IJISS

ISSN: 0973-8967
Vol. 4 No. 2

July - December 2010

Indian Journal of
Information Science and Services

A Refereed Research Journal on Library and Information Science

BANNARI AMMAN INSTITUTE OF TECHNOLOGY
Stay Ahead

Learning Resource Centre
BANNARI AMMAN INSTITUTE OF TECHNOLOGY
Sathyamangalam - 638 401 Erode District Tamil Nadu India
www.lib.bitsathy.ac.in

Indian Journal of Information Science and Services

(ISSN: 0973-8967)

IJISS is a refereed research journal published half-yearly by the Learning Resource Centre, Bannari Amman Institute of Technology. Responsibility for the contents rests upon the authors and not upon the IJISS. For copying or reprint permission, write to Copyright Department, IJISS, Learning Resource Centre, Bannari Amman Institute of Technology, Sathyamangalam, Erode District - 638 401, Tamil Nadu, India.

Advisor

Dr. A.M. Natarajan
Chief Executive

Editor-in-Chief

Dr. S. Sivaraj
Head, Learning Resource Centre

Managing Editor

Dr. A. Shanmugam
Principal

Associate Editor

Dr. A.K. Santra
Director, Department of Computer Applications

Bannari Amman Institute of Technology, Sathyamangalam - 638 401, Erode District, Tamil Nadu, India

Editorial Advisory Board

Dr. B. Ramesh Babu
Professor
Department of Library and Information Science
University of Madras, Chennai - 600 005

Dr. M. Nagarajan
Professor & Head
Department of Library and Information Science
Annamalai University, Annamalai Nagar - 608 002

Dr. S. Mohamed Esmail
Reader
Department of Library and Information Science
Annamalai University, Annamalai Nagar - 608 002

Prof. A. Srimurugan
Former University Librarian & Head
Department of Library and Information Science
Madurai Kamaraj University, Madurai - 625 021

Dr. P. Vinayagamoorthy
University Librarian
Bharathiar University
Coimbatore - 641 046

Dr. S. Srinivasa Ragavan
University Librarian & Head
Department of Library and Information Science
Bharathidasan University, Tiruchirappalli - 620 024

Dr. K. Chinnasamy
Head & Chairperson
School of Library and Information Science
Alagappa University, Karaikudi - 630 003

Dr. Krishan Gopal
Librarian
Jawaharlal Nehru University
New Delhi - 110 067

Dr. Shalini R. Urs
Executive Director and Professor
International School of Information Management
University of Mysore, Mysore - 570 006

Dr. Harish Chandra
Librarian
Indian Institute of Technology Madras
Chennai - 600 036

Prof. Shabahat Husain
Professor & Chairman
Department of Library and Information Science
Aligarh Muslim University, Aligarh - 202 002

Dr. Wathmanel Seneviratne
Librarian
The Open University of Sri Lanka
Nawala Nugegoda, Sri Lanka

Dr. George Fredericks
Professor & Chairperson
Department of Library and Information Science
University of Western Cape, South Africa

Prof. Robert Davison
Department of Information Systems
City University of Hong Kong
Hong Kong SAR

Prof. Allireza Noruzi
Department of Library and Information Science
University of Tehran
Tehran, Iran

Editorial Assistance

Mr. C.S. Senthil
SG Lecturer
Department of English
Bannari Amman Institute of Technology

Indian Journal of Information Science and Services

Volume 4 Number 2 **July - December 2010**

CONTENTS

A Study on Bibliometric Analysis of Gender Research in Asian Countries

L.N. Uma Devi
Department of Library and Information Science, Annamalai University, Annamalai Nagar - 608 002, Tamil Nadu
E-mail: Sailokheshh2005@yahoo.com

(Received on 01 June 2010 and accepted on 10 September 2010)

Abstract

This paper examines the gender based research papers published in Scopus database characterized by twelve themes. It discusses and analyzes trends in gender research in Asian countries from 1999 to 2008 in accordance with sources-wise research output, year-wise publications, authorship pattern, and relative growth rate. The study finds that journal articles occupies first place among various forms of sources, during the year 2002 published highest research output. Japan have published highest publication among the Asian countries, majority research papers published themes of Gender-Aware Research on Engineers and Engineering.

Keywords: *Asian Countries, Bibliometric Analysis, Gender Research*

1. INTRODUCTION

Gender based analysis is an integrated and systematic process of research and analysis that takes both men and women into account using a variety of quantitative and qualitative data. This data is considered in the policy and program development cycle. Gender permeates all facets of our lives, making the need for gender based analysis go beyond those policies that are specifically targeted at women. Policies related to health, finance, the environment, or even transportation all have the potential to either perpetuate gender-based inequities or to alleviate them in some way.

Bibliometrics is the quantitative study of written products of research. It is assumed that scientific subjects develop at an international research frontier [1]. Michael J. Gallivan and Raquel Benbunan-Fich (2006), conducted a study about relationship between gender and the research productivity of IS faculty [2]. Many studies carried out on gender based research by Takako Sodei [3], Mozaffarian and Jamali [4], Atinmo [5], Anegon *et. al.* [6].

2. OBJECTIVES

The major objectives are formulated for the present study as mentioned below:

i. To examine the growth pattern of literature in Gender Studies for a period from 1999 to 2008.
ii. To study the country wise research output of Gender Studies
iii. To identify the authorship pattern
iv. To find out the major themes of the research productivity of the Gender Studies

3. METHODOLOGY

This study aims to analyse the trend in the development of Gender Studies in bibliometric. It is also focused to trace the past trends in the area of research output on Gender Studies in bibliometric based on the sample data. Further the study evaluates the contribution of countries to the growth pattern and development of research productivity in this discipline by taking the last few decades.

4. DATA COLLECTION

The publication of research output on Gender Studies in bibliometric is obtained from various sources, such as Journal articles, Conference paper, Review, Short survey, Note, Editorial, Press release, and Letter. The research data required for the present study are downloaded from the Scopus database. All the publications retrieved from the Scopus database on Gender Studies and bibliometric cover the period from 1999 to 2008. Further, the researcher has downloaded the bibliographical data in the form of notepad files; then the bibliographical details are converted into the form of MS-EXCEL format using the PHP (Hyper text pre processor) scripting language

text extracting based and delimiters programme. Finally, the unique data are rearranged in MS-EXCEL format to eliminate duplication from the downloaded data. Overall data retrieved by the researcher are 565 records, and there by the researcher has chosen only 565 records for analyzing the present study.

5. RELATIVE GROWTH RATE (RGR)

The relative growth rate is the increase in the number of publications/pages per unit of time. Here, one year is taken as the unit of time. The mean relative growth rate R (1-2) over a specified period of interval can be calculated from the following equation suggested by Mahapatra.

$$R(1\text{-}2) = \frac{W_2 - W_1}{T_2 - T_1}$$

where,

R = Mean relative growth rate over the specific period of interval;

W_1 = log w1 (Natural log of initial number of publications/ pages);

W_2 = log w2 (Natural log of initial number of publications/pages);

T_2-T_1 = Unit difference between the initial time and final time. Therefore,

R (a) = Relative growth rate per unit of publications per unit of time (yr)

R (p) = Relative growth rate per unit of pages per unit of time (year)

6. DOUBLING TIME

A direct equivalence exists between the relative growth rate and doubling time. If the number of publications/pages of a subject doubles during a given period, the difference between the logarithms of the numbers at the beginning and at the end of the period must be the logarithms of the number 2. This difference has a value of 0.693. Thus, the corresponding doubling time for publication and pages can be calculated by the following formula:

$$\text{Doubling Time (Dt)} = \frac{0.693}{R}, \text{ Therefore}$$

$$\text{Doubling time for publications Dt (a)} = \frac{0.693}{R(a)}$$

7. LIMITATIONS

The findings of this study apply only to Gender Studies in to the fields related to the Departments of Information Technology, Medicine, Social Science, Women in engineering, and Women in biological science. This study covers Gender Studies with respect to the framed twelve main themes, which are related to discuss the Gender status in the Information Technology field, brought under the purview of the study and not other themes. This study makes a special attention only on the performance of research output in Gender Studies. This study encompasses the years from 1999 to 2008 only.

8. DISCUSSION

Data presented in Table 1 indicates the source-wise publication of research output in Gender Studies in Bibliometric between 1999 and 2008. It could be noted that out of the total 565 publications, Journal articles form of publication constitute 73.6%, conference proceedings 13.4%, Review 11.3%, Short Survey 0.7, Note 0.4 %, Editorial 0.2 %, Press Release 0.2%, and Letter 2.0% during the study period.

Table 1 Sources-wise Research Output in Gender Studies

SI.No	Source Type	No. of Output	(%)
1	Journal Article	416	73.6
2	Conference Paper	76	13.4
3	Review	64	11.3
4	Short Survey	04	0.7
5	Note	02	0.4
6	Editorial	01	0.2
7	Press Release	01	0.2
8	Letter	01	0.2
	Total	565	100

Figure 1 shows that year-wise research output from 1999 to 2008, 565 papers published within ten years. The highest percent of papers published in 2002 and 2006 are 91 and 89 respectively.

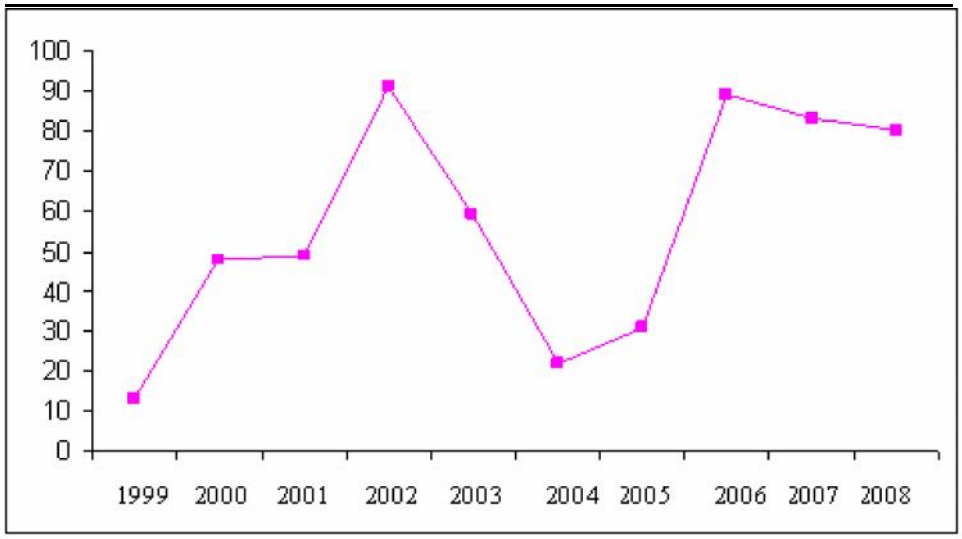


Fig. 1 Year-wise research output

59 papers were published during 2003 and 49 papers were published during 2001. 48 papers published in 2000, 2005 have published 31 research papers. In the year 2004 have published 22 research papers and very least per cent of research papers have published in the year 1999.

Figure 2 shows county-wise research output. Among the Asian continent countries, Japan occupied first place with 116 papers, India stood second place with 96 papers, China have published 81 research papers, Israel published 58, Bangladesh have published six research papers, China have published 81 research papers, Taiwan published 28 papers, Iran published 25 papers, Malaysia published 16 papers, Singapore published 13 research papers, South Korea published 35 research papers, Philippines published five papers, Saudi Arabia published eight papers, Thailand published seven papers, Turkey published 53 papers, Pakistan and Kuwait published four papers each, Jordan published three papers, United Arab Emirates published two research papers and Kazakhstan, Korea, Lebanon and Syrian Arab Republic published one paper each.

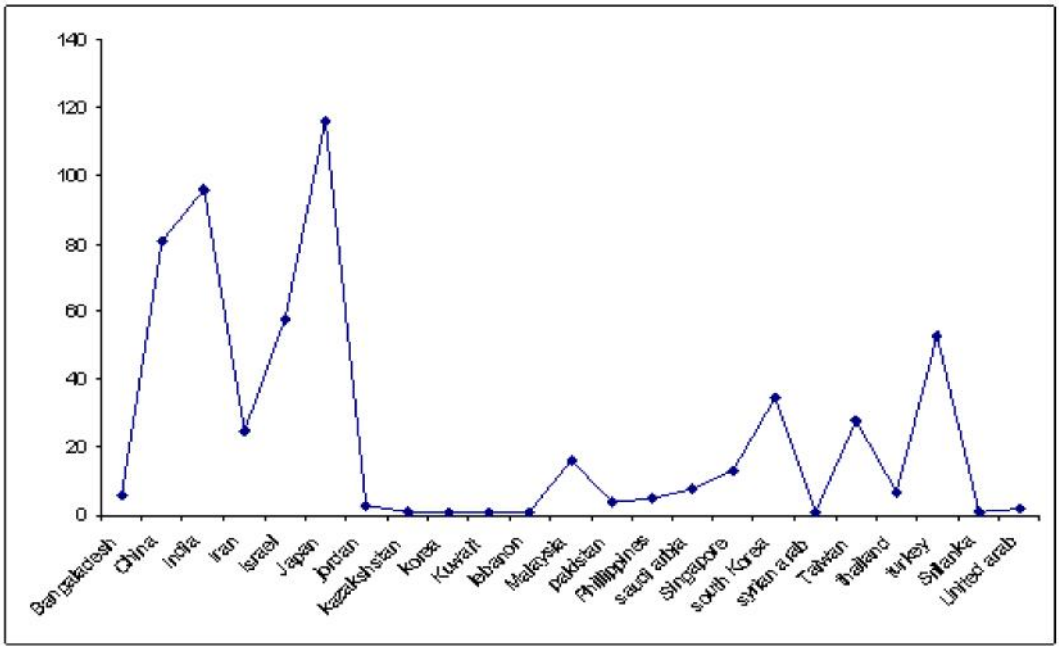


Fig. 2 Country-wise research output in gender studies

Table 2 shows that study period has witnessed a mean relative growth rate of 0.90. Significantly, the doubling time for research output of Gender Study has decreased from 0.75 during 1999 - 2003 and to 0.15 in the year 2004 - 2008. This is due to rapid increase in research publications after 2006. The doubling time for the period 1999 is 1.53 and it is increased to 5.32 for the period 2008. The whole study period has witnessed the mean doubling time for research output on Gender Studies publications as 6.67 during the other years.

The objective of the study of authorship pattern is to bring out the research pattern in a discipline. The extent of research contribution by the researchers is explained in the analysis of authorship pattern. Hence it is considered to be an important aspect in Bibliometric analysis. It aims at analyzing the performance of scientists in contributing research output either individually or collectively.

Table 2 Relative Growth Rate of Overall Output in Gender Studies

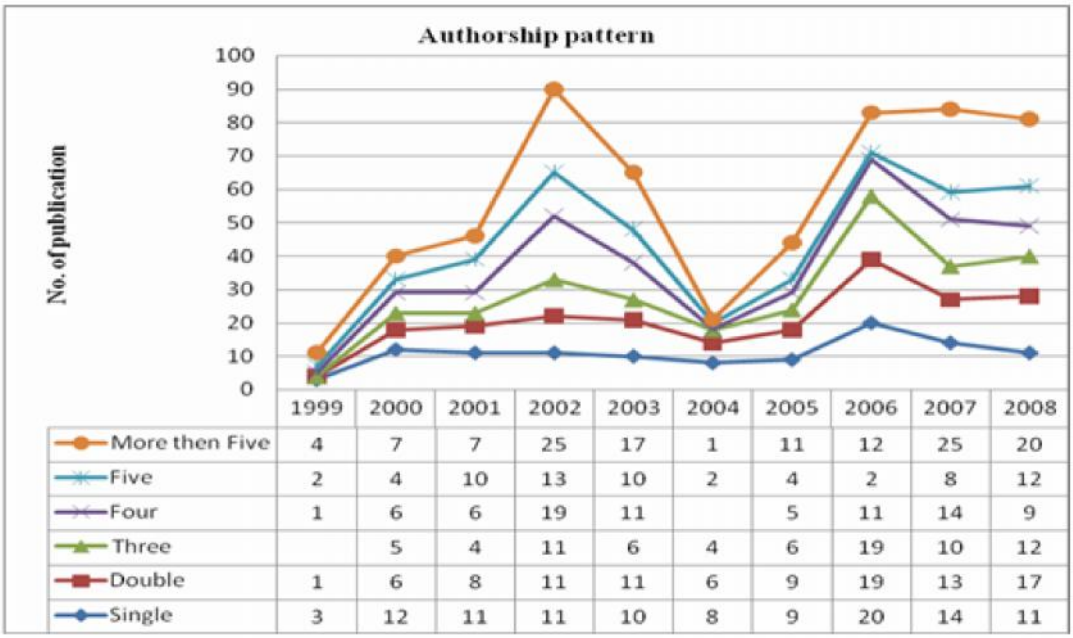
Year	Total Output	Cumulative	W1	W2	R (a)	Mean (a) 1-2	Doubling Time	Mean pt (a) 1-2
1999	13	13	-	2.56	-	-	-	-
2000	48	61	2.56	4.11	1.55	-	0.44	-
2001	49	110	4.11	4.70	0.59	-	1.17	-
2002	91	201	4.70	5.30	0.6	-	1.15	-
2003	59	260	5.30	5.56	0.26	0.75	2.66	1.35
2004	22	282	5.56	5.64	0.08	-	8.66	-
2005	31	313	5.64	5.74	0.1	-	6.93	-
2006	89	402	5.74	5.99	0.25	-	2.77	-
2007	83	485	5.99	6.18	0.19	-	3.64	-
2008	80	565	6.18	6.33	0.15	0.15	4.62	5.32
Total	565	-	-	-	-	0.90	-	6.67

Figure 3 indicated the authorship pattern in Gender Research. In 1999, more than five author contribution was four, five author contribution was two, four author contribution was one, and double author contribution was one and single author contribution was three. In the year 2000, single author contribution was 12, more than five author contribution occupies second, six contributions by double and four authors. Three author contribution five, five authors contribution only four.

