07	I can get information with more speed	72	71.28
08	I spend more time in reading e-books	24	23.76
09	I can't spend more time to read text on screen	65	64.35
10	I feel mentally & physically stress while using e-source	88	87.12

In Table 11 an attempt has been made to find out the purpose of using the internet for different purposes. The data reveals that (92%) respondents uses the internet to check e-mails and more than three fourth of the respondents (79%) use the internet to browse face-book. It is notable that more than half of the respondents (65%) use the internet to read e-books.

In Table 12 an attempt has been made to find out the use of ICT has made impact on reading habits of respondents. The data reveals that 92.42% of the male respondents have the opinion that the use of ICT has made the impact on their reading habits and only 7.57% of the male respondents feel there is no change in their reading habits while using ICT. Among female respondents 90.90% said that use of ICT has made impact on their reading habits and 9.09% female respondents said there was no change in their reading habits while using ICT.

The Table 12 reveals that nearly three fourth of the respondents (87.12) have the opinion that they feel mentally and physically stress while using e-sources and 80.19% of the respondents have the opinion that they can get maximum information on any subject through internet. It is noted that nearly 75% of the respondents have the opinion that the locating the searching is very is easy during surfing.

In Table 13 an attempt has been made to find out the comparison between printed and internet access information. Table 8.13 reveals that the most of the respondents strongly agree or agree that the printed books are can't find very easily compare to internet access information and also they have the opinion that the books are costly (36%) & (45%) and required more space to store (49%). They also have the opinion that in the printed books bulk information can't get in single volume (37%) and durability is very less (39%).It is notable that the nearly half of the respondents (44%) have the opinion that they can't get updated information as much as quickly in printed books.

Table 13: Comparison between printed books and internet access information:N=114

Source	Strongly Agree	Agree	Can't Say	Disagree	Strongly Disagree
Books are Costly	41 (36%)	51 (45%)	13 (11%)	07 (6%)	02 (2%)
I can't find books very easily	17 (15%)	59 (52%)	15 (13%)	20 (17%)	03 (3%)
I can't get updated information as much as quickly	44 (39%)	50 (44%)	14 (12%)	06 (5%)	00 (0%)
Bulk information can't get in single volume	32 (28%)	42 (37%)	33 (29%)	07 (6%)	00 (0%)
Durability is less	19 (16%)	44 (39%)	25 (22%)	18 (15%)	08 (7%)
Require large space	29 (25%)	56 (49%)	14 (12%)	13 (11%)	02 (2%)
Difficult to carry	33 (29%)	48 (42%)	16 (14%)	11 (10%)	06 (5%)

Table 14: Do you think in future ICT will have impact on the following?: N=114

Source	Strongly Agree	Agree	Can't Say	Disagree	Strongly Disagree
Printed Books will disappear	19 (16%)	26 (23%)	32 (28%)	28 (24%)	09 (8%)
In future people will not read printed books	12 (10%)	36 (32%)	36 (32%)	17 (15%)	13 (11%)
More dependent on digital libraries	23 (20%)	63 (55%)	18 (16%)	08 (7%)	02 (2%)
Traditional libraries can replaced by digital library	23 (20%)	33 (29%)	38 (33%)	17 (14%)	03 (3%)
Internet has negative impact on reading habits	19 (17%)	25 (22%)	34 (30%)	26 (23%)	10 (9%)
In future Literacy becoming more technological oriented	29 (25%)	61 (53%)	20 (17%)	02 (2%)	02 (2%)
User require additional skills & strategies for successful use	30 (26%)	71 (62%)	09 (8%)	04 (3%)	00 (0%)
Impact on the student's performance & achievements	28 (24%)	61 (53%)	23 (20%)	00 (0%)	02 (2%)
ICT makes learning easier	28 (24%)	74 (65%)	10 (9%)	02 (2%)	00 (0%)
Played major role to spread knowledge & updating information	47 (41%)	55 (48%)	12 (11%)	04 (3%)	00 (0%)

The Table 14 depicts that 71(62%) of the respondents have the opinion that the user requires additional skills and strategies for successful use of the internet and 63 respondents (55%) have the opinion that in future people more dependent on digital library. More than half of the respondents 53% said that in future literacy becomes more technological oriented and it impacts on the student's performance and achievements. It is notable that 65% of the respondents said that ICT makes learning easier. It is notable that 32% of the respondents have the doubt in mind about in future people will not read printed books.

Discussion

The main purpose of this study is to investigate the impact of ICT on reading habits of engineering students. The research seeks to find out if engineering students use ICT's will effect on their reading habits.

From the first part of the research question which seeks to find out the reading habits, the result reveals that 100% of the respondents having the reading habits and maximum of them use to read in their classroom and at home daily. 32% of the respondents spent 0-2 hrs for reading in a day and they prefer textbooks to read. Maximum respondents read for the exam purpose to full extent.

On the second research question which seeks to find out the impact of ICT on reading habits, the result shows that the students use of ICT's can positively impact on their reading habits.

Firstly, 76% of students use computers daily in their home. Maximum of the respondents spend 0-2hrs in using the computers daily. Secondly Male respondents (98.50%) use internet more than female respondents (93.61%), it reveals that nearly more than 95% of the respondents use the internet to check e-mails and to use face-book, while 65% go to the internet to read e-books/journals and 56% go to the internet to chat with family and friends. Finally 92% of the respondents have the opinion that the using ICT's will have the impact on their reading habits and use of internet has made the downloading of books very easy and they can get maximum information on any subject. They also have the opinion that they can't spend more time to read text books on screen and they feel mentally & physically stress while using e-source.