In the year 2001, single author contribution is 11, five author contribution is 10, six contributions, two authors contribution eight, more than five authors contribution is seven, four author contribution six, three authors' contributions is four. In the year 2002, more than five author contributions was 25, four author contribution was 19, five author contribution was 13, 11 contributions by single, two, and three authors.

In the year 2003, more than five author contribution was 17, 11 contributions by four and two authors, five and single author contribution was 10, three author contributions only six. In the year 2004, single author contribution was in the first place, two author contribution was six, three author contributions was four, five author contribution was two, more than five author contribution was only one.

In the year 2005, more than five author contribution was eleven, nine contributions by single and two author, three author contributions was six, four author contribution was five , five author contribution was four. In the year 2006, single author contribution is first place, double and three author contribution was 19, more than five author contribution was 12, four author contributions was 11, and five author contribution was two.



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
More then Five	4	7	7	25	17	1	11	12	25	20
Five	2	4	10	13	10	2	4	2	8	12
Four	1	6	6	19	11		5	11	14	9
Three		5	4	11	6	4	6	19	10	12
Double	1	6	8	11	11	6	9	19	13	17
Single	3	12	11	11	10	8	9	20	14	11

Fig. 3 Authorship pattern in gender study

In the year 2007, more than five author contribution 25, single and four authors contributions 14, double authors' contributions 13, three authors contribution 10, five authors contribution 8. In the year 2008, more than five author contribution 20, double authors' contributions 17, three and five authors contributions 12, single authors contribution 11, four authors contribution 9.

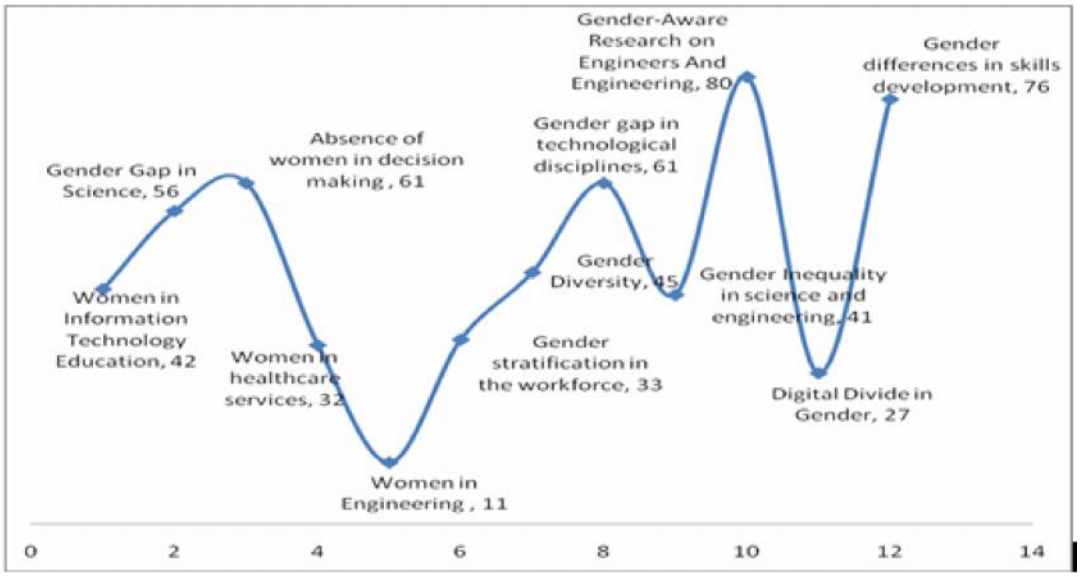


Fig. 4 Gender-wise research output during the study period

Figure 4 shows gender-wise study in Asian countries. 80 papers have been published Gender-Aware Research on Engineers and Engineering, 76 papers have been published on Gender differences in skills development, 61 papers on Absence of women in decision making, and Gender gap in technological disciplines themes, 56 research papers are on gender gap in science, 45 papers on Gender Diversity, 42 research papers published on Women in Information Technology Education, 41 research papers published on Gender Inequality in Science and engineering, 33 papers published on Gender stratification in the workforce, 32 papers published on Women in healthcare services, 27 papers published on Digital Divide in Gender, only 11 papers have been published on Women in Engineering.

9. CONCLUSION

It is due to the pivotal place of journals as a medium of scientific communication than any other form of publication; majority of the research output published in journals in general. It could be deduced from the discussion that among the study period the research paper publication trend is increasing and digressing. Highest per cent of publication was published in 2002. Very lowest per cent of research papers was published in the year 1999. To conclude from the study, multi authored contributions is high compare to single authorship pattern. More papers were published on the theme of Gender-Aware Research on Engineers and Engineering. It's evident that Asian countries have developed on engineering and technology field.

REFERENCES

[1] D.S. Price, "Little science, Big Science", New York: Columbia University Press, 1963.

[2] Michael J. Gallivan and Raquel Benbunan-Fich, "Examining the Relationship between Gender and the Research Productivity of IS faculty", Association for Computing Machinery, New York, USA, 2006.

[3] Takako Sodei, "A Comparative Study of the Research Conditions of Women Scientists and the Present States of Women's/Gender Studies in Asian Countries Toward the Sustainable Development", The Fifth Conference of the Science Council of Asia (SCA), May 11-13, 2005 in Hanoi, Women's Policy Office, Government of Newfoundland and Labrador. (Undated) Facilitator's Guide, Gender Inclusive Analysis…..An Overview.St. John's, NF, 2005.

[4] Mehrnoush Mozaffarian and Hamid R. Jamali (2008), "Iranian Women in Science: A Gender Study of Scientific Productivity in an Islamic Country", Aslib Proceedings: New Information Perspectives, Vol.60, No. 5, 2008, pp.463-473.

[5] Atinmo (2002), Gender and Authorship Patterns in an African Librarianship Journal, 1991-1997, Library Review, Vol. 51, No. 9, 2002, pp:458-463.

[6] Anegon *et. al.* (2007), Scientific Output by Gender in Spain (Web of Science, 2004), www.scimago.es/benjamin/ISSI-2007.pdf (accessed May 21, 2010)

Use of E-resources by the Members of Faculty in Agricultural Science in Tamil Nadu: A Study

D. Sankaranarayanan and M. Nagarajan
Department of Library and Information Science, Annamalai University, Annamalai Nagar - 608 002, Tamil Nadu
E-mail: shankarannamalaiuniv@gmail.com
(Received on 01 August 2010 and accepted on 15 October 2010)

Abstract

This study is undertaken with an objective to ascertain as to what extent e-resources are being used in agricultural colleges environment. This paper describes the use of e-resources by faculty members in Agricultural Science in Tamilnadu. The faculty members use e-resources for their research purpose. According to the survey 47.81% respondents use Google search engine and time saving is the main benefit of using e-resources (32.05%).

Keywords: *Agricultural Sciences, E-Resources*

1. INTRODUCTION

One of the major developments in Library and Information System in the past two decades is the advent and spread of electronic information resources and services mainly as a result of development in Information and Communication Technologies (ICT). The commonly available electronic information sources are journals, e-resources, blogs, i.e. mail, discussion lists, news groups, external catalogue and the internet. The rapid growth of electronic information resources has indeed changed and still changing the information seeking behaviour of the academic community to support the effective use of these electronic information resources. Retrieving information will have a profound impact especially on the quality of research output by the faculty members.

2. OBJECTIVES

The main objectives of the study are:

i. To determine the frequency of e-resources usage.
ii. To know the purpose for which the agriculture academic community is using E-resources.
iii. To identify the search engine which is being visited often to find information.
iv. To find out the time spent by the faculty members for using e-resources.
v. To examine the benefits of using e-resources.
vi. To find out the types of e-resources used.
vii. To determine the place of using e-resources.

3. METHODOLOGY

Many methods and techniques are available for data collection. Among them Questionnaire Survey method is found to be very useful technique for collecting data. The researcher has distributed 779 questionnaires to the faculty members of the Agriculture Colleges in Tamilnadu. However, the investigator received responses from the 730 faculty members only. The analysis and interpretation of the data is presented in the following paragraphs.

4. DATA ANALYSIS AND INTERPRETATION

Data presented in Table 1 shows clearly the entire population and the sample size of the respondents under the study. It is observed from the study that there are totally 779 faculty members. Questionnaire were distributed to all the faculty members. Out of 779 respondents, 730 have returned the filled in questionnaire which amount to 93.71 %.

Table 1 Designation-wise Distribution of Questionnaires

Designation	Total Population	Questionnaires Distributed	Total Respondents	%
Professor	323	323	298	38.25
Associate Professor	159	159	150	19.26
Assistant Professor	297	297	282	36.20
Total	779	779	730	93.71

Table 2 Distribution of Respondents Frequency of Using E-Resources

Profession	More than Once in a Week	Once in a Week	Once in a Month	Less than Once in a Month	Once in Fortnight	Total
Professor	202 (27.67)	58 (7.95)	20 (2.74)	10 (1.37)	8 (1.10)	298 (40.82)
Associate Professor	83 (11.37)	32 (4.38)	18 (2.47)	11 (1.51)	6 (0.82)	150 (20.55)
Assistant Professor	143 (19.59)	59 (8.08)	46 (6.30)	22 (3.01)	12 (1.64)	282 (38.63)
Total	428 (58.63)	149 (20.41)	84 (11.51)	43 (5.89)	26 (3.56)	730 (100)

The distribution of faculty members according to their frequency of using the e-resources shown in Table 2. It is evident from Table 2 that 58.63% of the faculty members are using the e-resources more than once in a week, 20.41 % once in a week, 11.51% once in a month, 5.89 % less than once a month and the remaining 3.56% once in fortnight. Hence, it can be concluded that most of the faculty members are using the e-resources more than once a week.

Table 3 Distribution of Respondents Time spent for Using E-resources

Designation	One Hour in a Week	2-4 Hours in a Week	5-7 Hours in a Week	8-10 Hours in a Week	Between 10-20 Hours in a Week	Total
Professor	34 (4.66)	81 (11.09)	92 (12.60)	61 (8.36)	30 (4.10)	298 (40.82)
Associate Professor	24 (3.29)	41 (5.62)	52 (7.12)	23 (3.15)	10 (1.37)	150 (20.55)
Assistant Professor	31 (4.25)	105 (14.38)	114 (15.61)	24 (3.29)	8 (1.09)	282 (38.63)
Total	89 (12.19)	227 (31.09)	258 (35.34)	108 (14.80)	48 (6.57)	730 (100)

Table 3 shows that 89 (12.91%) respondents spent their time about one hour in a week to access information from e-resources, 227 (31.09%) 2-4 hours in a week, 258 (35.34%) 5-7 hours in a week, 108 (14.80%) 8-10 hours in a week and 48 (6.57%) respondents use e-resources between 10-20 hours in a week. From the study, it is concluded that 258 (35.34%) respondents spent 5-7 hours in a week to access information from e-resources.

Data presented in Table 4 shows that opinion about the purpose of using e-resources. It is clearly observed from the table that, 191 (26.16%) respondents have used e-resources for their research purpose, 153 (20.96%) respondents have used e-resources for their teaching, 182 (24.93%) respondents have used e-resources for publishing articles, 137 (18.77%) respondents have used e-resources for keeping up-to-date and 67 (9.18%) respondents have used for finding relevant information.

Table 4 Distribution of Respondents Purpose of Using E-Resources

Profession	Research	Teaching	Publishing Articles	Keeping Up to Date	Finding Relevant Information	Total
Professor	98 (13.42)	34 (4.66)	74 (10.14)	62 (8.49)	30 (4.11)	298 (40.82)
Associate Professor	45 (6.16)	35 (4.79)	44 (6.03)	14 (1.92)	12 (1.64)	150 (20.55)
Assistant Professor	48 (6.58)	84 (11.51)	64 (8.77)	61 (8.36)	25 (3.42)	282 (38.63)
Total	191 (26.16)	153 (20.96)	182 (24.93)	137 (18.77)	67 (9.18)	730 (100)

It is clearly observed from the above discussion that most of the respondents are using e-resources for their research work followed by publishing articles.

The data on the search engines used of the respondents are presented in the Table 5. The completed data in the table indicates that out of 730 respondents, 349 (47.81%) respondents have used Google, 106 (14.52%) respondents have used Altavista, 192 (26.30%) respondents have used Yahoo, 63 (8.63%) respondents have used MSN and 20 (2.74%) respondents have used others. It is clearly observed from the above discussion that majority of the respondents have used Google.

Table 5 Distribution of Respondents Search Engines Used

Profession	Google	Altavista	Yahoo	MSN	Anyother	Total
Professor	148 (20.27)	38 (5.21)	86 (11.78)	22 (3.01)	04 (0.55)	298 (40.82)
Associate Professor	70 (9.59)	28 (3.84)	35 (4.79)	10 (1.37)	07 (0.96)	150 (20.55)
Assistant Professor	131 (17.95)	40 (5.48)	71 (9.73)	31 (4.25)	09 (1.23)	282 (38.63)
Total	349 (47.81)	106 (14.52)	192 (26.30)	63 (8.63)	20 (2.74)	730 (100)

Table 6 Distribution of Respondents Benefits of Using E-Resources

Profession	Time Saving	Easy to Use	Easy to Locate	More Informative	Most Preferred	Total
Professor	90 (12.33)	84 (11.51)	62 (8.49)	32 (4.38)	30 (4.11)	298 (40.82)
Associate Professor	47 (6.44)	38 (5.21)	29 (3.97)	24 (3.29)	12 (1.64)	150 (20.55)
Assistant Professor	97 (13.29)	64 (8.77)	48 (6.58)	49 (6.71)	24 (3.29)	282 (38.63)
Total	234 (32.05)	186 (25.48)	139 (19.04)	105 (14.38)	66 (9.04)	730 (100)

The distribution of faculty members according to their benefits of using e-resources is shown in Table.6. It is evident from Table 6 that 32.05 % of the faculty members have expressed that using e-resource is time saving; 25.48% have expressed that easy to use, 19.04% have reported that easy to locate, 14.38 % have expressed that more informative and the remaining 9.04% have expressed that more preferred. Hence, it can be concluded that most of the faculty members have reported that using e-resource is time saving.

The details of the various types of e-resources used are presented in Table 7. It is observed from the table that 170 (23.29%) faculty members use e-journals, 73 (10.00%) faculty members use e-books, 119 (16.30%) faculty members use online database, 66 (9.04%) faculty members use on line thesis, 67 (9.18%) faculty members use online newspapers, 60 (8.22%) faculty members use online Magazines, 70 (9.59%) faculty members use website information, 59 (8.08%) faculty members use CD, 18 (2.47%) faculty members use library catalogue and the remaining 28 (3.84%) faculty members use others. Hence, it can be concluded that most of the faculty members (23.29%) use e-journals.

Table 7 Distribution of Respondents Types of E-Resources used

Designation	E-Journals	E-Books	Online Date Base	Online Thesis	Online News Papers	Online Magazines	Website Information	CD	Library Catalogue	Others	Total
Professor	70 (9.59)	26 (3.56)	45 (6.16)	24 (3.29)	28 (3.84)	34 (4.66)	32 (4.38)	21 (2.88)	8 (1.10)	10 (1.37)	298 (40.88)
Associate Professor	40 (5.48)	13 (1.78)	32 (4.38)	10 (1.37)	18 (2.47)	7 (0.96)	9 (1.23)	72 (1.64)	3 (0.41)	6 (0.82)	150 (20.55)
Assistant Professor	60 (8.22)	34 (4.66)	42 (5.75)	32 (4.38)	21 (2.88)	19 (2.60)	29 (3.97)	26 (3.56)	7 (0.96)	12 (1.64)	282 (38.62)
Total	170 (23.29)	73 (10.00)	119 (16.30)	66 (9.04)	67 (9.18)	60 (8.22)	70 (9.59)	59 (8.08)	18 (2.47)	28 (3.84)	730 (100)

5. FINDINGS OF THE STUDY

The following are the major findings of the study:

i. It is found from the study that maximum number of respondents (58.63%) using the e-resources more than once a week.

ii. It is evident from the data that 26.16 % of respondents have used e-resources for their research purpose.

iii. It is clearly observed from the data that 23.29 % of respondents have used e-journals followed by online data base (16.30%).

iv. Google (47.81%) has got the higher number of responses as the best search engine for finding required information.

v. It is evident from the data that maximum number of respondents (32.88%) are using e-resources at department.

vi. It is also found that most of the faculty members (32.05%) have reported that saving time is the main benefit of using e-resources.

vii. From the study, it is concluded that 258 (35.34%) respondents spent 5-7 hours a week for accessing information from e-resources.

6. CONCLUSION

E-resources are playing a vital role in the present day society. It is the prime duty of the authorities concerned to select relevant e-resources for the benefits of the user community.

REFERENCES

[1] B.G. Kannappanavar and H.M.Chidananda Swamy, "User Perception and Opinion towards the Audio and Visual Services in Agricultural Science University Libraries in India with Special Reference to South India: An Evaluative Study" Indian Journal of Library and Information Science, Vol.3. No.2, 2005, pp.109-116.

[2] B.D. Kumbhar, Mallinath and N. Vasuntha Raju, "Use of Internet in Engineering Colleges of three Districts of Karnataka State: A Study, ILA Bulletin, Vol.43, No.1, 2007, pp.13-18.

[3] K.M. Krishna, "User Retrieval Problems During Searching of Specific Information Through Internet, Study Analysis", SRELS Journal of Information Management, Vol.44, No.1, 2007, pp.77-82.

[4] H. Lyer, "Electronic Resources: Use and User Behaviour", Reference Librarian, Vol.60, 1998, pp.1-77.

Implementation of NPTEL Materials Using Open Source Software: A Study

M. Tamizhchelvan
Central Library, Sri Krishna College of Engineering and Technology, Kuniamuthur, Coimbatore - 641 008, Tamil Nadu
Email: tamizhchelvan@hotmail.com
(Received on 09 November 2010 and accepted on 05 May 2010)

Abstract

This article discusses the implementation of National Programme on Technology Enhanced Learning (NPTEL) materials in an engineering college library using Greenstone Digital Library Open Source Software. The various digital resources are made available to members of faculty and student community in the college have been organized in a way that can be easily retrieved.

Keywords: *Digital Library, GSDL, NPTEL, Open Source Software*

1. INTRODUCTION

In digital era, Libraries around the world are facing an information revolution. The Information, Communication and Technology (ICT) has spread over all the fields like the Sun which penetrates its rays to all nuke and corner of the world. The ICT has made the professionals to keep themselves abreast of the changing times. Library is a source of information for people from all walks of life. The role of librarians was that of knowledge manager, who acquired and collected, stored, catalogued and retrieved the printed materials as and when required by users according to their needs. From acquisition of books to choosing their media for storage, the role has changed completely for librarians while the content development have become an integral part of a librarian as they are looked upon as someone who provides the link between the organization and its users. But, this traditional role has seen a sea change in the last decade or so, due to the growth and advent of communication and technology. The librarians who were more of knowledge managers have moved from that role to become more of service providers. An attempt has been made in this article to describe the implementation of NPTEL digital materials, using Open Source Green Stone Digital Library Software.

2. OPEN SOURCE SOFTWARE: AN OVERVIEW

The term "Open Source Software" has captivated the popular vocabulary of computer enthusiasts since 1998 when the Open Source Initiative drafted the term in favor of its prior incarnation as "free software" under the Free Software Foundation. Since then, the Open Source Initiative has become a certification group to Open Source Software" under a commonly agreed upon definition (Open Source Initiative 2003). Despite these measures, most computer users remain unaware of the existence and meaning of open source software. There is general confusion regarding differences among open source, freeware, shareware, and public domain software licenses due to a historical preoccupation with freedom from cost. It is chiefly for these reasons that clarification is in order [1].

The Basic Definition is:

i. The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources.
ii. The program must include source code and must allow distribution in source code as well as compiled form.
iii. The license must allow modifications and derived works must allow them to be distributed under the same terms as the licence of the original software.
iv. The licence may restrict source code from being distributed in modified form only if the license allows the distribution of patch files with the source code for the purpose of modifying the program at build time [2].
v. The licence must not discriminate against any person or group of persons.

vi. The licence must not restrict anyone from making use of the program in a specific field of endeavor.
vii. The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.
viii. The licence must not be specific to a product.
ix. The licence must not contaminate other software by placing restrictions on any software distributed along with the licenced software.

3. OPEN SOURCE SOFTWARE AVAILABLE FOR DIGITAL / ELECTRONIC LIBRARY

There are several open sources software available over the internet. The following are a few remarkable open source softwares.

i. CdsWare (http://cdsware.cern.ch)
ii. Dienst (http://www.cs.cornell.edu/cdlrg/dienst/DienstOverview.htm)
iii. DeSpace (http://www.dspace.org/)
iv. Eprints (http://www.eprints.org/download.php)
v. Fedora (http://www.fedora.info/)
vi. Greenstone (http://www.greenstone.org/english/home.html)
vii. Roads (http://www.roads.lut.ac.uk/)
viii. SiteSearch (http://www.sitesearch.oclc.org/)

4. GREENSTONE DIGITAL LIBRARY (GSDL)

Greenstone[3] Digital Library is an open source software developed by the New Zealand Digital Library Project at the University of Waikato, and distributed in cooperation with UNESCO and the Human Info NGO. It is merely open-source software available under the terms of the GNU General Public License. The software can run on both platform either Windows or Linux operating system. It requires Perl Software in the local system to build up the collection.

Greenstone is a comprehensive system for constructing and presenting collections of thousands or millions of documents, including text, images, audio and video. Sample collections are accessed through the internet, on a self-installing Windows/CD-ROM. Compression is used to compact the text and indexes.

The New Zealand Digital Library (nzdl.org) provides many example collections, including historical documents, humanitarian and development information, technical reports, bibliographies, literary works and magazines.

Greenstone is widely used software system for digital libraries and prospective users sometimes wonder which one to adopt. The Greenstone Librarian Interface is a tool for collecting and marking up documents, and then building digital library collection. It provides library software's functionality from a graphical and click interface.

5. EDUCATION PROGRAMMES IN INDIA

India's educational programme reached a mile stone by launching "EDUSAT" in the year 2005. It was brought up with full-fledged Tele-education. It establishes connectivity between urban educational institutions with adequate infrastructure imparting quality education and the large number of rural and semi-urban educational institutions without sufficient infrastructure.

i. In some of the Indian Universities, TV telecasting and radio broadcasting are commonly used in distance learning. Recently, distance education courses are also being conducted through video-conferencing [4].
ii. Ministry of Human Resource Development (MHRD) and the Department of Indian Space Research Organization (ISRO) has jointly implemented the program called 'EDUSAT' through the following institutions:

a. IGNOU (Indira Gandhi National Open University) Nodal Institution
b. AICTE (All India Council for Technical Education)
c. ICAR (Indian Council of Agricultural Research)
d. NCERT (National Council of Educational Research and Training)
e. UGC (University Grants Commission)

6. NATIONAL PROGRAMME ON TECHNOLOGY ENHANCED LEARNING (NPTEL)

National Programme on Technology Enhanced Learning (NPTEL) [5] is another milestone to e-learning. The main objective of NPTEL program is to enhance the quality of Engineering Education in the country by developing curriculum based video and web

science and humanities have been developed. Each course contains materials that can be covered in depth in 40 or more lecture hours. In addition to these, 110 courses have been developed in video format and each course comprising of approximately 40 hours lectures. In the next phase, other premier institutions are also likely to participate in content creation.

At present the following NPTEL Courses are offered:

i. Basic Courses (Semesters I & II)
ii. Civil Engineering
iii. Computer Science & Engineering
iv. Electrical Engineering
v. Electronics & Communication Engineering
vi. Mechanical Engineering
vii. Ocean Engineering
viii. Biotechnology

7. INFRASTRUCTURE OF SKCET LIBRARY

Sri Krishna College of Engineering and Technology (SKCET) was established in the Golden Jubilee year of Indian Independence – 1998. The Library, which is a hallmark of our Institution, is housed in a separate fully air-conditioned building with 55,000 sq.ft built up area. Its collection has crossed over 40,000 books within the shortest span of time (nine years). It subscribes to 708 outstanding National and International Periodicals. It has a good collection of CDs and Floppies on various fields. Our major aim is to serve the needs of the faculty members, research scholars and students. It subscribes to various online journals and magazines to facilitate the users in acquiring advanced knowledge in their own fields. It is kept open from 8.15 am to 9.00 pm on all working days and 9.30 am to 5.00 pm on Sundays.

The library has three servers, one is IBM Server for library automation, the second one is Dell server for Digital library software and library intranet website and third one is Dell data server for keeping all bulky data storage server. Digital section has 65 computer systems upgraded with latest core 2 Duo systems with high end graphics card and 19" TFT monitors for browsing the internet. Digital library is equipped with multimedia and web cam facility.

8. DIGITAL COLLECTION IN SKCET LIBRARY

Sri Krishna College of Engineering and Technology library has been providing various digital contents since 2005. The various collections are Audio, Clippings, Photo gallery, In-house publications, Question bank, Lecture notes, Current Content, Syllabus etc. The digital materials are acquired or copied from internet and sometimes prepared by faculties, and library staff members.

These digital collections such as syllabus, which scanned in optical character reader and converted into pdf file, lecture notes for every subject prepared by the faculty members, old question papers are scanned locally and made them available within the campus. There is another important digital collection is free video contents and web content prepared by NPTEL, Government of India. The same can be searched and archived in the digital library through internet / intranet. The screen shots of the materials are shown below.

Fig. 1 SKCET digital library home page

The home page for digital library is shown in the Figure1. One can reach the homepage by giving URL http://165.165.80.80/lib within the college campus. This screen contains certain links such as Audio, Clippings, Photo gallery, In-house publications, Question bank, Lecture notes, Current Content, Syllabus etc. By clinking the CD Storage Server hypertext link in the Figure 1, the screen containing NPTEL collection by course-wise and title-wise will be displayed by choosing course-wise as shown in Figure 2 (collection by course-

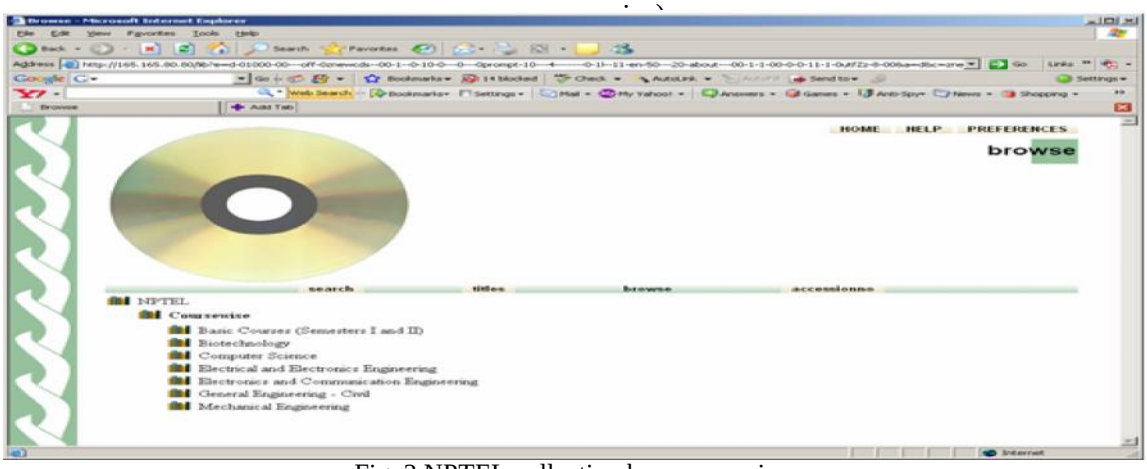


Fig. 2 NPTEL collection by course-wise

By clicking a particular course in Figure 2 the list of lectures in that course along with author of the course will be displayed as shown in the Figure 3. These lectures are hypertext linked to video programme.

SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF LIBRARY
DIGITAL SECTION

NPTEL: Mechanical Engineering
Heat and Mass Transfer

AUTHOR : Prof. N. Gaitonde and Prof. S.P. Sukhatme , IIT Bombay
Lectures 1 to 35

1 - Introduction to Heat and Mass Transfer [50:40]
2 - Introduction [53:08]
3 - Introduction [54:24]
4 - Heat Conduction - 1 [54:42]
5 - Heat Conduction - 2 [52:44]
6 - Heat Conduction - 3 [52:53]
7 - Heat Conduction - 4 [53:33]
8 - Heat Conduction - 5 [53:29]
9 - Heat Conduction - 6 [56:39]
10 - Thermal Radiation - 1 [54:28]
11 - Thermal Radiation - 2 [55:59]
12 - Thermal Radiation - 3 [54:28]
13 - Thermal Radiation - 4 [56:03]
14 - Thermal Radiation - 5 [55:54]
15 - Thermal Radiation - 6 [56:31]
16 - Review Of Fluid Mechanics - 1 [46:48]
17 - Review Of Fluid Mechanics - 2 [55:10]
18 - Forced Convection - 1 [50:40]
19 - Forced Convection - 2 [50:14]
20 - Forced Convection - 3 [51:48]
21 - Forced Convection - 4 [45:51]
22 - Natural Convection - 1 [51:46]
23 - Natural Convection - 2 [52:33]
24 - Natural Convection - 3 [49:41]
25 - Heat Exchangers - 1 [52:02]
26 - Heat Exchangers - 2 [58:19]
27 - Heat Exchangers - 3 [53:09]
28 - Heat Exchangers - 4 [57:50]
29 - Boiling and Condensation - 1 [55:38]
30 - Boiling and Condensation - 2 [55:02]
31 - Boiling and Condensation - 3 [53:03]
32 - Boiling and Condensation - 4 [58:13]
33 - Introduction to Mass Transfer - 1 [50:43]
34 - Introduction to Mass Transfer - 2 [49:18]
35 - Introduction to Mass Transfer - 3 [56:54]

Fig. 3 Video lectures with hypertext linked page

The other links show in the Figure 1 can be accessed the same way as explained above. The following Figures show the NPTEL web content page screen shots. (Figure 4 to 6)

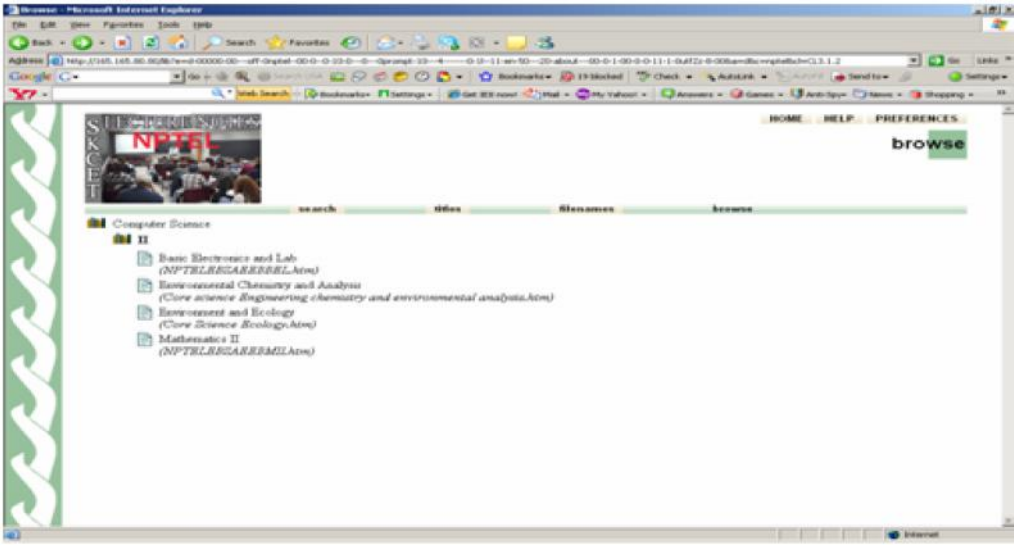


Fig.4 NPTEL web content browse page

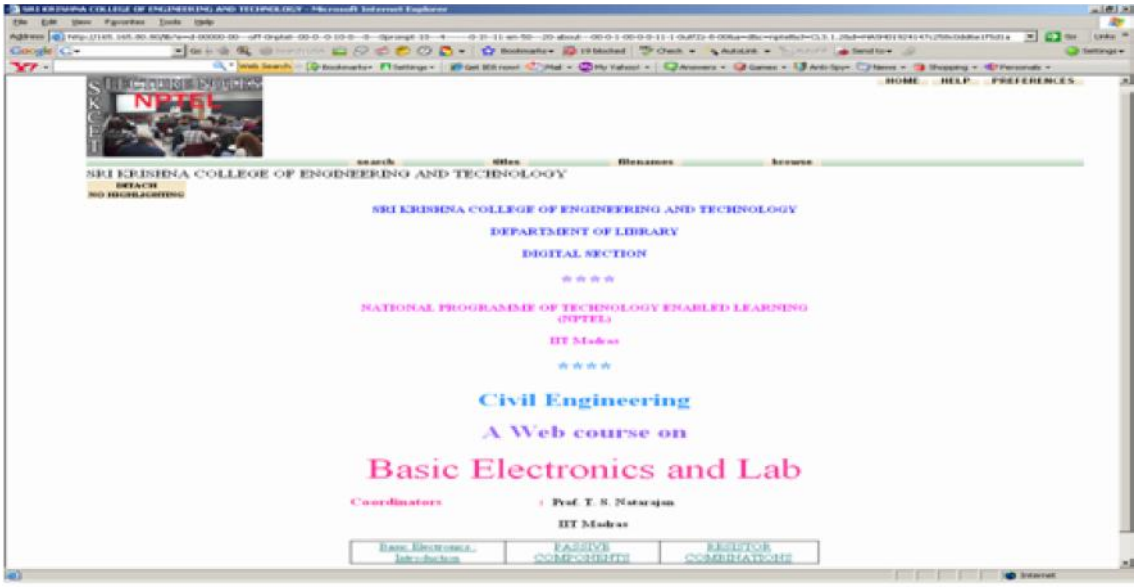


Fig. 5 NPTEL web content page

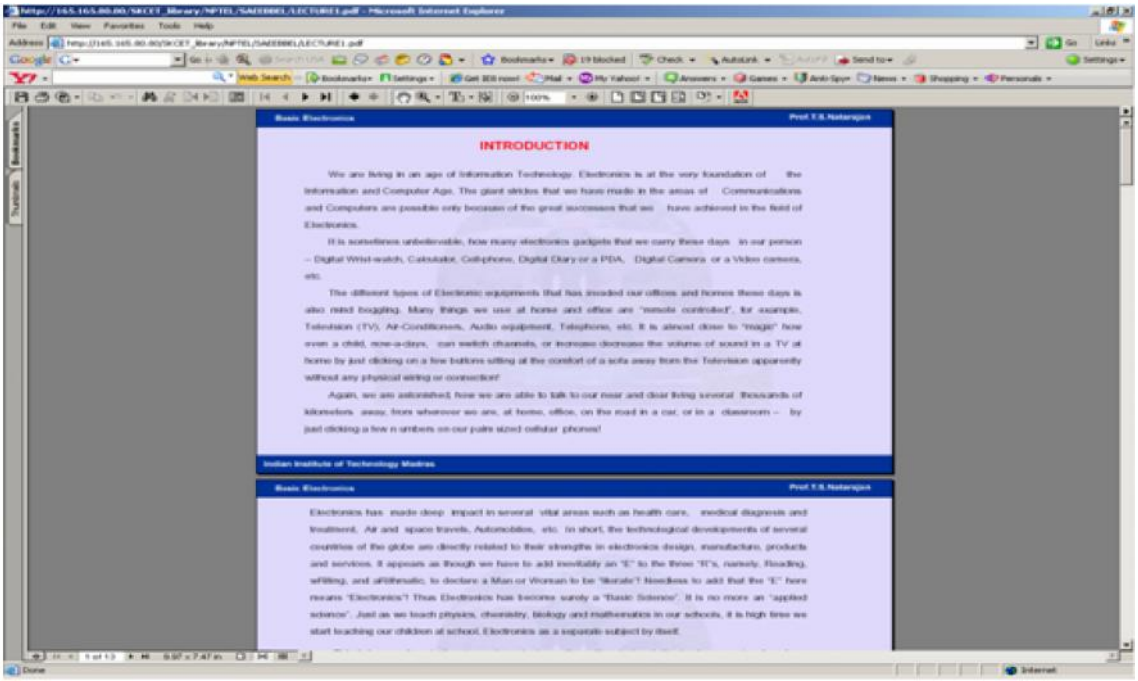


Fig. 6 PDF display content of NPTEL web

9. CONCLUSION

People recollect what they read, hear and see depending upon the human remembrance. People remember 50% of what they hear and see, so video content materials definitely reach the student community. The aim of the article is to utilize the open source software to include any kind of digital material. Librarians should be aware of the options of Open Source Software provides. So, Librarians and the students of library science should be more computer literate. The various open source software provides different services which should be properly utilized.