On the next part of the research question which seeks to find out the comparison of printed books with internet access information, the result reveals that most of the respondents strongly agree or agree that the printed books are can't find very easily compare to internet access information and also they have the opinion that the books are costly (36%) & (45%) and required more space to store (49%). They also have the opinion that in the printed books bulk information can't get in single volume (37%) and durability is very less (39%).

Secondly, 71(62%) of the respondents have the opinion that the user requires additional skills and strategies for successful use of the internet and 63 respondents (55%) have the opinion that in future people more dependent on digital library. More than half of the respondents 53% said that in future literacy becomes more technological oriented and it impacts on the student's performance and achievements. It is notable that 65% of the respondents said that ICT makes learning easier.

Conclusion

Reading is the foundation on which the academic skills of individuals are built. The study has been able to reveal that engineering students engage in reading of electronic resources using different ICT tools. All most all students (respondents) of AIT College are aware of ICT tools in using for their studies particularly for reading. Most of the students express that ICT has contributed to increase in their reading habits. There now technologies not only influence students learning and studying in the classroom but also affect their reading behaviours at home. The findings of the study revealed that ICT has impact on the reading habits of engineering students of AIT, Chikmagalur.

References

1. Chettri, Rout.Reading Habits - An Overview. 2013; 14(6):13–7.
2. Jafre, Zainol. The Online Reading Habits of Malaysian Students. 2014; 14(2): 164–72.
3. Mbah, TahB. The impact of ICT on student's study habits. Case study:University of Buea, Cameroon. JSTER. 2010; 1(5): 107-10.
4. Ngugi, The Influence of the Internet Surfing on the Reading Culture of Secondary School Teachers/ : A Case Study of Newspaper Readership in Kigumo Sub County , Kenya. 2014; 4(11): 96–110.
5. Onovughe, Ofodu G. (2012). Internet use and Reading habits of higher institution students. JETERAPS. 2012; 3(1): 11-5.
6. Onyia, Mary N. The impact of ICT on University Students Academic Studies. Journal of Educational and Social Research. 2013; 3(8): 105-9.
7. Satija, MP. Reading and book culture. Herald of Library Science. 2002; 41(1/2): 55-9.
8. Shahriza, Karim, Hasan. Reading habits and attitude in the digital age Analysis of gender and academic program differences in Malaysia. 2007; 25(3): 285–98.

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A Study on the Reading Habits of Arts and Science Students in Annamalai University

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Abstract

The study gives a brief description about the importance of reading and aims to explore the current reading habits and attitudes of Arts and Science students of Annamalai university The survey method was applied to conduct the study and questionnaire was used as a data collection tool. The data collected was analysed using simple statistical techniques. The results reveal that the college students have positive attitudes towards reading and majority of them spend almost one hour on academic and non-academic reading daily. The students developed reading habits mostly through self efforts followed up with the help of parents and teachers respectively.

Keywords: Reading Habits; Reading Choices; Reading Preferences.

Introduction

According to the Report of the Commission on Reading, reading is considered as a cornerstone for success, not just in schools, but also throughout the adult life of an individual. Reading is regarded as a process, a mode of thinking, a kind of real experience and involves many complex skills: the ability to perceive printed words, to skim for information and then perhaps read intensively.

"A Dumb Person becomes a Communicator and a Lame Climbs Mountains of Knowledge Through Reading"

Reading has been the passion of the greatest personalities of all times. Humans have been reading since ages and thus words of knowledge have been passed on through generations. The reading habit influences in the promotion of one's personal development in particular and social progress in general. Regular and systematic reading sharpens the intellect, refines the emotions, elevates tastes and provides perspectives for one's living; and thereby prepares a person for an effective participation in the social, religious, cultural and political life. Reading fires the imagination of the person. It adds new sight to eyes and new wisdom to mind.

Regular and systematic reading sharpens the intellect, refines the emotions, elevates tastes and provides perspectives for one's living thereby prepares a person for an effective participation in the social, religious, cultural and political life. Reading fires the imagination of the person by adding new sight to eyes and new wisdom to mind. The individual who reads well has at his command a means for widening his mental horizon and for multiplying his opportunities of success. Reading is a vital factor affecting intellectual and emotional growth.

Reading is the ability to recognize and examine words or sentences and understand the information within. It is a cognitive process of understanding a written linguistic message and to examine and grasp the meaning of written or printed characters, words or sentences.

This paper attempts to find out the reading habits among arts and science students of Annamalai University. For this purpose 250 students from arts and science faculty have been selected for the study. A questionnaire was prepared and administered to

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them out of which only 224 students have responded to all the questions. 110 students from arts faculty and 114 students from science faculty have responded. Simple percentage analysis has been made. Hypothesis have been framed and tested.

1. There is significant difference between in the time spent on reading among male and female students.
2. There is significant difference between in the choice of reading material among male and female students.
3. There is significant difference between in the purpose of reading among male and female students.

Enjoyment in reading means how much they love to read or find pleasure in reading. It is clear from the Table 1 that out of 224 students 98(43.75%) of the students enjoy reading a lot. 73(32.58%) of the students enjoy reading a bit. 42(18.75%) of students enjoy reading to some extent and 11(4.92%) of the students don't enjoy reading at all. From the table it is inferred that most of the students enjoy reading since the percentage is highest for that option.