REFERENCES

[1] Eric Lease Morgan, “Open Source Software in Libraries”, In Open Source Software for Libraries, LITA, Chicago, 2002.

[2] Daniel Chudnov, “Open Source Software: The Future of Library Systems”, Library Journal, 1999, pp. 40-43.

[3] Greenstone Digital Library http://www.greenstone.org.

[4] M. Tamizhchelvan and A.C. Ganesh, “Taking Education to Home the E-way”, LIST 2006: National Conference on Emerging Challenges in the Knowledge Society, Bishop Heber College,Tiruchi, India, 17-18 March 2006.

[5] National Programme on Technology Enhanced Learning(NPTEL) Home http://nptel.iitm.ac.in.

E-mail Use Behaviour among the Users in Engineering Colleges of Puducherry: A Study

R. Ramesh, K. Praveen and M. Nagarajan
Department of Library and Information Science, Annamalai University, Annamalai Nagar- 608 002, Tamil Nadu
E-mail: umaramesh123@gmail.com

(Received on 16 August 2010 and accepted on 15 October 2010)

Abstract

Internet has made a tremendous impact on the means of communication. It acts as a powerful supplement to the traditional ways of communication and is the fastest means of communication. E-mail (electronic mail) is the exchange of computer-stored messages by telecommunication. E-mail was one of the first uses of the Internet and is still the most popular use. A large percentage of the total traffic over the Internet is e-mail. This paper aims to study the e-mail use behaviours among the users in Engineering Colleges of Puducherry. The simple percentage and one way ANOVA are used to analyze the data.

Keywords: *E-mail Use Behaviour, Engineering Colleges*

1. INTRODUCTION

Internet has made a tremendous impact on the means of communication. It acts as a powerful supplement to the traditional ways of communication and is the fastest means of communication . E-mail (electronic mail) is the exchange of computer-stored messages by telecommunication. E-mail messages are usually encoded in ASCII text. However, one can also send non-text files, such as graphic images and sound files, as attachments sent in binary streams. E-mail was one of the first uses of the Internet and is still the most popular in use. A large percentage of the total traffic over the Internet is e-mail. E-mail can also be exchanged between online service provider users and in networks other than the Internet, both public and private. This paper aims to study the use of e-mail among the users in engineering colleges of Puducherry.

2. OBJECTIVES OF THE STUDY

The main objectives of the study are

i. To find out the percentage of respondents who own e-mail address
ii. To find out the respondents frequency of using e-mail
iii. To find out the most commonly used e-mail browser
iv. To find out if there is any significant difference between institution wise respondents with regard to frequency of using e-mail, most commonly used e-mail browser
v. To find out if there is any significant difference between male and female respondents with regard to frequency of using e-mail, most commonly used e-mail browser

3. HYPOTHESES

i. There is no significant difference between institution wise respondents with regard to frequency of using e-mail, most commonly used browser
ii. There is no significant difference between male and female respondents with regard to frequency of using e- mail and most commonly used browser.

4. METHODOLOGY

For the purpose of data collection the researcher has framed a questionnaire containing various aspects of e- mail usage and collected the information directly from the users. Total percentage analysis and institution wise percentage analysis are used to analyse the data. One way ANOVA is used for further discussion

The sample for the study consists of 1330 respondents from seven engineering colleges of Puducherry region.

Table 1 Sample of the Study

College	Number of Respondents	%
Puducherry Engineering College	296	22.25
Ganesh Engineering College	66	4.96
Rajiv Gandhi Engineering College	224	16.84
Christ Engineering College and Technology	214	16.09
SJS Paul Engineering College	205	15.41
Manukula Vinayagar Engineering College & Technology	108	8.12
Manukula Vinayagar Engineering College	217	16.31
Total	1330	100

Table 2 Gender-wise Distribution of the Respondents

Gender	No. of Respondents	%
Male	885	66.54
Female	445	33.46

Table 3 Analysis of the Data Institution-wise Respondents Showing the Percentage of Respondents who Own E- Mail Address

College	N	E-mail address			
		Yes	%	No	%
Puducherry Engg. College	296	241	81.42	55	18.58
Ganesh Engg. College	66	56	84.85	10	15.15
Rajiv Gandhi Engineering college	224	184	82.14	40	17.86
Christ Engineering college and Technology	214	162	75.70	52	24.30
SJS Paul Engineering college	205	159	77.56	46	22.44
Manukula Vinayagar Engg. College& Technology	108	90	83.33	18	16.67
Manukula Vinayagar Engg. College.	217	191	88.02	26	11.98
Total	1330	1083	81.43	247	18.57

Table 4 Gender-wise Distribution of Respondents who Own E- mail Address

Gender	N	E-mail Address		E-mail Address	
		Yes	%	No	%
Male	885	660	74.58	225	25.42
Female	445	423	95.06	22	4.94
Total	1330	1083	81.43	247	18.57

It is clear from Table 4 that out of 1330 respondents from seven engineering colleges, 1083 (81.43%) have their own e-mail addresses and 247 (18.57%) still don't possess e- mail addresses.

From Table 4, it is obvious that out of 1330 respondents from 7 engineering colleges, 660 (74.58%) male and 423 (95.06%) female respondents are having their own e-mail address. 225 (25.42%) male and 22 (4.94%) female respondents still don't have their e-mail address.

Table 5 Institution-wise Respondent's Frequency of Using E-mail

College	N	Daily	%	Twice a week	%	Once a week	%
Puducherry Engg. College	241	159	65.98	64	26.56	18	7.47
Ganesh Engg. College	56	8	14.29	27	48.22	21	37.50
Rajiv Gandhi Engineering college	184	47	25.54	91	49.46	46	25.00
Christ Engineering college and Technology	162	63	38.89	73	45.06	26	16.05
SJS Paul Engineering college	159	44	27.67	96	60.37	19	11.95
Manukula Vinayagar Engg. college& Technology	90	5	5.56	38	42.22	47	52.22
Manukula Vinayagar Engg. College.	191	125	65.45	54	28.27	12	6.28
Total	1083	451	41.64	443	40.91	189	17.45

From Table 5, it is seen that out of 1083 respondents who have e-mail addresses 451 (41.64%) respondents use e-mail daily, 443 (40.91%) respondents use e-mail twice a week, 189 (17.45%) use e-mail once a week. Among seven engineering colleges, 65.98% Puducherry Engineering college respondents are using e-mail daily, 60.37% SJS Paul Engineering college respondents are using e- mail twice a week and 52.22% of Manukula Vinayagar Engg college and Tech respondents are using e- mail once a week. For further analysis, one way ANOVA is used.

Source	SS	DF	MS	F	P	F critical
Between Gr	7874.48	6	1312.41	0.78	0.60	2.85
Within gr	23664.67	14	1690.33			
Total	31539.14	20				

The F value 0.78 is less than the F critical value at .5 level and so there is no significant difference between the institutions-wise respondents and hence the hypothesis is accepted with regard to frequency of using e- mail among the institution-wise respondents .

Table 6 Gender-wise Distribution of Respondents Frequency of Using E- mail

Gender	N	Daily	%	Twice a Week	%	Once a Week	%
Male	660	349	32.22	219	20.22	92	8.49
Female	423	102	9.41	224	20.68	97	8.95
Total	1083	451	41.63	443	40.90	189	17.45

From Table 6 it is inferred that out of 660 male respondents who have e-mail address 349(32.22%) use e-mail daily, 219 (20.22%) use it twice a week, and 92 (8.49%) use it once in two weeks whereas from 423 female respondents 102 (9.41%) use it daily, 224 (20.68%) use twice a week, 97 (8.95%) use e-mail once in two weeks. For further analysis, one way ANOVA is used

The F value 0.86 is less than the F critical value at .5 level and so, there is no significant difference between the male and the female respondents and hence the hypothesis is accepted with regard to frequency of using e- mail with regard to gender.

Table 7 Institution-wise Respondents Most Commonly Used E-mail Browser

College	N	G.mail	%	Yahoo	%	Rediff	%	Hotmail	%
Puducherry Engg. College	241	120	49.79	91	37.75	12	4.97	18	7.46
Ganesh Engg. College	56	20	35.7	15	26.78	10	17.85	11	19.64
Rajiv Gandhi Engineering College	184	70	38.04	56	30.43	30	16.30	28	15.21
Christ Engineering College and Technology	162	73	45.06	41	25.30	22	13.58	26	16.04
SJS Paul Engineering College	159	64	40.25	52	32.70	30	18.86	13	8.17
Manukula Vinayagar Engg. College & Technology	90	35	38.88	23	25.55	12	13.33	20	22.22
Manukula Vinayagar Engg. College.	191	85	44.50	66	34.55	28	14.65	12	6.28
Total	1083	467	43.12	344	31.76	144	13.29	128	11.8

From Table 7, it is obvious that out of 1083 respondents who have e-mail addresses 467 (43.12%) are using g-mail, 344 (31.76%) respondents use Yahoo, 144 (13.29%) use rediff and 128 (11.8%) use hot mail. For further analysis, one way ANOVA has been used.

The F value 1.23 is less than the F critical value at .5 level and so, there is no significant difference between the institutions-wise respondents and hence the hypothesis is accepted with regard to use of e- mail browsers among the institution-wise respondents .

Source	SS	DF	MS	F	P	F critical
Between Gr	5905.857	6	984.3095	1.23	0.33	2.5
Within gr	16766.25	21	798.3929			
Total	22672.11	27				

Table 8 Gender-wise Distribution of Respondents most Commonly Used Browser

Gender	N	Gmail	%	Yahoo	%	rediff	%	Hotmail	%
Male	660	285	26.31	224	20.68	74	6.8	77	7.10
Female	423	182	16.81	120	11.08	70	6.46	51	4.70
Total	1083	467	43.12	344	31.76	144	13.29	128	11.8

From Table 8, it is clear that out of 660 Male respondents, 285 (26.31%) use g-mail, 224 (20.68%) use yahoo mail, 74 (6.8%) use rediff mail, and 77 (7.10%) use Hotmail whereas in the case of female from a total of 423 respondents 182 (16.81%) use g-mail, 120 (11.08%) use yahoo, 70 (6.46%) use rediff and 51 (4.70%) use hotmail. For further analysis, one way ANOVA has been used.

The F value 0.95 is less than the F critical value at .5 level and so, there is no significant difference between the male and female respondents and hence the hypothesis is accepted with regard to using of e- mail browser among male and female respondents.

Source	SS	DF	MS	F	P	F critical
Between Gr	7021.125	1	7021.125	0.95	0. 37	5.59
Within gr	44198.75	6	7366.458			
Total	51219.88	7				

5. FINDINGS

i. 247 (18.57%) respondents still don't have their own e-mail addresses.
ii. When compared to male and female respondents' e- mail addresses it is found that 95.06% female and 74.58% male respondents are having their own e-mail address.
iii. Among seven engineering colleges, Puducherry Engineering College students as respondents use e-mail daily.
iv. Among the total 1083 respondents from 7 engineering colleges, 467 (43.12%) respondents most commonly used e-mail browser is G.mail
v. There is no significant difference between Male and female and institution wise respondents in the frequency of using e- mail.
vi. There is no significant difference between male and female and institution-wise respondents in the most commonly used browser.

6. CONCLUSION

In the 21st century, access to information and knowledge is a critical determinant of the success and sustainability of a nation. Electronic mail is one of the most important and fastest means of communication. From the study, it is found that still some academic community are not using e- mail, they should be motivated to use this fastest means of communication and be benefited by its advantages.

REFERENCES

[1] H. Chu, "E-mail in Scientific Communication", 15th National Online Meeting: Proceedings, Learned Information, New York, 1994.
[2] O.P. Mishra, "Internet Utilization Pattern of Undergraduate Students", University News, Vol.43, No.13, 2005, pp.8 -12
[3] Reneker, "Information Seeking Behaviour Among Members of the Academic Community DLS Thesis, New York, Columbia University, 1992.
[4] Shokeen and Kaushik, "Information Seeking Behaviour of Social Scientists of Haryana Universities", Library herald, Vol.40, No.1, 2002, pp. 8 -11
[5] T. D. Wilson, "On User Studies and Information Needs, Journal of Documentation, Vol.37, No.1, 1981, pp.3 -15.

Application of Information and Communication Technology in Private University Libraries in Ogun-State, Nigeria: A Study

Ahmed Olakunle Simisaye[1], M.O. Salaam[2] and M.O. Quadri[3]
[1&3]Tai Solarin University of Education Library, Ijagun, Ijebu-Ode, Ogun-State,Nigeria
[2]University Library, University of Agriculture, Abeokuta, Ogun-State, Nigeria
E-mail: ayibel65@yahoo.com, Queensalaam51@yahoo.com, quadri_monsur2007@yahoo.com
(Received on 01 September 2010 and accepted on 05 November 2010)

Abstract

The study investigates the application of Information and Communication Technology in private University libraries in Ogun-State, Nigeria. A survey design was used. All the six private University libraries in the State were surveyed and a total sampling techniques was employed. A total of 56 questionnaires were administered to Librarians, System analysts and Senior library officers of these University libraries, forty-three (43) were returned and all found to be useful. The study found out that most of the University libraries surveyed are applying Information and Communication Technology (ICT) in their operations and services, notably in Covenant, Redeemer and Babcock University libraries. In addition, all the libraries have installed library management software and different types of databases have been applied and some ICT-based information services being offered in these libraries. The study further revealed inhibiting factors such as inadequate manpower, funding, infrastructure and training; that hinder libraries surveyed in their bid to apply these new technologies and recommendations were proffered on how more success could be achieved by these libraries in this regard.

Keywords: *ICT, Private University Libraries, Nigeria*

1. INTRODUCTION

Recent development in the information industry has been revolutionary in nature and has affected almost every aspects of human life. Kumar & Kar [1] acknowledged the way the information technology (IT) revolution is sweeping the world and submitted that it is highly unlikely that any sphere on earth will be left untouched by it. Ukodie [2] also agreed that information and Communication technology has proven itself and it has been accepted as engine of 21st century and beyond.

It is obvious that Libraries worldwide have applied information and communication technology (ICT) because it is crystal clear that Libraries can no longer depend on the manual system to fulfill the information needs of their sophisticated users. The need for University Libraries to remain focused and relevant in provision of information resources for the promotion of learning, teaching and research in academic community makes them embrace the application of (ICT) Nigerian Universities that have also followed their counterparts around the world to take advantages and opportunities provided by these new technologies.

According to Abolaji [3], academic library computerization in Nigeria has been in the pipeline since 1970s and concerted efforts with regard to application began in 1990s. Abolaji added that major efforts at computerizing that time were stalled by the supposed lack of funds and expertise. In 1989, the World Bank provided funds to thirty Federal Universities in Nigeria for the acquisition of books, journals and equipment (including computer) to encourage those Universities to open their doors to Information and Communication Technology. Unfortunately, achievements made so far were not significant in the quest of government owned university libraries to apply ICT as shown in various studies which include that of Ogunleye [4] Idowu & Mabawonku [5] Okiy [6] Fatoki [7], and Nok [8].

2. STATEMENT OF THE PROBLEM

As observed from several studies highlighted above, effort by government owned university libraries in Nigeria in application of ICT has been characterized majorly with flops and unsuccessful implementation. Nigeria with population of over 140 million people has

as at 2009, nineteen-three Federal, State and Private Universities [9]. The researchers noted that ever since 1999, when the first set of private Universities were established in Nigeria, there has been dramatic increase in number of this category of universities as Nigeria now has a total of thirty- four private Universities and each having Library to support the academic excellence for which they are established to meet. The actual states of deployment of information and communication technology by Libraries in these private universities have not been investigated in the recent times. This study intends to fill this gap. Perhaps, findings from these private universities may be different or the same with that of universities owned by government. These are some of the questions; this research intends to find answers to.

The area covered by this study i.e. Ogun State, is chosen because it is the State that play host to highest number of private universities among all the thirty six states in Nigeria.

The University libraries under investigation are in the following Universities:

i. Babcock University Ilisan-Remo, Ogun-State. Nigeria.
ii. Covenant University, Ota, Ogun-State, Nigeria.
iii. Bells University of Technology, Ota, Ogun-State, Nigeria.
iv. Redeemer University, Mowe, Ogun-State, Nigeria.
v. Crescent University,Abeokuta, Ogun-State, Nigeria.
vi. Crawford University, Igbesa, Ogun- State, Nigeria.

3. OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

i. To find out library management software that are in use in these private university libraries.
ii. To determine the ICT resources that have been applied in these private universities libraries.
iii. To ascertain databases that have been applied in these libraries.
iv. To investigate sections of library that ICT have been applied to in these private universities surveyed.
v. To find out ICT- based services rendered by these university libraries
vi. To identify factors that inhibit the use of ICT in these private university libraries in Ogun State, Nigeria.

4. LITERATURE REVIEW

Information and Communication Technology is the convergence of computer system with telecommunication network to acquire process, store, retrieve, and transmit data and information. The American Library Association [10] defined ICT as the application of computers and other technologies to the acquisition of information, storage, retrieval, and dissemination of information. Computers are used to process and store data, while telecommunication technology provides information communication tools, which make it possible for users to access databases and link them with other computer networks at different locations.

The term Information and Communication Technology (ICT) is often used interchangeably with Information Technology (IT) encompasses methods and techniques for automated information handling and retrieval. Moll [11] refers to Information Technology to the various technologies which are used in the creation, acquisition storage, dissemination, retrieval, manipulation and transmission of information. In its broader view, IT includes computers, the various telecommunications devices and media, and publishing made in its entirety including broadcasting, the press, micrographics, audio visuals etc. [12].

Information and communication technology encompasses any medium to record information (magnetic disk, tape and optical disks CD/DVD flash and paper record), technology for broadcasting information radio, television and technology for communicating through voice and sound or images microphone, camera, loudspeaker, telephone to cellular phone. It includes the wide variety of computing hard ware (Desktop Computers, Laptops, Servers, Mainframes, Networked Storage [13].

Ever since 1940s, when these new technology came to the fore, Information and Communication Technology has come to redefine the way in which mankind express its creativity in all spheres of its endeavour. It has changed many aspects of our live, and has revolutionized the way and manner we do things.

Libraries, all over the world have imbibed ICT. Aina [14] observes that ICTs have been implemented in information handling and processing because of the increased workload involved in coping with an information explosion. Libraries and information centers started applying ICT when it was obvious that it was increasingly difficult for both librarians and information specialists to cope manually with the organization of this increasing information, with a view to providing required services to their users on demand. Wijayaratne [15] also concurred with this notion, as he voiced out that Librarians can no longer depend on the manual systems to fulfill the needs of their users, who are demanding information in many formats and through many channels with dispatch.

Over the years, libraries have used the traditional manual methods in rendering their services to their clientele. Today, the situation has changed with advent of ICT. According to Oyinloye [16], Information Technology is responsible for the changing role of traditional library setting of handling information packaged in books to that of computer networks dealing with all forms of knowledge. No doubt, ICT has revolutionized information transmission and storage and has brought the globe to the door steps of people. Obasuyi [17] identified six major tasks which ICT could be applied in libraries. These include cataloguing, acquisition, circulation, serial control indexing and administrative duties.

The impact of ICT on library's operations and services cannot be over emphasized. This is because ICT has made significant improvements in many libraries that use them across the world. Libraries are using ICT to automate technical services, to provide efficient reference and information services, to network operations such as cataloging, authority, control, inter-library loan and international bibliographic project [18]. The application of ICT to library operations has made electronic cataloguing and online reference services possible, along with other library operations such as digital information, online access and file transfer, networking and sharing of information resources.

There are a few cases of achievements in the endeavour of Nigerian University libraries to apply Information Technology, such progress was also conspicuously documented in various studies. One of such studies was carried out by Idowu & Mabawoku [5], when they investigated application of information technology in Nigerian Research and University libraries. The study reveals that ICT is used by libraries surveyed for routine activities. The result further indicates that there are various application packages were used by these libraries, with word processing as the most common application; other software programmes in use include TINLIB, Micro CDS/ISIS and D-BASE. Eighteen of the libraries surveyed had CD-ROM facilities installed for use and AGRICOLA was the most common bibliographic databases in use, while only 23% had Local Area Network. The most severe inhibitor to application of ICT according to the study was inadequate funding by the government.

In another related study, Idowu [6] gave some remarkable progress that has been made by Lagos State University (LASU), Nigeria, on application of ICT in the university library. According to her, the library is a hybrid, which includes electronic resources and databases and other print journals. She gave account that the application of the ICT was made easier because the whole campus is on wireless Internet access. Students and staff can access the library from any part of the campus. Large amount of computers have been applied in the library; Management Information Service (MIS) Room and Server and Alice for windows software has been acquired and installed in the library. The library has been computerized to the extent that the OPAC is in use, online library registration of students undertaking, networking of library, E-library established and functioning and the creation of LASU library web-site completed.

5. METHODOLOGY

The study investigates the application of information and communication technology in private Universities Libraries in Ogun State. Descriptive survey design was used for this study. The study made use of total enumeration sampling techniques by surveying all the six private Universities libraries in the State. Questionnaire is the main instrument used for data collection. The questionnaire was personally administered by the researchers to library staff comprising of librarians, system analysts and senior library officers in these University libraries. A total of fifty-eight , questionnaires were administered and forty-

one were returned, that is 73.21% response rate achieved and all returned questionnaires were useful. Data collected were analyzed using frequency counts and percentages. A total of 56 questionnaires were administered to Librarians, system analysts in the six University libraries surveyed. Out of this number, 41 (73.21%) were returned and all were useful.

Table 1 Library Management Software Applied in The Libraries Surveyed

Universities	Software	Remarks
Covenant	Alicefor Windows	-
Babcock	X – Lib	-
Crescent	-	-
Bells	Book Collector	In -House Built
Run	Web Portal	-
Crawford	Kul Mark	In- House Built

The study also revealed the library management software used by these Libraries and the picture is presented in the table below. Covenant uses Alice for Windows, Babcock installs X-Lib, Bell University uses Book collector, (an in -house software) Redeemer uses Web Portal; Crawford has Kulmark, an in -house -built software) which has just been installed. However, Babcock is contemplating changing from X-Lib to Koha Library software.

The study reveals the range of Information and Communication Technology deployed in the University libraries surveyed. The clear picture of these new technologies is depicted in the table above. The (ICT) facilities available include CD Roms, Audio/Video Cassettes, Computers (with Internet), Photocopying Machine, Satellite Television, Television and Telephones. Covenant University Library seem to have edge in the range of ICT deployment as it has the highest number of CD Roms (4000),51% of the total CD Roms in all the private libraries surveyed, audio Cassettes, (500) Computers (70), 26.71% of the total computers in all the libraries, Photocopiers (3), 33.33% The least deployment of ICT is in Crescent University with just 30 CD-Roms four Audio Cassette six Computers and one Photocopying Machine.

Table 2 ICT Applied in the Libraries Surveyed

UNIV.	CD ROMS	%	AUDIO/ VIDEO CASSETTES	%	COMP /INTERNET	%	COPIERS	%	SATELLITE TV	TV	%	TEL
BELLS	844	11.08	10	1.37	70	26.71	1	11.11	1	2	33.33	5
COVE-NANTS	4000	51	500	68.65	70	26.71	2	22.22	1	5	16.66	-
CRESCENT	30	0.38	4	0.54	6	2.29	1	11.11	-	-	-	-
BABCOCK	125	1.59	100	13.71	45	17.17	3	33.33	1	2	33.33	3
RUN	2000	25.50	115	15.77	47	17.93	1	11.11	-	-	-	11
CRAW-FORD	844	10.76	-	-	24	9.16	1	11.11	-	1	16.66	4
Total	**7,843**	**100**	**729**	**100**	**262**	**100**	**9**	**100**	**3**	**10**	**100**	**33**

The Table 3 shows databases that have been applied in the surveyed private University libraries. They include the following:

MARC 11, CD ROMS, EBSCOHOST, ERIC, HINARI, MICROB, SCIENCE DIRECT, INFO, DOAJ, OARE, MEDLINE, AJOL, JSTOR, AGRICOLA, NUC VIRTUAL LIBRARY, MIT OPEN COURSE WARE, HIGH WIRE, QUESTIA AND INFOFINDER. A total of eighteen databases are in use, Babcock University has the highest fourteen of such resources deployed. This was followed by Covenant University with ten databases. Redeemer has nine of such resources; Bells has eight Crawford seven and Crescent has the least with just three resources.

Table 3 Databases Applied in the University Libraries Surveyed.

Universities	Databases	Ranking
Babcock	Marc 11, CD-Roms, Ebscohost, Eric, Hinari, Microb, Science Direct, Info, Doaj, Oare, Medline, Ajol, Jstor, Africola	1
Convenant	Jstor, Eric, Ebscohost, CD-Roms, Hinari, Science Direct, MIT Open Courseware, Agora, Oare, Nuc Virtual Library	2
Redeemer	CD-Roms, Medlin, Ebscohost, Agora, Jstor, Oare, Questia, Science Direct, Eric	3
Bells	Agricola, Medline, Ebscohost, CD-Roms, Hinari, Eric, Science Direct, E-Brary (Brave Content)	4
Crawford	Marcii, Cdroms, Medline, Infofinder, Highwire, Agora, Jstor	5
Crescent	CD-Roms, Oare, Agora	6

In order to determine the databases mostly subscribed and applied in these libraries, ranked order of the frequency of application of databases are presented in the table above. From the table, CD-ROMS is ranked first as it has been applied in all the Libraries surveyed. This was followed by JSTOR, ERIC, EBSCOHOST, AGORA and MEDLINE which are applied in four (4) of these Libraries surveyed by this study. HINARI, OARE are the next in rank of deployment as they are in three Libraries. AGRICOLA and MARC II are only seen in two i.e. (Babcock and Crawford) of these Libraries as shown in the table while High wire, Infofinder are in use in Crescent, Brave content is only applied in Bells University Library and INFO, DOAJ, MICROB are only in use in Babcock University library.

Table 4 Ranked Order of Databases Applied in the Libraries Surveyed

E-Resources	Universities	Frequency	Ranked Order
CD-ROMS	COV, BAB, RUN, CRA, BELLS, CRE.	6	1
JSTOR	COV, BAB, RUN, CRA.	4	2
ERIC	COV, BAB, RUN, BELLS.	4	2
EBSCOHOST	COV, BAB, RUN, BELLS.	4	2
SCIENCE DIRECT	COV, BAB,RUN, BELLS.	4	2
AGORA	COV, RUN, CRA, CRE.	4	2
MEDLINE	BAB, RUN, BELLS, CRA.	4	2
OARE	COV, BAB, CRE.	3	3
HINARI	COV, BAB, BELLS.	3	3
AGRICOLA	BAB, BELLS.	2	4
MARC II	BAB, CRA.	2	4
MIT	COV.	1	5
MICROB	BAB..	1	5
INFO	BAB.	1	5
DOAJ	BAB.	1	5
HIGHWIRE	CRA.	1	5
INFOFINDER	CRA.	1	5
BRAVE CONTENT	BELLS.	1	5
NUC VIRTUAL LIB.	COV.	1	5
QUESTIA	RUN.	1	5

Table 5 Library Sections ICT has been Applied in the Libraries Surveyed

Section	Universities
Administration	COV, BAB, BELLS, RUN, CRA, CRE
Circulation	CON, BAB, BELLS, RUN.
Cataloging	COV, BAB, BELLS, RUN, CRA.
Acquisitions	COV, BAB, BELLS, RUN, CRA
Reference	COV, BAB, RUN, BELLS, CRA.
Serials	COV, BAB, RUN, BELLS, CRA.

The study also reveals sections/units that ICT has been applied in the Libraries surveyed. The findings are presented in the table above. ICT has been applied in performing data processing tasks in all the libraries studied. The new technology has also been applied in circulation, cataloguing, Bibliographic, Serials and References in Covenant, Redeemer, Babcock, Bells and Crawford in various degree as the application is ongoing.

In covenant and Redeemer, ICT has been applied fully in the library traditional service units/sections i.e. Cataloguing, circulation, Bibliographic, Reference and Serials. In Bells, Babcock and Crawford ICT have been applied partially in various sections (in various degree in applications) as the application is ongoing. The only exception where the ICT application is very low in the all sections of the library is in Crescent University as shown in the table above.

Table 6 ICT - Based Information Services in the Libraries Surveyed

Services	Libraries
CD-ROM Searching	BAB, COV,BELLS, CRE CRA, RUN
On-Line Database Searching	BAB, COV, BELLS, CRA. RUN
On-Line Library Registration	BAB, COV, RUN
Internet Services	BAB, COV, BELLS RUN, CRA, CRE
E-book Searching	BAB, COV, BELLS, RUN, CRE, CRA.
On-Line Journal	BAB,COV, BELLS, RUN, CRE, CRA
E-Reference Services	BAB, COV, BELLS, CRE, RUN, CRA
Educational Video Services	COV, CRA, RUN
OPAC Searching	COV, RUN
Reprographic Services	BAB, COV, BELLS, RUN, CRE, CRA.

KEYS:

BAB- Babcock University.
COV- Covenant University.
CRA- Crawford University.
RUN- Redeemer University
CRE- Crescent University.
BELLS - Bells University.

ICT-based services being delivered in these Libraries include the following CD-Rom searching, On-line data base searching, OPAC, On -line library membership registration, E- Book searching, E-Circulation Management Services, Internet services, On- line Journal Services, E-Reference Services, Reprographic services, Educational video services, Newspapers clipping services, E-Selective Dissemination of Information, Online-journal searching service and E- reference services

6. FACTORS THAT HINDER APPLICATION OF INFORMATION AND COMMUNICATION

The study also reveals factors that inhibit the libraries surveyed in their bids to apply information and communication technology in operations. They include the following: inadequacy of funding, skilled manpower, training, ICT resources(e.g. computers and other facilities), lack of proper long time Planning to sustain it, lack of vision on part of the University Librarian, lack of good locally manufactured Library management software, management indifference to library automation ,lack of Network indicative among libraries, non-involvement of library staff in the implementation of ICT, inadequate infrastructure and telecommunication backbones, Librarians lukewarm attitude toward ICT applications and irregular power supply.

7. DISCUSSION

It is observed that there is no uniformity in terms of software adopted for automation in the libraries surveyed. Each library adopts whichever software it likes. This could be attributed to the fact that the Universities are owned privately by different organizations and interests and as such they are not under any obligation to adopt the same software. This may likely hinder on-line resources sharing among the private libraries. This inference tallies with concerns shown by Fatoki when she outlined some advantages of cooperative and adoption of software packages to include opportunities for better price negotiation with suppliers, cost saving from joint training sessions for staff different libraries and possibility of forming a functional user group. According to her, all these would be lost, if there is no uniformity in the software adopted by different libraries.

It is however worthwhile to note that all the above hindrances are felt in varying degree in these Universities. The finding reveals that most of these problems are absent in Covenant University. The library has fully computerized all routine activities and has a virtual library service. The library is able to achieve this because of the enabling factors which include strong ICT infrastructure uninterrupted power supply with computer literacy of staff, technical support system just to mention a few. The findings corroborate in which they reported success story of Covenant university library in application of ICT as a result of overcoming some of these impediments.

The Redeemer University is next, while Babcock follows suit in ranking, in terms of surmounting inhibitors to ICT application as there are some notables success in ICT deployment. These problems are still prominent in other three libraries surveyed. This may be attributed to the year of establishment and premium the founders of these universities placed on the importance of information technology driven-library services in realizing the aims and objectives for establishing these universities.

8. THE SUMMARY OF FINDINGS

The Libraries after the survey use various types of Information and Communication Technologies to ensure the smoothness of library activities. The ranges of ICT deployed include CD Roms, Audio Video cassettes, computers, scanners, Printers, Television, and Tape Recorder/Radio Satellite.

The libraries surveyed are using different types of software. Two of them are in-house developed software called KULMARC and Book collector used in Crawford and Bells respectively. Babcock University is contemplating changing from X-LIB to Koha.

Libraries in the survey have applied ICT in library sections such as Administration, Circulation, Cataloging, Acquisitions, Serial s and Reference.

ICT – based library services rendered by libraries surveyed include CD-Rom searching, photocopy, News clipping scan service, online selective dissemination of information, online registration of users and Internet ser vies.

The finding also revealed the range of databases deployed in these libraries include, MEDLINE, ERIC, HINARI, AGORA, OARE, CD Roms, HIGHWIRE, Science Direct, NUC virtual library, JOSTOR, INFOFINDER , MARC 11, EBCOHOST, AJOL, and Microb.

The most common database deployed are CD-ROMs, JSTOR, ERIC, EBSCOHOST, Sciences Direct, and Medline as they are used in most of the libraries surveyed.

Babcock University has the highest number of databases deployed in offering electronic services to users among libraries surveyed.