Table 1: Enjoyment in reading

No	Enjoyment in Reading	No. of Respondents	%
1	A lot	98	43.75
2	A bit	73	32.58
3	To some extent	42	18.75
4	Not at all	11	4.92
	Total	224	100

Table 2: Time spent on reading

Time spent	Male			Female			Total
	Arts	Science	Total	Arts	Science	Total	
>1 hours	4	3	7	5	2	7	14
1 – 2 hours	24	22	46	26	30	56	102
3 – 4 hours	20	31	51	18	20	38	89
>4 hours	2	2	4	11	4	15	19
	50	58	108	60	56	116	224

1. There is significant difference between in the time spent on reading among male and female students.

DF	6
t Stat	-0.11959
P(T<=t)	0.908709
t Critical	2.446912

Result: Not significant – hypothesis is rejected

Table 2 shows that out of 224 students 14(6.25%)of the students spend 1 hour on reading. 102(45.53%) of the students spend 1 to 2 hours on reading. 89(39.73%) of the students spend 3to4 hours on readings and 19(8.94%) of students spend >4 hours on reading. It is revealed that most of the students 102 (45.53%) spend one to two hours on reading The first hypothesis is tested and it is rejected.

Table 3: Inculcating reading habits

No	Inculcating reading habits	No. of Respondents	%
1	Parents	31	13.84
2	Brother/Sisters	18	8.04
3	Teachers	115	51.34
4	Friends	15	6.69
5	Self interest	35	15.63
6	Others	10	4.46
	Total	224	100

Table 4: Preferred languages for reading

No	Preferred languages	No. of Respondents	%
1	English	80	35.71
2	Tamil	24	10.71
3	Both	120	53.58
	Total	224	100

Inculcating reading habits means the source from where they developed interest for reading others refers to famous personalities, relatives and other sources. It is obvious from Table 3 out of 224 students 31(13.84%) of the students inculcate reading habits from their parents. 18 (8.04%) of the students in reading habits from their brother/sister. 115(51.34%) of the students inculcate reading habits from teachers. 15(6.69%) of the students inculcate reading habits from friends. 35(15.63%) of the students have developed reading habits through their own interest and 10(4.46%) of the students inculcate reading habits from others. It is inferred that teachers were the main source of inspiration since 115 (51.34%) of students have marked teachers.

From Table 4 it is observed that 80(35.71%) of the students prefer to read in English. 24(10.71%) of the students prefer to read in Tamil and 120(53.58%) of the students prefer to read in both languages.

Table 5: Purpose of reading

Purpose of reading	Male			Female			Total
	Arts	Science	Total	Arts	Science	Total	
Knowledge	18	26	44	20	24	44	88
Information	12	20	32	18	15	33	65
Relaxation & Pleasure	15	7	22	18	4	22	44
Others	5	5	10	4	13	17	27
Total	50	58	108	60	56	116	224

2. There is significant difference between in the purpose of reading among male and female students.

DF	6
t Stat	-0.2126
P(T<=t)	0.83868
t Critical	2.446912

Result: Not significant – hypothesis is rejected

Table 5 shows that 88(39.28%) of the students purpose of reading is to gain knowledge. 65(29.02%) of the students purpose of reading is to get Information. 44(19.64%) of the students purpose of reading is for relaxation & pleasure and 27(12.06%) of the students reading for other purposes. The hypothesis is tested and it is rejected

Table 6: Preference of materials to be read

Choice of reading material	Male			Female			Total
	Arts	Science	Total	Arts	Science	Total	
Reference books	13	16	29	19	13	32	61
Magazines	3	5	8	8	4	12	20
Newspapers	10	10	20	12	16	28	48
General books	12	7	19	7	12	19	38
Journals	8	12	20	10	11	21	41
Other materials	4	8	12	4	-	4	16
Total	50	58	108	60	56	116	224

3. There is significant difference between in the choice of reading material among male and female students.

DF	10
t Stat	-0.25928
P(T<=t)	0.800677
t Critical	2.228139

Result: Not significant – hypothesis is rejected

From Table 6 it is inferred out of 224 students. 61 (27.23%) of the students prefer reference books for reading. 20 (8.93%) of the students prefer magazines for reading. 48(21.43%) of the students prefer to read newspapers. 38(16.96%) of the students prefer to read general books. 41(18.30%) of the students prefer to read journals and 16(7.14%) of the students prefer to read other materials. The hypothesis is tested and rejected

Table 7 shows the various factor which affects the reading habits. 63(28.12%) of the students feel that there is inadequate reading materials. 65(29.02%) of the students feel that there is rustication in borrowing books . 49(21.87%) of the students feel that they have don't conducive environment to read and 47(20.99%) of the students are not interested in reading .

Table 7: Factors affecting reading habits

No	Factors affecting reading habits	No. of Respondents	%
1	Lack of reading materials	63	28.12
2	Restriction on borrowing books	65	29.02
3	Not conducive environment	49	21.87
4	Not interested	47	20.99
	Total	224	100

Findings

The results reveal that the college students have positive attitudes towards reading and enjoy reading a lot. Majority of them spend almost two hours on academic and non-academic reading daily. The students developed reading habits mostly through their teachers and spend nearly one to hours on reading . The college students prefer to read in both languages (Tamil and English) . The results also depict that students mostly read for gaining knowledge followed by to seek information. The students prefer reference books for reading . The students face many problems in getting reading materials like restriction on borrowing in libraries and inadequate collection.

Conclusion

To develop the reading habit of the students and turning them into lifelong learner and to develop a knowledge society reading has become imperative. Reading is essential because it equips people with necessary knowledge and understanding, not only for building their own life but also for contributing positively in the socio-economic development of the nation. Based on the findings of this study, the following recommendations are made with a view to improving the reading habit of the younger generation in particular and people from all cross-sections of life in general.

1. The students should start the reading habit right from III std
2. Parents should read to their children good stories during night time
3. They should be motivated to find the required information on their own by reading books or referring to text or through browsing
4. Teachers should encourage individual loud reading at least one period in a week
5. Spending in books is not waste of money but it should be considered as a investment to gain knowledge.