Covenant University Library seems to have more success in ICT application among all the libraries surveyed, followed by Redeemer, Babcock, while Crescent University has the least in terms of ICT deployment. It is noteworthy to mention that most of the inhibitory factors common to most libraries in developing countries are almost absent in Covenant and Redeemer University libraries to some extent, this perhaps explains why they are better –off than their counterparts in respect of ICT application.

9. RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made.

i. The founders of private Universities surveyed need to increase the level of funding available to libraries. More funds should be made available and accessible specifically for the deployment and sustainability of ICT in these libraries as these institutions' (faculty,

students and researchers) will benefit immensely from such investment.

ii. Nigerian Government should initiate and implement policies that will encourage application of ICT in University Libraries in the country, including privately owned ones. Government should consider reducing tariff on importation of ICT component and infrastructure to a very minimal level since most of the ICT components are imported from abroad and Naira ,the national currency continuing to be devalued and fluctuates in the international foreign exchange market.

iii. The owners of Crescent, Crawford and Bells Universities have to wake up in developing their libraries, as they are lacking behind in terms of ICT application by their counterparts. They have to take the bull by the horn, as the quality of resources in their libraries will have strong influence on the quality of teaching, research and learning that could take place in these Universities. Nowadays, in this world of competition, prospective students and parents are aware of the pivotal role played by libraries in educational attainment, if care is not taken, prospective students may be lost to universities that are transforming their libraries to world standards via deployment of appropriate ICT.

iv. There is also the need to train and retrain librarians and other library staff in modern information delivery services as technology is growing fast and new ways of doing things in library and information profession continue to unveil in this information age that we live. It is only through this that library professionals in these libraries can perform maximally.

v. The issue of power supply has to be addressed squarely by the government and the founders of these universities have to think of alternatives to power from Power Holding Company in Nigeria (PHCN). Other sources of power, such as solar energy and the use of inverters should be seriously considered. The library should be categorized as an essential organ in the university and this should be portrayed by dedicating standby generating set to supply power when there is power failure as today's library users cannot condole such excuses any more. The fact still remains that application of ICT in library cannot strive in with this current epileptic power supply from PHCN in Nigeria.

vi. There is also a need for these libraries to go into networking with one another. As it is new, every-one of them is doing it alone. In this era, no library can be an Island on itself and with the financial predicament that most of them experienced; resource sharing is a good option. They should look at how they can cooperate and minimize cost to serve their clientele better. It is when they do that the full potentials of ICT application in these libraries could be maximized as it has been done in other countries of the World where library networking is striving.

vii. University Librarians in these libraries have to be more dynamic in pushing library cases at the management level so that management could be appreciating and giving the library support in bids to deploy more ICT in its operations.

10. CONCLUSION

It is no more a debate that Information and Technology has revolutionized information transmission and storage and has brought the globe to the door steps of people. ICT has done wonders in libraries and information worldwide and more unimaginable impossibilities would still be unveiled by it in future. In as much as University libraries, either government or privately owned in Nigeria need to remain focused and relevant in teaching, learning and research , they need to be seen practically by deploying these new technologies successfully and sustainably to improve their service delivery.

Private Universities in Nigeria started barely eleven years ago,. i.e. in 1999 and the study revealed that libraries surveyed have scored some marks in their bids to apply (ICT) in their operations & services. Some progress has been made especially in Covenant, Redeemer and Babcock university libraries as range of ICT data bases that have been applied in offering services to their clientele. Despite these achievements, they have their challenges and they need to improve upon what they have achieved. With the findings of this study, there is great possibility that private University libraries in Nigeria could change the pace at which university libraries, especially government owned ones in Nigeria apply (ICT). This will be possible if these libraries do not stay in state of complacency. There are still many chances for improvement on situation on ground. The implementation of some of the recommendations will go a long way in transforming and sustaining these libraries to World-class libraries of twenty first century and beyond.

REFERENCES

[1] S. Kumar and D.C.Kar, "Library Computerization: an Inexpensive Approach", OCLC Systems & Services, Vol.11, No.4,1995.

[2] A. Ukodie, "ICON of ICT in Nigeria their Passion, Vision and Thoughts, Lagos: ICT Publishers, 2004, pp.115.

[3] J.A. Abolaji, "Automation of Cataloguing process in Nigerian Libraries: The Experience of Hezekian Oluwasami Library" , Obafemi Awolowo University Ile-Ife" Nigerian Libraries, Vol.34, No.2, 2000, pp.1-7.

[4] G.O.Ogunleye, "Automating the Federal Universities Libraries in Nigeria: A State of the Art, African Journal of Library, Archive & Information Science, Vol.8, No.1, pp.71-79.

[5] A.O. Idowu and I. Mabawonku, "Information Technology Facilities and Applications in Some Nigeria Research and University Libraries", African Journal Library, Archive & Information Science, Vol 9, No.1, 1999, pp.27-35.

[6] R.B. Okiy, "Nigerian University Libraries and the Challenges of Information Provision in the 21st Century", Nigerian Libraries, Vol.34, No.1, pp.17-28.

[7] O.C. Fatoki, "Library Automaticin in Nigeria. The Kenneth Dike Library Experience", Lagos Journal of Library and Information Science, Vol.2, No.2, 2004, pp.111-118.

[8] G. Nok, "The Challenges of Computerizing a University Library in Nigeria: The case of Kashim Ibrahim Library, Ahmadu Bello University, Zaria, Library Philosophy and Practice, Vol.8, No.2, 2006 retrieved from www.webpages.uidaho.edu/~mbolin/nok.htm on 25th July 2010.

[9] A.O. Idowu, "E-Resources and Internet Accessibility: Challenges of Library service in Nigeria", A Paper Presented at 3rd Jire Olalokun Memorial Lecture held at Nigerian Institute of Advanced Legal Studies, University of Lagos, 2009.

[10] American Library Association, "The ALA Glossary of Library and Information Service", Chicago: ALA, 1983.

[11] P. Moll, "Should the Third world have information technology?", IFLA Journal, Vol.9, No.4, 1983, pp.277-289.

[12] S. F. C. Zulu, "Africa's Survival Plan for Meeting the Challenges of Information Technology in the 1990s and Beyond, Libri, Vol.44, No.1, 1994, pp.77 - 94.

[13] Wikipedia Information Communication Technology from the free Encyclopedia Retrieved @http.llen.wikioedia.org/wiki/communication Technology, 2008.

[14] L.O. Aina, "Library and Information Science Text for Africa", Ibadan: The World Information Services Limited, 2004, pp.365.

[15] A. Wijayaratne, "Library Automation of Sri Lanka: Challenges Facing by the Developing Countries. Retrieved from http://www.slla.crg.ik/nacls - 2006/papers/anusha.doc, 2006.

[16] A.M. Oyinloye, "Electronic Networking of Libraries and Development of An Information Society in Africa, Information Development, Vol. 15, No.4, 1999, pp. 217 -221.

[17] L. Obasuyi, "The Application of Microcomputers in Agricultural Research Libraries: A Case Study of NIFOR, 1997.

[18] I.Oketunji, "Application of Information Technologies in Nigerian Libraries: Problems & Prospects: A Paper Presented at the 10th Biennial Conference of the National Association of Library and Information Science Educators (NALISE) held at University of Ibadan, Ibadan, 4th-7th August 1999, pp.1-16.

Role of Library Professionals in the Social Welfare Schemes in Chengalpattu, Tamil Nadu, India

A.Thirumagal
University Library, Manonmaniam Sundaranar University, Tirunelveli - 627 012, Tamil Nadu
E-mail: athirumagala@yahoo.co.in
(Received on 01 August 2010 and accepted on 05 October 2010)

Abstract

The Tamil Nadu Government has employed staff to create awareness about the rural welfare and development schemes. But the no.of staff, who have been assigned this responsibility, are insufficient to cover the villages in Tamil Nadu. Most of the rural populations are not aware of the Government schemes. Some have a very vague idea about the schemes but they do not know whom to approach and how to go about to get the benefits of such schemes. Though some of the NGO agencies are also making attempts to help the rural people, it is not possible to cover the whole rural population. If the Library professionals are involved in disseminating the information regarding the Government schemes, it will be a great endeavour to be achieved. Majority of rural people are deprived of the vital information regarding the developmental programs due to their illiteracy and ignorance. But, so far no attempt has been made to suggest Rural Information Centre for Government Welfare Schemes. Hence, the researcher has decided to study in three villages in kancheepuram district, Tamil Nadu and made familiar about the social welfare scheme.

Keywords: *Rural Development, Government Schemes, Rural Information Centre, Tamil Nadu*

1. INTRODUCTION

Massive efforts have been made by the Government at the state and national level to help the underprivileged. Despite these efforts, the condition of rural population in India has not been changed dramatically. Poverty reduction rate seems to be taking place in a very slow rate. Different bodies of the Government pursue rural development and each of them operates on the basis of their own defined objectives. And, as a result neither coordination nor sustainability of rural development is achieved. To achieve the socio-economic status of the rural population is still in an underdeveloped status, mainly due to the information poverty.

2. IMPORTANCE FOR THE STUDY

The Tamil Nadu Government has employed staff to create awareness about the rural welfare and developed schemes. But the no.of staff, who have been assigned this responsibility, are insufficient to cover the villages in Tamil Nadu. The migration of rural population to the urban areas has become inevitable and villages are gradually isolated. Villagers are mostly manual labourers and self-employed. But, so far no attempt has been made to suggest Rural Information Centre for Government Welfare Schemes. Hence the researcher, library professional has decided to study the feasibility study of establishing an information centre for Tamil Nadu Government welfare schemes.

3. EFFORTS OF LIBRARY AND INFORMATION SCIENCE PROFESSIONALS

Prof. Raju [1] has opined that the rural areas in India are characterized by limited land availability, low literacy, inadequate health, sanitary and drinking water facilities. In spite of over five decades of independence, the rural scenario has not changed much and 75% of rural people are either manual labourers or artisans. In view of a variety of structural disadvantages i.e. illiteracy, malnutrition and the social complications of caste in Indian society, there is a need to redesign the traditional public library and its services to deal with information needs of rural areas.

Palmquist argues that access to information creates changes in a society that is based on information as a resource, and information scientists must be aware of these changes as they are experienced at all levels of

society. Information technologies are change agents and have an impact on the lives of individuals. The author focuses on the ways that computerized information technologies affect the environments in which individual function and looks at the individual within a cultural context, a work context, and a citizenship or governance context [2].

Tikekar explains the Indian public library system and a formal structure of libraries available in the country. The objectives of the public library are to emphasize the need for public libraries in rural areas in India. The author discusses the role of the Raja Rammohun Roy Library Foundation in the development of public libraries and the strategy of developing libraries in the USA to meet community information needs. He suggests a new strategy to develop rural libraries in India as community information centres [3].

Venkatappaiah said that community information service have existed in India since the inception of Gram Panchayats. However, the term 'community information service' (CIS) is of more recent and western origin. He defines it and describes the main concentration of services provided under this heading and the likely user clientele, primarily those who fall within the welfare system. A draft Indian National Library Policy on Library and Information Systems (NAPLIS) and committees chaired by D P Chattopadhyaya has endorsed the need for information services for all citizens as a feature of democratic progress. The main thrust is towards revamping rural community libraries, which also serve as information centres [4].

Rosenberg felt that Public libraries are no longer seen as crucial for development in Africa. Librarians are therefore reexamining their own relevance to develop and propose the establishment of rural information centres to serve the needs of the 80 per cent of Africa's population living in rural areas. He reviews the historical development of such centres in Africa and elsewhere and questions whether rural communities need information. He considers information transfer mechanisms in rural communities, the need for trained information staff and the problems of attaining sustainability of information provision [5].

4. SCHEMES TAKEN FOR THIS STUDY

The following schemes were taken for the study:

i. Girl Child Protection Scheme
ii. Widows'Daughters' Marriage Assistance Scheme
iii. Orphan Girls Marriage Assistance Scheme
iv. Widows Remarriage scheme
v. Inter-caste Marriage Assistance Scheme
vi. Government Service Home
vii. Free Supply of Sewing Machine
viii. Old Age pension
ix. Destitute physically handicapped pension scheme
x. Destitute Widow Pension Scheme
xi. Destitute Agricultural labourer Pension Scheme
xii. Destitute Deserted wives Pension Scheme
xiii. Facilities for Disabled person

5. OBJECTIVES

i. To create awareness about the schemes
ii. To provide information to the villagers at a regular interval
iii. To get their feedback regarding the benefits derived by the villagers from the information provided
iv. To determine the feasibility of establishing a Rural Information Centre for the social welfare and rural development schemes

6. STUDY AREA

Kancheepuram District has been divided into 13 Blocks. It is situated 90 kilometers away from the capital of Tamil Nadu, the Chennai city. The three villages selected for this study namely Pennalur, Poonthandalam, and Ponankulam in Uttiramerur are situated in this district. The selection of three villages was based on two major reasons. The reason is that these three villages are under privileged to a great extent, and there are no proper communication facilities. Hence, there is a remote possibility of getting any information about the Government Schemes. The sample of the study is drawn from all the three villages and it constitutes 350 families.

7. METHODOLOGY

The Methodology adopted to carry out this study involves various processes. As a first step the researcher visited the three villages and made an initial survey to

determine the number of families in the three villages and to assess their Socio-economic status. A scheduled interview was prepared with the details of various schemes to find out the awareness about each scheme and data were collected from 350 families in three villages. The specific information requirements of the villagers were also identified, by the researcher.

It was evident from the Table 1 that the sample of this study includes 350 families from the three villages namely Pennalur, Poonthandalam and Ponnankulam. The no.of families were more in Pennalur when compared to other two villages; hence, the sample size constitutes 150 families.

Table 1 Sample of the Study

Sl. No.	Area of the Study	Number of Families	Sample Size of the Study	No. of Population in the Sample Families
1	Pennalur	252	150	1089
2	Poonthandalam	151	100	722
3	Ponnankulam	122	100	643
4	Total	525	350	2454

In Pennalur 1089 persons were found in 150 families, in Poonthandalam 722 members were found in 100 families, and in Ponnankulam 643 members were found in 100 families.

Only one person was contacted for collecting data from each family. The demographic data of these 350 persons were tabulated.

Table 2 Details about Number of Persons aware of Social Welfare Schemes, Eligibility, Contact persons and the Number of persons Already Availed the Benefit

Sl. No.	Details	No. of Person Aware of Schemes		Awareness of Eligibility for Applying		Awareness About the Contact Persons		Number of Persons who have Already Availed	
1	Yes	82	(23.4%)	42	(51.2%)	19	23.2%	7	(8.5%)
2	No	268	(76.6%)	40	48.8%)	63	76.8%	75	(91.5%)
3	Total	350	(100%)	82	(100%)	82	(100%)	82	(100%)

Only 82 persons (23.4%) were aware of three Government schemes. They do not know the other Social Welfare Schemes, how to apply and what is the benefit. Among the thirteen schemes listed above, the villagers had awareness to an extent about three schemes namely Girl Child Protection Scheme, Widows' Daughters Marriage Assistance Scheme and Old Age Pension Scheme. The awareness for other schemes was quite low. Since less than 10 persons were aware of these schemes. It indicates that before the researcher started her awareness program only 82 persons know about the schemes. Though they heard about the schemes, they did not have any detailed information regarding the benefits, the eligibility criteria and the benefits etc., though 82 persons were aware of some of the welfare schemes only 42 (51.2%) were aware of the eligibility for applying for the schemes. Some of them (23.2%) were aware of a few basic schemes; most of them (76.8%) do not know whom to approach for getting the information and the procedure for applying for the schemes.

The survey revealed that among the 82 persons who were aware of the some of the welfare schemes, only seven persons (less than 10%) were able to avail the benefit of the schemes.

Table 3 Number of Persons who have Already Benefited Under Different Schemes

Schemes	Frequency	%
Widows Daughter Marriage Assistance Scheme	3	42.9
Old Age Pension Scheme	3	42.9
Girl Child Protection Scheme	1	14.2
Total	7	100

The above table indicates the different schemes availed by the villagers. Three persons were benefited by the old age pension schemes and three women were benefited by the widow daughter's marriage assistant scheme. Only one person was benefited by the Girl Child Production scheme.

8. ANALYSIS OF FEEDBACK OF THE STUDY

The researcher after conducting the preliminary survey, regarding the awareness of schemes among the villagers started providing information to the villagers about the detailed such as what is the benefit of each scheme, what the eligibility criteria is and whom to contact etc. Then, she frequently visited them to find out to what extent they were benefited after getting the detailed information.

The following Table 4 and Table 5 presents the analysis of the feedback, which was obtained after providing the information about the various programmes.

Table 4 explains that once the awareness about the schemes was created and the benefits about the schemes were explained the villagers were enthusiastic and two hundred and thirteen persons applied for various schemes. Among two hundred and eleven persons who applied for various schemes, one hundred and seventy persons got the response from the authorities concerned. The researcher personally contacted the authorities over phone and in person to speed up the process which took nearly four months to complete the process.

Table 5 proves that among the 170, who received a reply from the Government, 121 persons were found eligible and their applications were accepted, whereas forty-nine applications were rejected due to non-eligibility. The rural welfare officer, who met the villagers to judge the authenticity of information provided by the villagers, did the selection of the persons for the schemes.

Table 4 Number of Persons Applied and Received the Response

Sl.No.	Details	No. of Persons			No. of Persons Received Response		
	Details	Applied	Not Applied	Total	Received	Not Received	Total
1	Frequency	213	137	350	170	43	213
2	%	60.3	39.7	100	80.6	19.4	100

Table 5 Number of Persons whose Application were Selected and Benefited

Sl.No.	Details	No. of Applications			No. of Persons		
	Details	Selected	Not Selected	Total	Benefited	Not Yet Benefited	Total
1	Frequency	121	49	170	78	43	121
2	%	71.2	28.8	100	64.5	35.5	100

Among the one hundred and twenty one persons who were found to be eligible for the schemes, seventy-eight persons were benefited by the scheme. Some of them were benefited within four month. For some people took a maximum of eight months to receive the benefits. The researcher fixed a deadline for closing the data collection process and by the time the date of deadline was reached 78 persons were (more than 64%) benefited by the Government Schemes.