References

1. Akanda, A.K.M., Eamin Ali, Hoq, Kazi Mostak Gausul and Hasan Nazmul. "Reading habit of students in social science and arts: A case study or Rajshahi university", Chinese librarianship: An International Electronic journal. 35. Retrieved on September 22, 2013.
2. Devarajan, G. Reading interests of secondary school students. 1989.
3. Eamin Ali Akanda A.K. M .et.al, "Reading Habit of Students in Social Sciences and Arts: A Case Study of Rajshahi University", Chinese Librarianship: an International Electronic Journal, 35. URL: www.iclc.us/cliej/cl35AHH.pdf.
4. Users approach to information in libraries (p.14): Ess .Ess Publications, New Delhi.
5. Issa,A.O., Aliyu, M.B., Akangbe, R.B. and Adedeji,A.F. "Reading interest and habits of the federal polytechnics students". International Journal of Learning and Development. 2012; 2(1): 470-486.
6. Palani,K.K., "Promising reading habits and creating literate social". International Reference Research Journal. 2012; 2(1):91.
7. Singh,Y.G. "Academic achievement and study habits of higher secondary students". International Reference Research Journal 20111; 3(27):2.
8. http://www.white-clouds.com/iclc/cliej/cl35AHH.pdf

Review Article

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Cloud Computing Applications in Libraries

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Abstract

Cloud computing technology came up as a boon for libraries and offering various opportunities for libraries to connect their services with clouds In the modern internet Era, Cloud computing plays a prominent role. Today, no longer need to save all your documents on one particular device. Instead, one can access files and resources from at any terminal any time. This is all possible only with " cloud system". The new technology concept will minimize the cost of hardware and software applicable to libraries. Cloud computing has been exerting a strong gravitational pull its own entire one has been attracting a mass of money. This paper presents on overview of cloud computing and its possible applications that can be clubbed with library services on the web based environment. This study may be useful in identifying and generating cloud based services for libraries.

Keywords: Cloud Computing; Academic Libraries; Library Automation; Information Technology; Library Services.

Introduction

Today, we are living in the age of information. Information technology plays very vital role in library science. With the advent of information technology, libraries have become automated which is basic need towards advancement followed by networks and more efforts are towards virtual libraries. The emergence of e-publications, digital libraries, internet usage, web tools applications for libraries, consortium practices leads to the further developments in library professions. By collecting large quantities of information and resources stored in personal computers, mobile phones and other equipment. Cloud computing is capable of integrating them and putting them on the public cloud for serving users. Cloud computing is a process where the data and applications are stored, accessed and shared on the network. Wikipedia claimed that the concept of cloud computing was emerged back to the 1960's, when John McCarthy opined that computation may someday be orgainsed as a public utility. Chellappa gave the first academic definition of the term cloud computing in 1997 and later on in the year 2007 the term cloud computing came into popularity and firstly used in this context when Kelvin Kelley opined that eventually we will have have the inter-cloud, the cloud of clouds. Since cloud computing is a new and core area the professionals should be aware of it and also the application of cloud computing in library science.

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What is Cloud Computing?

According to Andrew 2012 The "cloud" element of cloud computing can be seen as an acronym that stands for

C- Computing resources

L -Location independent

O- can be accessed via online means

U- Used as a Utility

D- Available on Demand

Cloud computing s a kind of computing

technology which facilitates in sharing the resources and services over the internet rather than having these services and services on local servers/nodes or personal devices. The combination of servers, networks, connection, application and resources is defined as 'Cloud'. Cloud computing is acting as a resources pooling technology for accessing infinite computing services and resources as per demand of users and can be compare with models of pay as you use or utility model same as used for mobile services usages and electricity consumption.

Key Characteristics of Cloud Computing

Various key characteristics of cloud computing technology include Agility, cost, Device & Location independence, Multi Tenancy, Reliability, Scalability, Security, Sustainability and Maintenance.

Basic Components of Computing

Client, Servers, Application, Platform, Storage and Infrastructure.

Software as a Service (SaaS), Platform as a Service (PaaS), Infrastructure as Service(IaaS)

Types of Cloud computing

There are four important type of cloud deployment models in the cloud community.

Public Cloud

Public Cloud meant for general public use and open to all. This kind of deployment model of cloud computing developed by any clouding agency and having own policy, value, and profit, costing and charging models. Some Popular public cloud services include Amazon EC2, S3, Google App Engine and Force.com

Community Cloud

It is joint venture of several organizations come together to build a cloud infrastructure as well as policies through which cloud services will be rendered. In the community cloud model, cloud infrastructure may be hosted by a third party vendor or within one of the organizations in the community.

Private Cloud

This kind of deployment model solely developed and managed by a single organization or a third party regardless whether it is located in premise or off premise.

Hybrid Cloud

This type of cloud made from more than one cloud deployment model that may be public, private, community and other models also, bound together with by standardized or proprietary technology that enables data and application portability. The Hybrid cloud model is widely used by institutions and organizations because this model provides more facilities and flexibilities in making optium use of their resources and accomplishing the tasks.

Advantage of Cloud Computing

Cost Saving

Pay What you use: Cloud computing technology is paid incrementally thus saving costs for organizations.

Easy on Installation and Maintenance

No need to worry about constant performance server, monitoring and updates on available latest technology.

Increased Storage

We can store more data on cloud than our personal network as it has unlimited storage capacity.

Highly Automated

The cloud service provider takes care of updating software as and when new version is released. When the server is updated everyone using the service also get access to the new version without updating anything on their end.

Flexibility

Cloud computing offers much more flexibility than other local network computing systems and saves time plus cost for organizations. It is possible for organizations to expand the services anytime, by requesting for an additional space on the servers.

Better Mobility

The staff and the user of the library can connect to the library servers from anyplace or from wherever

they are, rather than having to remain present at their desks by having a PC and internet access.

Shared Resources

Cloud computing will allow people within and outside the organizations to have access to have access to the resources at any time and anywhere in the world, as long as the connection of internet with good bandwidth is available. A group of libraries can come together and can put their resources at any place, which in turn will enable them to provide access to more number of resources to their end users.

Back up and Restoration

Back up of the cloud can protect all kinds of our library data from loss of owing to fire, flood or any other natural or man-made computer related disaster that could cause data to disappear. We can easily restore our data if back is done and placed at the safest place.

Disadvantages of Cloud Computing

Data Security

The biggest concerns about cloud computing are security especially if the organizations are dealing with sensitive data such as credit card information of customers. If the proper security model is not yet in place, then he data stored on the cloud is vulnerable to attacks from viruses, theft, etc.

Network Connectivity and Bandwidth

Since the Cloud computing is offered over the internet, if the connection goes down due to any reason then the organizations suffer from loss of data connectivity till the time it is set. Also the service requires more bandwidth, as it may not work on low-speed internet connection.

Dependence on outside Agencies

The cloud services being offered by third party service over the internet, it is virtually difficult to have any control on the maintenance levels and the frequency. Migration to other service provider is also an issue, if the uniform standards are not followed by the host.

Limited Flexibility

Flexibility may be limited in terms of special customization as services on the cloud will be common for all the users.

Cost

Initially, the cost could be higher, but may reduce depending on the usage of services. However, organizations may end up paying higher charges in the future.

Knowledge and Integration

Deeper knowledge of cloud computing is essential at working of the service is totally dependent on the service providers.

Privacy

Privacy loss is a big concern when we talk about cloud based services. There is always a chance of accidental data leakage, mismatch and other failure.

Application of Cloud computing in Libraries

Building Digital Library/Repositories in the present situation, every library needs a digital library to make their resources and services at an efficient level to ensure access via the network. Therefore, every library is having a digital library that developed by using any digital software.

Searching Library Data

OCLC is one of the best example for making use of cloud computing for sharing libraries data for years together. Web share management system facilitates to develop an open and collaborative platform in which each library can share their resources, services, ideas and problems with the library community on the clouds.

Searching Scholarly Content

Knimbus is cloud based research platform facilitates to discover and share the scholarly content. Knimbus stands for knowledge cloud which is dedicated to knowledge discovery and collaborative space for researchers and scholars. Currently, Information and Library Network (INFLIBNET) Centre has been incorporated Knimbus cloud service into its UGC INFONET Library Consortium in order to search and retrieve scholarly contents attached therein.

Website Hosting

Website hosting is one of the earliest adoptions of

cloud computing as many organizations including libraries preferred to host their websites on third party service providers rather than hosting and maintaining their own servers.

File Storage

To access any files on the internet, cloud computing present number of services as Flicker, Drop box, Jungle Disk, Google Doc., Sky Drive and so on. These services virtually share the files on the web and provide access to anywhere and anytime without any special software and hardware.

Building Community Power

Cloud computing technology offers great opportunities for libraries to built networks among the library and information science professionals as well as other interested people including information seekers by using social network tools.

Library Automation

For library automation purpose, Polaris provides variant cloud based services such as acquisitions, cataloguing, process system, digital contents and provision of cutting edge technologies used in libraries and also supports various standards such as MARC 21, XML, Z39.50, Unicode and so on which directly related to library and information science area.

Conclusion

Cloud computing will help the integration of libraries in a painless easy manner. Libraries will be able to share their electronic data resources which shall lead to reduction of duplicate data resulting in cutting down the overall budget of libraries. Stability of cloud computing will also help in saving money. Libraries will also become greener by embracing the cloud. Some good examples of successful cloud computing libraries include Dura cloud, OCLC services and Google based cloud. Every librarian should use and implement the services of cloud computing in their respective libraries. Librarian Should be aware to users about the cloud Computing and services. Therefore it is time for libraries think seriously before clubbing libraries services with cloud based technologies and provide reliable and rapid services to their users.

References

1 Alotaibi, M.S. Utilization of cloud computing in library and Information centers: A theoretical study. International Journal of Digital services, 2013; 3(1): 83-93

2 Gosavi, N & Shinde, S.S. Use of cloud computing in library and Information science field. International Journal of digital services, 2012; 2(3).

3 Hari, L.A. Research on digital Platform Based on cloud computing advances in computer science, 2011; 214: 176-180.

4 Joshi, N.A. Academic libraries and cloud computing, 9th International CALIBER. Inflibnet enter, Gujarat. 2013.

5 Mavodza. J. The impact of cloud computing on the future of acedic library practice and services, New theory world, 2013; 114(3/4):132-141.

6 Mitchell, E (n.d). Using cloud services for IT Infrastructure.

7 Pandya, M. Cloud computing for libraries: A SWOT analysis : 8th Convention PLANNER 2012 Sikkim University, Gangtok, 2012; 367-394

8 Rashmi, H.K. (2014). Cloud computing: Application, impact and prospects for libraries. Journal of advances in library and Information sciences, 2014; 3(4): 288-292.

9 Sanchati. Cloud computing in digital and university libraries. Global Journal of computer Science and Technology, 2011; 11(12).

10 Seena, S.T. (n.d). Attitude of library professional on cloud computing application: A study on the Kerala University library.

11 Urmila Rajendra Kalam. Cloud computing I Academic Libraries: Academic Publishers, 2016; 419-419.

Review Article

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Impact of Information Technology on Health Science Libraries in India

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Abstract

The present study covers the changing scenario of libraries with the application of Information Technology. The impact of information technology widely visible on every function of the library. The present study analyzed the impact of information technology on libraries in general and on acquisition, serial control, classification and even on staff in particular. The results reveal that most of the staff members of libraries under study find that the information technology has changed the entire functioning of the libraries and has improved our efficiency.