9. SUGGESTION TO THE POLICY MAKERS

Suggesting a model for the proposed Information Centre for Government Scheme is quite an ambitious task for the researcher. The model suggested in this study is feasible only with the cooperative venture of Department. Another major department is the public library, which is supposed to promote literacy to the remote villagers. Hence, the researcher found out the details about the number of Public Libraries in whole of Tamil Nadu. With their support we can achieve the mission of "reaching the unreach" more efficiently.

10. CONCLUSION

The findings of the study will facilitate policy makers and the authorities of the Tamil Nadu Government in achieving their mission of uplifting the status of the rural population. It is evident from the survey that the researcher was successful in creating more awareness about the schemes among the rural population in the three villages and more number of persons were benefited by her efforts in pursuing the matter by contacting the persons concerned and speeding up the process. Hence it indicates that establishing a Rural Information Centre for the Tamil Nadu Government Social Welfare Scheme will definitely prove beneficial for the rural mass. This present work contributes significantly for the rural development and it will serve as a catalyst for modifying implementation mechanism and policy intervention of rural development schemes of Tamil Nadu Government.

REFERENCES

[1] K.A. Raju, "Towards Access to Information in Rural India", Information Source and Use, Vol.20, No.1, 2000, pp. 1-8.

[2] R.A.Palmquist, "The Impact of Information Technology on the Individual", Annual Review of Information Science and Technology, Vol.27, pp.3-42.

[3] A. C. Tikekar, "Rural Public Libraries as Community Information Centres", Herald of Library Science, Vol.39, No.3-4, 2000, pp.198-201.

[4] V. Venkatappaiah, "Community Information Services", DESIDOC Bulletin of Information Technology, Vol.19, No.1, pp.3-4.

[5] D. Rosenberg, "Rural Community Resource Centres: A Sustainable Option for Africa", Information Development, Vol.9, No.1/2, 1993, pp.29-35.

Usage of Electronic Journals by the Students and Members of Faculty of Saraswathi Velu College of Engineering, Tamil Nadu: A Survey

S. Rukmani[1], S. Thangam[2] and M. Sumathi[3]
[1]Dravidian University, Kuppam - 517 425, Andhra pradesh
[2]Mother Teresa Women's University, Kodaikanal - 624 102, Tamil Nadu
[3]Saraswathi Velu College of Engineering, Sholingur - 631 102, Vellore District, Tamil Nadu
E-mail: annairuckmani@gmail.com
(Received on 20 March 2010 and accepted on 15 June 2010)

Abstract

The idea of converting library materials into digital formats for creating digital collections has advanced rapidly in the last few years, thus leading to the concept of a virtual library or a library without walls. It is very difficult for a single library to acquire all these resources and provide the same to their users. Yet, at the same, it is the duty of the librarian to provide the required latest information, wherever available and in whatever form and whenever required.

Keywords: *Digitalisation, Electronic Resources, Electronic Media*

1. INTRODUCTION

A digital library is a library that contains materials in digitized form or access to internal or external digital resources - that can be manipulated and delivered in many ways that a conventional version of the materials cannot be given.

A digital library is a library that contains materials in digitized form or access to internal or external digital resources - that can be manipulated and delivered in many ways that a conventional version of the materials cannot be given.

1.1 Purpose of Digitisation

The growing impact of Information and Communication Technologies (ICT), web technologies and database technologies has compelled library and information Centres to use these technologies effectively to render services. With the growing number of e-sources, it has become imperative for information professionals to redefine their role in disseminating information to the users.

1.2 Advantages of Digitalization

Digitization brings together research information on topics, which are available in various formats and in various locations. These digital materials/sources may be widely scattered [4].

Thus, digitization allows easy access to build collections and compare items which can be viewed/ examined side by side solely by virtue of digital representation and access to digital reference materials especially images that provide a great deal of information to researchers [4].

Thus, digital conversion has added value in that :-

i. It can be saved digitally;
ii. It has enhanced intellectual control along with new finding tools;
iii. It has provided links to bibliographic records;
iv. There is an increased usage of library resources and web resources;
v. There is an increased manipulation of text and images;
vi. There is encouragement of use by providing enhanced resources in the form of widespread dissemination of unique collections;
vii. There is an integration and synthesis of a variety of formats;

2. SCOPE OF THE STUDY

The study can enable the professional in the library to work more efficiently and effectively to render services to the users and others concerned with education. By understanding the current situation, the librarians can equip themselves and take necessary action

to update their knowledge to fulfill the role of information providers to the society a whole.

The study also enables the user community to utilize the facilities to retrieve the information then and there quickly and save their precious time with the help of the information provider. By understanding the problems in the digitization of library, possible measures can be suggested for the improvement.

3. OBJECTIVES OF THE STUDY

i. To find out the facilities available in SRM deemed university library
ii. To study the factor influencing digitization of SRM deemed university library
iii. To know the effectiveness of digitization of SRM deemed university library

4. METHODOLOGY

The data obtained through questionnaire method where coded, classified and tabulated for further statistical analysis. A scoring method was developed and used for this purpose. Both descriptive and inferential analyses were used.

The results and discussions of the study are presented in the following chapter.

5. ANALYSIS AND DISCUSSION

Table 1 Electronic Material Used

Sl.No.	Electronic Material	No. of Respondents	
		Staff	Students
1	E-Journal / E -Book	14 (40 %)	17 (18.9%)
2	CD-Rom	19 (48.6%)	42 (46.7%)
3	Audio / Video Cassettes	5 (14.3%)	18 (20%)

It is observed from Table 1 that 49% of the staff respondents use CD-ROM whereas 47% of student respondents use CD-ROM.

Table 2 Access to Electronic Journal

Sl. No.	Electronic Material	No. of Respondents	
		Staff	Students
1	From Work Place Desk	10 (28.6%)	24 (28.9%)
2	Computer Center	10 (28.6%)	11 (28.9%)
3	Computer Section -Library	15 (42.8%)	29 (32.2%)

From Table 2 it is true that 42.8% of staff respondents access, E-Journals in library whereas only 32% of student respondents access E-Journals in library.

Table 3 Purpose of UsingElectronic Media in Library by Staff

Sl. No.	Purpose of Use of Electronic Media	No. of Respondents Staff	
		Yes	No
1	To Prepare for Lecture	34 (97.1%)	1 (2.9%)
2	To Set Assignments	32 (91.4%)	3 (8.6%)
3	To Guide Students in Regular Studies	34 (97.1%)	1(2.9%)
4	To Guide Students in Projects	34 (97.1%)	1(2.9%)
5	For Preparation of Seminar Paper	32 (91.4%)	3 (8.6%)
6	To Update Professionally	32 (91.4%)	3 (8.6%)

It is true from Table 3 that 97% of staff express that they guide students for project, but, only 2% of staff express that they get guidance for their project.

Table 4 Purpose of UsingElectronic Media in Library by Students

Sl. No.	Purpose of Use of Electronic Media	No. of Respondents Students	
		Yes	No
1	To Prepare for Lecture	60 (66.7%)	30(33.3%)
2	To Set Assignments	82 (91.1%)	8 (8.9%)
3	To Guide Students in Regular Studies	84 (93.3%)	6 (6.7%)
4	To Guide Students in Projects	86 (95.6%	4 (4.4%)
5	For Preparation of Seminar Paper	83 (92.2%)	7 (7.8%)
6	To Update Professionally	85 (94.4%)	5 (5.6%)

It is evident from Table 4 that 96% of student express that they prepare for project work, but only 4% of students express they get guidance for their project.

6. CONCLUSION

On the basis of the above findings, the following conclusions were made

i. Most of commercial digital library software was used in the university library.
ii. The majority of users use the internet to access the digitized data rather then Recenet and computer / LAN.
iii. The university library has computer / LAN facilities to their users.
iv. The E-Book and the E-Journal were mostly available in the university library, which can be accessed by the students and staff.
v. National and International Journals were subscribed online using the internet.
vi. CD and Online form of learning resources were available.
vii. Digital scanner used for data conversion.
viii. The catalogue accessed from OPAC terminals available in library.
ix. E-Journal and print copy of IEEE Journal were available in University library.
x. Electronic media were available for preparation of lecture, assignments, regular studies, project works, seminar paper preparations, and update information.

REFERENCES

[1] http://www.emeraldinsight.com
[2] Peter Bockhorst and Ulrike Scholle, “Editorial”, Liber Quarterly, Vol.2, No.5, 2001.
[3] R.W. Lancaster, “The Evolution of Electronic Publishing”, Library Trends, Vol.43, No. 4, 1995, pp.518-527.
[4] The Hindu online, dated 19th Auguest 2004.
[5] http://elearning.vtu.ac.in

Usage and Impact of E-resources at B.S. Abdur Rahman University: A Case Study

P. Panneerselvam
B.S. Abdur Rahman University, G S T Road, Vandalur, Chennai - 600 048, Tamil Nadu
E-mail: pspanneerselvam@gmail.com
(Received on 26 April 2010 and accepted on 12 June 2010)

Abstract

E- Resources are the need of the hour in today's library environment. Library plays a huge role in providing quality education in any institution. The universities which concentrate more on research activities need to have online resources at their library. The role played by the internet made huge impact in modern library. The paper discusses about the existence of various e-resources at B. S. Abdur Rahman University. The study also highlights the preferences and importance of online resources among the post graduate students, research scholars and faculties of this university.

Keywords: *E-Resources, PG Students, Members of Faculty*

1. INTRODUCTION

Education sector is extremely dynamic and teachers, researchers and students have a constant need to keep themselves update. Teaching faculty have to keep abreast on what is happening in terms of regulations, current affair, policies, new research, etc. and incorporate the same in their instructions. Information and Communication Technology (ICT) is an enabler and has made tremendous changes in all sections of the society especially in the Educational system. With the emerging trends, libraries are concentrating on electronic resources to meet the contemporary needs of its users. The Internet has made a huge impact on modern libraries. Institutions, which provide higher education, should have the access to major e-resources. It is further facilitated by information and communication technology (ICT), which enhances the teaching learning process easier.

2. OBJECTIVES

The main objective of this study is to analyze how the online resources are helpful to the teachers & students of this university in their academic and research activities. Some of the major objectives are:

i. To know what are the e-resources and services available at B.S.Abdur Rahman University library
ii. To study the different types of electronic resources used by students and teachers of this university for their academic & research purpose
iii. To know the frequency of usage in different online resources and services available in the library
iv. To understand the problems faced by the teachers & students while accessing the online resources
v. To study the impact of electronic resources and services

Teachers, research scholars and post graduate students of this university were included for the study since the online resources are mostly used by these members.

3. METHODOLOGY

A questionnaire was framed to conduct the survey. The questionnaire was issued to all the teachers, post graduate students and research scholars of this university. The questionnaire was structured to find out the types of e-resources available, frequency of their usage, purpose of the usage, problems faced by the users while using e-resources. A total of 200 questionnaires were distributed to collect the data out of which 175 questionnaires were found with all filled columns. The collected data were analyzed and presented in tabular form.

Table 1 shows that the most of the teachers prefer (98%) e-books for their academic & research activities. Whereas research scholars are mostly prefer (89%) e-thesis. Majority of the students feel that the e-books are suitable for their academic & research purpose. Here one must be noted that e-archives, e-manuscripts and e-maps are the least preferred (11.11%) resources among the library users of this university.

4. ANALYSIS AND FINDINGS

Table 1 Use of Various E-Resources

E- Resources	Respondents			% of the Respondents		
	Faculties (A)	Research Scholars (B)	PG Students (C)	A	B	C
E-Journals	68	38	30	76	85	75
E -Archives	20	5	10	22	11	25
E -Manuscripts	15	5	8	17	11	20
E -Maps	10	10	5	11	22.2	20
E -Books	88	38	36	98	84.4	90
E -Magazines	60	30	35	67	67	87.5
E -Thesis	60	40	18	67	89	45
WWW	60	32	30	67	71	75
E -Newspaper	42	17	26	47	38	65
E -Mail	46	15	10	51.11	33.33	25
E -Research Reports	81	27	38	90	60	95
E -Bibliographic Databases	76	15	15	84.44	33.33	37.5

Table 2 Ease of Access to E-Resources

Respondents	Total	Yes	No
Teachers	90	80 (89%)	10 (11%)
Research Scholars	45	42 (93)	3 (7%)
PG Students	40	22 (55%)	18 (45%)

Table 2 represents that 80 (89%) teachers have easy access to the e-resources and 42 research scholars ((93%) feel that they can access to the e-resources without any hurdle. 55% of PG students feel that they have easy access of e-journals, subscribed by this university. When compared with teachers and research scholars, the students (45%) face some problems while accessing into e-resources, whereas only 10 (11%) teachers and 3 (1.35%) research scholars feel so. Hence, it clearly shows that the student community of B.S. Abdur Rahman University needs some training in utilizing the e-resources without any hurdle.

Table 3 Training Taken Related to Electronic Resources

Respondents	Total	Yes	No
Teachers	90	43 (48%)	47 (52%)
Research Scholars	45	8 (18%)	32 (72%)
PG Students	40	10 (25%)	30 (75%)

Table 3 reveals that 47 (52%) faculty members have not taken any training to access the online resources, while 43 (48%) teachers are well versed in accessing the e-journals. Only 8 research scholars (18%) are trained to utilize the electronic resources. A majority of the students 30 (75%) did not get any training

Table 4 Frequency of Using E-Resources

Respondents	Total	Often	Sometimes	Rarely
Teachers	90	36 (40%)	43 (48%)	11(12%)
Research Scholars	45	32 (71%)	13 (29%)	-
PG Students	40	25 (62.5)	10 (25%)	5 (12.5%)

The above table shows that majority of the teachers (48%) are using the e-resources sometimes only, where as most of the research scholars (71%) are frequently using the e-resources. Only 11 (12%) teachers and 5 (12.5%) post graduate students use the e-resources rarely

Table 5 Usage of E-Journals in Academic and Research Activities

Respondents	Greater Extend	Fairly	Not fully
Teachers	50(56%)	25 (28%)	15 (17%)
Research Scholars	35 (78%)	10 (22%)	5 (11%)
PG Students	18 (45%)	4 (10%)	18 (45%)

The Table 5 reveals that 78 % of research scholars, 56% of teachers have fully utilizing the e-resources subscribed by the B.S. Abdur Rahman University for their academic and research activities, whereas 45% of the students have not utilizied the e-resources for the said purposes. The table clearly shows that most of the research scholars and teachers are worth full utilizing the e-journals for their academic and research activities.

Table 6 Where Do You Mostly Access Required Information

E-Resources	Teachers	Research Scholars	Students
E-Books	62 (69%)	20 (45%)	10 (25%)
E-Journals	80 (89%)	45 (100%)	18 (45%)
Online-Databases	62 (69%)	38 (85%)	10 (25%)
Search Engines	80 (89%)	40 (89%)	35(87.5%)

Table 6 reveals that most of respondents access e-journals and search engines to get required information at B.S. Abdur Rahman University. 80 (89%) teachers and 45 (100%) research scholars prefer to use e-journals. 40 research scholars (89%) and 35 students (87.5%) make the use of search engines to get the desired material. Online databases are also very popular among research scholars, as 38 (85 %) of them prefer to use these. Use of e-books is used less by the teachers and research scholars in comparison to other online resources. It is noted that the research scholars access to the maximum relevant material from e-journals.

The above Table 7 shows that the teachers and research scholars of this university often use IEEE, Science Direct, Springer Link, i.e. 62 (69%), 40 (89%) and 72 (80%) respectively, whereas 26 (63%) students are utilizing IEEE often and 19 (47.5%) use Sciendirect often. Specialized journals like ASME, ASCE and ACM are not frequent among respondents. Because these journals are being utilized by the specific groups. 40 Teachers (44.4%), 15 research scholars (33.5%) and 18 students (45%) are utilizing IEEE sometimes. The journal sciendirect are sometimes used by the teachers, research scholars and students 49%, 44.4% and 37.5%, respectively, whereas 22.5% of students are unfamiliar with Springer Journals.

The above Table 8 illustrates that majority of the teachers, research scholars and students feel that the usage of e-resources is a time saving, easy to use and informative. 85% of the respondents reacted with the above answers. At the same time, 91% of teachers, 87% of research scholars and 80% of the student community feel that the e-resources are more expensive.