Keywords: Information; Technology; Acquisition; Classification; Serial Control; Health Science.

Introduction

Libraries are service agencies organised in a systematic order to serve users. Libraries and information centres are creations of the slow and steady growth of modern civilization. The rate of growth of libraries and information centres and their use have been changing over the years. From the traditional services of lending books and other documents, libraries now offer various types of services. The emphasis of libraries and information centres has shifted from books to the feeding of information to the users. Information is a vital resources and essential ingredient in decision making. Technology is dominating every sphere of human activity. The computer application for various operations which is resulting in time saving and removal of drudgery is a great leap for mankind.

Information Technology

Information technology is a generic term used to denote activities relating to location, acquisition, processing, collection, organisation, storage, analysis, presentation, communication and dissemination of information using mechanical and electronic means such as computer, telecommunication and reprography. It involves the application of computers and communication technology in the task of information handling and information flow from the generation to the utilization levels.

Library being treasure house of information, not only acquire, store and disseminate information but also serve as an effective agency for creation of fresh ideas and new knowledge. The goal of a healthcare library is to provide suitable information materials useful for medical study, teaching and research purposes in healthcare institutions. A healthcare library functions as conservator of knowledge, ideas, teaching, research, publication, extension and service interpretation. Libraries supplement the classroom teaching work and provide wide range of knowledge required to attain intellectual pursuits. A well-equipped library is not only necessary for all teaching and study but also essential for research. A systematically developed library collections, serves as a major academic facility to the faculty as well as to students and enable them to achieve better results in their respective fields.

As per record of Medical Council of India there are about 150 Government and 184 private medical colleges and health science libraries in India, which are providing information services to medical

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professionals to facilitate them in medical information needs.

Out of the above mentioned health science libraries, only five health science libraries were studied and the questionnaires were sent to these libraries viz. B. B. Dixit Library of All India Institute of Medical Sciences (AIIMS), National Documentation Centre of National Institute of health and family welfare, New Delhi, National Medical Library, Indian Council of Medical Research Library (ICMR) and Maulana Azad Medical College Library, New Delhi. The scope of the present study is restricted to these five important health science libraries.

As the backbone of any research depends upon the data pertaining to the various facets of the topic, this paper deals with the data collected through questionnaire and other methods pertaining to the five Health Science Libraries under study. Thereafter, the collected data has been analysed to reach to certain conclusions.

As per the procedure followed questionnaires were distributed to collect the data from five Health Science Libraries on the impact of information technology on Health Science Libraries under study. 35 questionnaires were distributed among the professional staff having LIS degree of 5 healthcare libraries viz. B. B. Dixit library of AIIMS, ICMR, National Medical library, National Documentation Centre of the National Institute of Health and Family Welfare and Maulana Azad Medical College library. In all 20 duly filled questionnaires were received back and the data thus collected from the staff of these libraries has been analysed.

To assess the opinion of the library staff regarding impact of IT on library services and library as a whole, it is found that none of the respondent said that the services of the library are not improved after the application of IT. Only few respondents have the opinion that libraries are little improved. However, almost every respondent has the feeling that the libraries are very much improved with the application of IT. As per the questionnaire the areas which are very much improved include the efficiency of staff, effectiveness, user satisfaction, work environment, services and the level of staff. Some respondents have the opinion that collection arrangement, staff competence and even the communication have much improved by the application of information technology as shown in Table 1 below.

Table 1:

Rank	Aspects	Very Much Improved	Much Improved	Little Improved	Not Improved
1	Efficiency	10	10	00	00
2	Effectiveness	06	13	01	00
3	User's Satisfaction	06	12	02	00
4	Work Environment	05	14	01	00
5	Services	07	11	02	00
6	Cost Effectiveness	05	11	04	00
7	Level	05	15	00	00
8	Collection Arrangement	07	09	04	00
9	Staff Competence	08	08	04	00
10	Communication	09	11	00	00
	Total	**68**	**114**	**18**	**00**

Impact of Information Technology on Acquisition

Acquisition is the most important area of any library. Selection of document, ordering of selected documents, adoption of purchase system, keeping record of suppliers, reminders to suppliers and display of new additions are some of the work of acquisition department of every library. Respondents were asked to provide their opinion as to how the information technology has affected the entire functioning of acquisition section. Maximum respondents feel that information technology has made it possible to order for a document very fast through online. Most of them strongly agree that with IT application purchasing, selection of document and keeping up to date record have become so easy. Many respondents said, it has become very easy to display the list of new arrivals for library users just on a click. The responses received from library staff is given in Table 2.

Impact of Information Technology on Classification

Success of any library depends on the quality of organisation of library resources. It is said that the use of library reading material totally depends on the quality of its arrangement. If the library collection is well organised and properly arranged on shelves it improves its utilisation. The respondents were asked as to how the information technology is helping in classification of documents in libraries. Approximately 50% respondents are strongly agree about the various statements that were provided in questionnaire regarding impact of IT on classification like it has become easy to check the class numbers

already provided to old books available in library, hence enable the classifier to assign class numbers to the same books acquired again by the library. Rest 50% respondents are agree to the fact IT has not only saved the time of classifying the documents but also bring uniformity in class numbers. Table 3 provides the responses of library professionals in HSL.

Table 2:

Rank	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Faster Ordering	06	14	00	00
2	Easy purchasing	04	14	01	00
3	Updated Vendor's Record	05	15	00	00
4	Timely Reminders	07	13	01	00
5	Accurate and up to date orders	05	13	02	00
6	Easy Accessioning	07	10	04	00
7	Easy Book Selection	09	11	00	00
8	Easy New Arrivals Display	07	09	04	00
	Total	**50**	**99**	**12**	**00**

Table 3:

Rank	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Easy to check old Class Numbers	10	10	0	0
2	Easy to assign New Class Number	12	08	0	0
3	Save time in Class Number	11	09	0	0
4	Bring uniformity in Class Number	07	12	1	0
	Total	**40**	**39**	**01**	**0**

Impact of Information Technology on Circulation

Fourth law of library science says save the time of the reader. If the document is immediately provided to users it satisfies this law, therefore, the respondents were asked how the lending services are being improved by the use of information technology. They were asked how it has improved the circulation services like transaction records, over due charges, reservation of documents, generating of various reports and even to block the defaulters. Most of the respondents are strongly agree with the statements that information technology has improved the accuracy of circulation records, renewal of reservation record, status of loans and to prepare usage reports. Different reports as asked by the users themselves or even by the authorities to check the status of reading habits of students at a given period of time are also now possible to generate by the application of information technology. The details are given in Table 4 below.

Table 4:

Rank	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Improved accuracy	05	14	0	0
2	Easy renewal & reservation of items	08	10	01	0
3	Timely reminder letters	03	15	01	0
4	Easy status of loans	04	13	02	0
5	Speedy charging and discharging	09	09	01	0
6	Easy to prepare usage statistics	07	11	01	0
7	Easy to calculate overdue fines	08	11	0	0
8	Speedy blocking of defaulters	02	15	02	0
	Total	**46**	**98**	**08**	**00**

Impact of Information Technology on Serial Control

The quality of library resources depends on the number of journals subscribed by them. Libraries are now spending huge amount of budget on the subscription of journals. Therefore, the serial department of any library has its own importance. Realising the need and importance of serial section the respondents were asked various questions to assess the overall management of serials control by the application of information technology. All respondents strongly agree with all the statements asked by them. They strongly agree that with the introduction of information technology in serial department it has improved serial subscription and renewal, accurate record of subscription, immediate record of new issues, easy to locate the missing issues, easy to prepare list of periodicals and facilitate to generate various reports according to the need.

Table 5

Rank	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Improved subs. and renewal system	06	14	0	0
2	Up to date record of subscription	06	14	0	0
3	Faster recording of new issues	10	08	02	0
4	Easy to maintain record of missing issue	09	11	0	0
5	Easy to prepare list of complete volume	07	14	0	0
6	Facilitate to prepare list of periodicals	06	12	01	0
7	Easy to calculate fund utilization record	06	14	01	0
8	Uptodate Suppliers performance record	04	13	01	0
09	Facilitate to generate various reports	04	16	0	0
	Total				

Table 6:

Rank	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Facilitate more specific searches	11	08	01	0
2	Improved accessibility of information	12	08	0	0
3	Provides faster & accurate information	11	09	0	0
4	Greatly improved quality of services	07	12	01	0
5	Greatly Improved users satisfaction	05	14	01	0
6	Facilitate to provide new services	08	12	0	0
7	Increased user's expectations	06	14	0	0
8	Facilitate more value added services	07	13	0	0
9	Improved users opinion on services	07	13	0	0
10	Provides more information at low cost	05	13	02	0

Table 7:

Rank	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Upgraded my knowledge & skills	10	10	0	0
2	Made my work more interesting	08	12	0	0
3	Increased my job satisfaction	08	12	0	0
4	Improved working environment	09	11	0	0
5	Greatly Improved quality of my work	08	12	0	0
6	Improved my performance	11	08	01	0
7	Increased my moral and motivation	08	10	02	0
8	Facilitate to devote more time for user	07	11	02	0
9	Improved my status	09	08	03	0
10	Reduced my work load	06	09	05	0
11	Created fear of loss of my job	03	04	11	02
12	Created fear of new technology	03	02	13	02
13	Created vision problems	02	07	10	01
14	Increased pressure of learning IT	01	09	10	0

Impact of Information Technology on Library Services

Time has gone now when users were demand a document by author or by subject. The approach of users have totally changed during the present information age, hence libraries are also switching over from their traditional library services to modern and advanced services depending upon the approach of users. The respondents were asked many questions in the questionnaire as to how the information technology has changed the system of library services. Most of the respondents said that information technology has greatly facilitate more specific searches as per demand of users, improved accessibility of information from the heap of information in lesser time, provides faster and accurate information, facilitate more value added services and greatly improved users satisfaction. Only very few respondents, feel that the services are not much improved by IT application in libraries.

Impact of Information Technology on Library Staff

The responses received from library staff regarding the impact of information technology on their skills, it was observed that maximum respondents were agree to the fact that information technology has upgraded their knowledge and skills, increased their job satisfaction, greatly improved quality of work, improved overall performance and improved work environment. However, most of the respondents refused to the statement of creation of vision problem, fear of new technology and fear of loss of job with the

introduction of IT. But very few favour these statements as well. Some respondents said that IT has greatly reduced the work load of library staff. Few of them realised the fact that we have to learn more and more about new information technology in providing better library services.

Conclusion

The introduction of information and communication technology and its steady growth during the last decade of the 20th century and the first decade of the present century till date, has revolutionized every walk of human life. The libraries in general and Health Science Libraries (HSLs) in particular are no exception to this revolution. The aim of present thesis was therefore, to study the impact of Information Technology on select Health Science Libraries and their users. In the process of selection, five Health Science libraries namely B.B. Dixit Library of AIIMS, ICMR, National Medical Library, National Documentation Centre of the National Institute of Health and Family welfare and Maulana Azad Medical College library (all situated in Delhi) have been included for conducting this research. A number of aspects were taken into consideration to study the said impact as follows:

With the application of IT the areas which are very much improved include the efficiency of staff, effectiveness, user satisfaction, work environment, services and the level of staff. Information technology has made it possible to order for a document very fast through online. With IT application purchasing, selection of document and keeping up to date record have become so easy. Impact of IT has made easy to check the class numbers already provided to old books available in library, hence enable the classifier to assign class numbers to the same books acquired again by the library. Information technology application in serial department has improved serial subscription and renewal, accurate record of subscription, immediate record of new issues, easy to locate the missing issues, easy to prepare list of periodicals and facilitate to generate various reports according to the need. Information technology has greatly facilitate more specific searches as per demand of users, improved accessibility of information from the heap of information in lesser time, provides faster and accurate information, facilitate more value added services and greatly improved users satisfaction. IT has greatly reduced the work load of library staff. The staff have to learn more and more about new information technology in providing better library services. Apart from what has been described above, the chief librarian of any HSL must take care of the fact that their libraries remain the leaders in the technologies adopted, services offered and collections maintained to serve the elite class of users who in turn will emerge as the persons, maintaining the health of the society.

References

1. Baker, P.G. Electronic libraries of the future. Encyclopaedia of library and information science, Volume 50, supplement 22. Edited by Allan Kant and Hall, CM. New York, Marcel Dekker, 1997; p. 119-153.
2. Chaudhary, A.S. Exploiting network information resources for collection development in libraries. IFLA Journal, 1996; 22(1): 191-198.
3. Dysart, J.I. and Jones, R.J. Tools for the future : Recreating or renovating information services using new technologies. Computers in Libraries, 1995; p.16-19.
4. Fitzimmons, J. Information technology and third industrial revolution. Electronic library, 1994; 12(5):95-297.
5. Harinarayana, N.S. Concept of library automation. Herald of Library Science, 1991; 30(3-4): 174-175.
6. Kumar, P.S.G. Computerisation of Indian libraries. Delhi, B.R. Publishing Corporation, 1987; p. 6.
7. Money, P.K. and Nagaraj, C. Health information management: an introduction to disease classification and coding. National Medical Journal of India. 2007; 20(6): 307-310.
8. Planning Commission. Government of India 11th Five Year Plan (2007-2012). Report of the working group on health systems research, biomedical research & development and regulation of drugs and therapeutics. Government of India, 2006.
9. Prasher, R.G. and Sharma, R.K. ICT based information management in Indian libraries. Festschrift in honour of Prof. (Dr.) K. C. Sahoo. New Delhi, Bookwell. 2012.
10. Raman Nair, R. Computer application to library and information services. New Delhi, Ess Ess Publications, 1992; p.142-143.
11. Ramani, K.V. and Mavalankar, D. Health system in India: opportunities and challenges for improvements. Journal of Health Organisation and Management. 2006; 20(6):560-572.
12. Rao, S.S. Integrated health care and telemedicine. Work study. 2001; 50(6):222-229.
13. Renwick Shamin. Knowledge and use of electronic resources by Medical Science faculty at the University of West Indies. Libri, 2004; 43(3): 58-64.

14. Samal, P.K. and Gupta, S. Use of CD-ROM POPLINE database in NIHFW: a case study. *IAS*LIC Bulletin. 32(3), p. 125-127.

15. Sanyal, S. ICT, e-health & managing healthcare: exploring the issues &challanges in Indian railway medical services. Studies in Health Technology Informatics. 2005; 114:157-163.

16. Sharma, D.C. India takes to telemedicine for cancer treatment. The Lancet Oncology. 2001; 2(3): 128.

17. Singh, K.P. and Salek Chand. Use of e-resources in B. B. Dixit library (AIIMS): case study. ICoASL. Posters. 2011.

18. Singh, Surya Nath and Garg, B.S. Impact of information technology (Reprography) on biomedical information centres and libraries (ICLs) in India: a critical evaluation. Annals of Library and Information Studies. 2002; 49(3):113-118.

19. Wadhwa, S, Saxena, A and Wadhwa, B. Hospital information management system: an evolutionary knowledge management perspective. International Journal of Electronic Healthcare. 200; 3(2):232-260.

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[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006; 35: 540-7.

[2] Twetman S, Axelsson S, Dahlgren H, Holm AK, Källestål C, Lagerlöf F, et al. Caries-preventive effect of fluoride toothpaste: A systematic review. Acta Odontol Scand 2003; 61: 347-55.

Article in supplement or special issue

[3] Fleischer W, Reimer K. Povidone iodine antisepsis. State of the art. Dermatology 1997; 195 Suppl 2: 3-9.

Corporate (collective) author

[4] American Academy of Periodontology. Sonic and ultrasonic scalers in periodontics. J Periodontol 2000; 71: 1792-801.

Unpublished article

[5] Garoushi S, Lassila LV, Tezvergil A, Vallittu PK. Static and fatigue compression test for particulate filler composite resin with fiber-reinforced composite substructure. Dent Mater 2006.

Personal author(s)

[6] Hosmer D, Lemeshow S. Applied logistic regression, 2nd edn. New York: Wiley-Interscience; 2000.

Chapter in book

[7] Nauntofte B, Tenovuo J, Lagerlöf F. Secretion and composition of saliva. In: Fejerskov O, Kidd EAM,

editors. Dental caries: The disease and its clinical management. Oxford: Blackwell Munksgaard; 2003. p. 7-27.

No author given

[8] World Health Organization. Oral health surveys - basic methods, 4th edn. Geneva: World Health Organization; 1997.

Reference from electronic media

[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979-2001. www.statistics.gov.uk/downloads/theme_health/HSQ 20.pdf (accessed Jan 24, 2005): 7-18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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