Table 7 Frequency of Use of Different e-Resources Available at BSAU

E-Resources	Often			Sometimes			Rarely		
	Teachers	Research Scholars	Students	Teachers	Research Scholars	Students	Teachers	Research Scholars	Students
IEEE	62 (69%)	40 (89%)	26 (63%)	40 (44.4%)	15 (33.3%)	18 (45%)	15 (17%)	5 (11.1%)	8 (20%)
ASME	40 (45%)	10 (23%)	12 (30%)	12 (13.3%)	6 (13.3%)	8 (20%)	16 (18%)	4 (9%)	6 (15%)
Emerald	20 (23%)	4 (9%)	16 (40%)	14 (15.5%)	5 (11.1%)	6 (15%)	9 (10%)	6 (13.3%)	8 (20%)
ASCE	15 (17%)	4 (9%)	8 (20%)	13 (14.4%)	8 (18%)	5 (12.5%)	7 (8%)	8 (18%)	5 (12.5%)
Science Direct	72 (80%)	32 (71%)	19 (47.5%)	44 (49%)	20 (44.4%)	15 (37.5%)	10 (11.1%)	2 (4.4%)	5 (12.5%)
ACM	36 (40%)	10 (23%)	10 (25%)	7 (8%)	9 (20%)	6 (15%)	15 (17%)	9 (20%)	4 (10%)
Springer	47 (52%)	17 (38%)	9 (22.5%)	22(24.4%)	20 (44.4%)	11 (27.5%)	19 (21.1%)	10 (22.2%)	9 (22.5%)

Table 8 Reasons for Using E-Resources

Reasons for Using E-Resources	Teachers	Research Scholars	Students
Time Saving	82 (91%)	40 (89%)	37(92.5%)
Time Consuming	8 (9 %)	5 (11%)	-
Easy to Use	72 (80%)	40 (89%)	35 (87.5%)
Difficult to Use	10 (11%)	-	2 (5%)
More Informative	80 (89%)	40 (89%)	40 (100%)
Less Informative	3 (3.3%)	-	-
More Expensive	82 (91%)	39 (87%)	32 (80%)
Less Expensive	3 (3.3%)	12 (27%)	15 (37.5%)
More Useful	85 (94.4%)	45 (100%)	36 (90%)
Less Useful	3 (3.3%)	-	-

It is interesting to note that all groups of the library users favoured for e-resources even though they are expensive. Teachers, research scholars and students have a lesser amount of preference that e-resources are time consuming, less informative, less expensive and not as much of useful.

Table 9 Satisfaction with Existing IT Infrastructure

Respondents	Total	Satisfied	Not Satisfied	Can Improve	Can't say
Teachers	90	48(54.4%)	30(33.3%)	10 (11.1%)	2 (2.2%)
Research Scholars	45	20 (44.4%)	18 (40%)	7 (15.5%)	-
PG Students	40	25(62.5%)	8 (20%)	5 (12.5%)	2(5%)

Table 9 shows that the teachers and research scholars of this university satisfied with the existing IT infrastructure facilities, whereas majority of the students (62.5%) feel that IT infrastructure facility has to be improved. 33 % of teachers and 40 % of research scholars are not satisfied with the IT infrastructure existing in this University.

Table 10 Do E-Resources Reduce the Importance of Traditional Resources

Respondent	Total	Agree	Strongly Agree	Fairly Agree	Disagree
Teachers	90	15 (17%)	15 (17%)	10 (11%)	50 (56%)
Research Scholars	45	27 (60%)	8 (18%)	-	10 (22.2%)
PG Students	40	30 (75%)	2 (5%)	-	8 (20%)

Table 10 reveals that majority of teachers (56%) feel that importance of traditional resources will never go down. But, it is interestingly note the younger generation of this university ie research scholars (60%) and students (75%) feel that e-resources may replace traditional sources of information. Even 17% of teachers feel so. The results of Table 10 shows that in the era of information and technology, academics are equally attached to traditional sources of information.

Table 11 E-Resources Increase the Academic & Research Activities

Respondent	Total	Agree	Strongly Agree	Fairly Agree	Disagree
Teachers	90	20 (22.2%)	68 (76%)	2 (2.2)	-
Research Scholars	45	7 (16%)	31(69%)	2 (4.4)	-
PG Students	40	16 (40%)	20 (50%)	4 (10%)	-

The above Table 11 clearly conveys that all groups of library users feel that the e-resources are increasing their academic and research activities. Teachers, research scholars and students, 76%, 69% and 50% respectively declare that e-resources subscribed by the B.S. Abdur Rahman University enhance their academic and research works. None of the library users raised their doubts about the role played by e-resources in their above said activities.

5. CONCLUSION

Study shows the use of e-resources is very common among the teachers and research scholars of B.S.Abdur Rahman University and majority of the teachers and research scholars are dependent on e-resources to get the desired and relevant information. But, a good number of library users feel that there is a place for improvement in infrastructure facility which is most important in providing undisturbed access. Practical use of e-resources is not up-to the worth in comparison to investments made in acquiring these resources; secondly infrastructure and training programs should also be revised as per requirements. It is observed that the availability of e-resources on the campus is almost sufficient for all the existing disciplines but the infrastructure to use these resources is not adequate and can hinder the ability to meet the requirements of users.

REFERENCES

[1] B. Kaur and R. Verma, "Use and Impact of Electronic Journals in the Indian Institute of Technology", Delhi, Electronic Library, Vol.27, No.4, pp.611-622.

[2] S. Karidasan and M. Khan, "Impact and Use of E-resources by Social Scientists in National Social Science Documentation Centre (NASSDOC)", Electronic Library, Vol.27, No.1, pp.117-133.

[3] I.M. Johnson and H. Wang, "Nie F Electronic Journal Provision and Use in China: An Initial Study", Vol.21, No.3, 2008, pp.210-221.

[4] N.J. Deshpande and S.K. Pathak, "Use of Electronic Journals in Astronomy and Astrophysics Libraries and Information Centres in India: A Users' Perspective", International Information and Library Review, Vol.40, No.3, 2008, pp.153-164.

[5] K.C.Williams and T.P. Bailey, "The Impact of Electronic Finding Aids on Inter Library Loan", Journal of Inter Library Loan, Document Delivery and Electronic Reserve, Vol.18, No.1, 2008, pp. 113-122.

[6] V.R. Rheiner, "How Electronic Full Text Journals Impact Interlibrary Loan Article Requests at a Small, Liberal Arts University", Journal of Interlibrary Loan, Document Delivery Electronics Reserve, Vol.18, No.3, 2008, pp. 375-383.

[7] P. Chand, P.Nishy and G.Magesh, "Access to E-Journals: Need and Impact of Users Training", Lecture Notes in Computer Science (including Subseries Lecture Notes in Artificial and Lecture in Bioinformatics 4312 LNCS, 2006, pp.529-530.

[8] S.Sankaran Pillai and T.Nirmala Devi, "E-publishing and E-journals: A Review of their Impact on Libraries", Digital Information Exchange: Pathways to Build Global Information Society, 2004, pp.47-52.

[9] T.A.Finholt and J. Brooks, "USe of Electronic Science Journals in the Undergraduate Curriculum: An Observational Study", Proceedings of the ASIST Annual Meeting, Vol.41, 2004, pp. 64-71.

[10] R. Ekman and R.E.Quandt, "Analysis of JSTOR: The Impact on Scholarly Practice of Access to On-line Journal Archives Technology and Scholarly Communication", University of California Press, Berkely, 1999, pp. 177-194.

[11] P. Vakkari, "Trends in the Use of Digital Libraries by Scientists in 2000-2005: A Case Study of FinELib", Proceedings of the ASIST Annual Meeting, Vol.43, 2006, pp. 4.

[12] Kaur Baljinder and Verma Rama, "Use of Electronic Resources at TIET Library Patiala: A Case Study", ILA Bulletin, Vol. 42, No.3, 2006, pp.18-20.

Students' Perception on the Use of Electronic and Printed Resources in Technical Hybrid Library Environment

S.G. Sundararajan
Bharathiyar College of Engineering & Technology, Karaikal - 609 609, Puducherry, India
E-mail: sundararajan19@gmail.com
(Received on 05 March 2010 and accepted on 14 June 2010)

Abstract

Electronics information literacy is inevitable in the modern information retrieval system; E-resources occupied everywhere in the society. In the library also it is adopted in the form of digital resources or digital library, now-a-days the conventional libraries are coming up the status of hybrid libraries. In this context, it is planned to identify the user perception and usage of the library resources. In the academic libraries, both types of resources are housed and the services rendered though the user satisfaction and perception are taken into account and find the solution for the betterment of the library.

Keywords: *Electronic and Printed Sources, Hybrid Library, User Perception*

1. INTRODUCTION

Academic libraries mostly consternate on the collection building for the benefit of the students and faculty, the teaching learning processes totally depend on the library collection in the college education. Students' self-learning interest is cultivated through the library collection and their information seeking behaviour. The information literacy will lead them to get succeed the goal. In the present scenario, digital resources are full fill their information thrust and need.

2. TECHNICAL HYBRID LIBRARY ENVIRONMENT

In the present scenario, all professional college libraries like engineering colleges are having the hybrid library environment which collects printed and digital sources. Without the e-resources, the library may not be attracted by the user. The new trend, user wants the information in a fraction of seconds on their desk, the Local Area Network will help disseminate the information among the user community. Network management system, Library automation, E- information literacy, these are the entire helping tool to access the e- resources for the library or information centers. Through this research to identify the students perception and utilization of printed and E-resources in the hybrid library user environment.

3. OBJECTIVES OF THE STUDY

i. To identify the students' satisfaction and perception of the library collection.
ii. To identify the students awareness in the utilization of the available printed resources and e-resources in the library.
iii. To identify the students Preference ratio of the e-resource and printed sources.

4. RESEARCH METHODOLOGY

This study is conducted using the exploratory research design; questionnaire method is followed for the data collection. It is being adopted in the study based on primary data collected from the students of Bharathiyar College of Engineering and Technology, Karaikal of Puducherry, through well-designed questionnaires.

The target population for this study, the questionnaires method has been employed to collect the data for the present study and to select the sample population, random sampling method has been used, and the sample was random in the sense that the sample for the present study consisted of students selected randomly from various departments. 20% of the respondents were selected random for each department. Accordingly 261 questioners were distributed among the students of various departments.

5. DATA ANALYSIS AND INTERPRETATION

Table 1 Sample Distribution to Department-wise and E- recourse Utilization-wise

Department	Male		Female		Total Male	Total Female	Overall Total	Utilization of E-recourse	
	Hostler	Day Scholar	Hostler	Day Scholar				Yes	No
CSE	9	20	5	8	29	13	42	42	-
IT	6	12	4	7	18	11	29	29	-
ECE	13	44	8	9	57	17	74	72	2
EEE	11	20	1	4	31	5	36	23	13
MECH	12	47	2	-	59	2	61	47	14
MCA	4	9	2	4	13	6	19	19	-
Total	55	152	22	32	207	54	261	232	29

The Table 1 shows that 261 samples have been distributed department-wise, sex-wise, and hostler and day scholar wise. Among the total 261 samples i.e., 42 (16%) samples from CSE department, 29 (11%) samples from IT department, 74 (28%) sample from ECE department, 36 (13%) sample from EEE department, 61 (24%) samples from MECH department and 19 (8%) samples from MCA department are taken.

From the total samples, 207 i.e. (79%) samples are male students. 54 (21%) samples are female students. Among the male students 55 (26%) students are hostlers and 152 (74%) students are day scholars. Among the 54 female students, 22 (41%) of students are hostlers, 32 (59%) of students are dayscholar. The table also revealsls the students' E-resources utilization. From the total sample 88% (232) students are utilizing the E-resources and 12% (29) of students are not utilizing the E–resources.

Table 2 Students' Preference Level of Various Printed Resources and E-Resources in Hybrid Library Environment

Department	Books – Usage Ratio between Printed Source and E-resource Respectively			
	20:80	40:60	60:40	80:20
CSE	2	5	10	25
IT	1	7	4	17
ECE	3	9	16	44
EEE	-	4	5	14
MECH	-	8	9	30
MCA	1	2	4	12
Total & Percentage	7 (4%)	35 (15%)	48 (20%)	142 (61%)

The Table 2 shows the students' preference level ratio for utilizing printed books verses E- books. 4%(7) of students are in the 20: 80 ratio, 15% (35) of students are in the 40:60 ratio, 20% (48) of the students are in the 60:40 ratio, and 61% (142) of students are in the 80:20 ratio.

The Table 3 shows the students' preference level ratio for utilizing printed journals verses E- journals. 8% (19) of students are in the 20:80 ratio, 14%(32) of students are in the 40:60 ratio, 19% (43) of the students are in the 60:40 ratio, and 59% (138) of students are in the 80:20 ratio.

The Table 4 shows the students' preference level ratio for utilizing printed Magazine verses E-Magazine. 3% (9) of students are in the 20:80 ratio, 4% (10) of students are in the 40:60 ratio, 8% (14) of the students are in the 60:40 ratio, and 85% (199) of students are in the 80:20 ratio.

The Table 5 shows the students' preference level ratio for utilizing printed proceedings verses E-proceedings. 76% (175) of students are in the 20:80 ratio, 15% (37) of the students are in the 40:60 ratio, 6% (12) of the students are in the 60:40 ratio, and 3% (8) of students are in the 80:20.

Table 3 Students' Preference Level Ratio For Utilizing Printed Journals Verses E- Journals

Department	Journals - Usage Ratio between Printed Source and E-resource Respectively			
	20:80	40:60	60:40	80:20
CSE	9	6	7	20
IT	3	4	5	17
ECE	3	10	14	45
EEE	2	3	4	14
MECH	1	7	9	30
MCA	1	2	4	12
Total & Percentage	19 (8%)	32 (14%)	43 (19)	138 (59%)

Table 4 Students' Preference Level Ratio for Utilizing Printed Magazine Verses E-magazine

Department	Magazine – Usage Ratio between Printed Source and E-resource Respectively			
	20:80	40:60	60:40	80:20
CSE	1	2	3	36
IT	2	1	1	25
ECE	2	4	5	61
EEE	1	-	2	20
MECH	1	2	3	41
MCA	2	1	-	16
Total & Percentage	9 (3%)	10 (4%)	14 (8%)	199 (85%)

Table 5 Students' Preference Level Ratio for Utilizing Printed Proceedings Verses E- Proceedings

Department	Proceedings - Usage Ratio between Printed Source and E-resource Respectively			
	20:80	40:60	60:40	80:20
CSE	31	7	3	1
IT	20	6	1	2
ECE	57	10	4	1
EEE	17	5	0	1
MECH	36	7	2	2
MCA	14	2	2	1
Total & Percentage	175 (76%)	37 (15%)	12 (6%)	8 (3%)

Table 6 Students' Preference Level Ratio for Utilizing Printed Project Reports Verses Digitized Projects

Department	Project Reports - Usage Ratio between Printed Source and E-resource Respectively			
	20:80	40:60	60:40	80:20
CSE	13	7	8	14
IT	10	6	4	9
ECE	27	11	10	24
EEE	8	4	3	8
MECH	17	5	10	15
MCA	7	4	2	6
Total & Percentage	82 (35%)	37 (16%)	37 (16%)	76 (33%)

The Table 6 shows that the students' preference level ratio for utilizing printed project reports verses digitized projects. 35% (82) of students are in the 20:80 ratio, 16% (37) of students are in the 40:60 ratio, 16% (37) of the students are in the 60:40 ratio, and 33% (76) of students are in the 80:20 ratio.

Table 7 Students' Preference Level Ratio for Utilizing Printed Back Volumes Verses E- Back Volumes

Department	Back volumes – Usage Ratio between Printed Source and E-resource Respectively			
	20:80	40:60	60:40	80:20
CSE	23	6	4	9
IT	17	4	2	6
ECE	36	12	8	16
EEE	13	3	2	5
MECH	24	6	7	10
MCA	12	2	1	4
Total & Percentage	**125 (54%)**	**33 (14%)**	**24 (11%)**	**50 (21%)**

Table 8 Statistics of Students' Various Utilization on Library E- resources and Printed Resources

Books						
Utilization Statistics	**CSE**	**IT**	**ECE**	**EEE**	**MECH**	**MCA**
Mean	10.5	7.2	18.0	5.7	11.7	4.7
Std. Devi (SD)	10.2	6.9	18.1	5.9	12.8	4.9
Std. Error(SE)	5.1	3.4	9.1	2.9	6.4	2.4
Journals						
Mean	10.5	7.2	18.0	5.7	11.7	4.7
Std. Devi (SD)	6.4	6.5	18.5	5.5	12.6	4.9
Std. Error(SE)	3.2	3.2	9.2	2.7	6.3	2.4
Magazine						
Mean	10.5	7.2	18.0	5.7	11.7	4.7
Std. Devi (SD)	17.0	11.8	28.6	9.5	19.5	7.5
Std. Error(SE)	8.5	5.9	14.3	4.7	9.7	3.7
Proceedings						
Mean	10.5	7.2	18.0	5.7	11.7	4.7
Std. Devi (SD)	13.8	8.7	26.2	7.8	16.3	6.1
Std. Error(SE)	6.9	4.3	13.1	3.9	8.1	3.0
Project reports						
Mean	10.5	7.2	18.0	5.7	11.7	4.7
Std. Devi (SD)	3.5	2.7	8.7	2.6	5.3	2.2
Std. Error(SE)	1.7	1.3	4.3	1.3	2.6	1.1
Back Volumes						
Mean	10.5	7.2	18.0	5.7	11.7	4.7
Std. Devi (SD)	8.5	6.7	12.4	4.9	8.3	4.9
Std. Error(SE)	4.2	3.3	6.2	2.4	4.1	2.4

The Table 7 shows the students' preference level ratio for utilizing printed Back volumes verses E- Back volumes. 54% (125) of students are in the 20:80 ratio, 15% (33) of students are in the 40:60 ratio, 11% (24) of the students are in the 60:40 ratio, and 21% (50) of students are in the 80:20 ratio.

Intra-department students-wise books utilization ratio of printed verses e- resource, 4% of students 20:80; 15% of students 40:60; 20% of students 20:80; and 61% of students 20:80 usage ratio respectively. ANOVA test employed between the department, the F- ratio is 0.815 and 5% F – limit (5, 18) is 2.77, it's greater than F- ratio; so it's resulted that the intra department students are not significant between the usage ratios.

Intra-department student-wise journal utilization ratio of printed verses e- resource, 8% of students 20:80; 14% of students 40:60; 19% of students 20:80; and 59% of students 20:80 usage ratio respectively. ANOVA test employed between the department, the F- ratio is 0.892 and 5% F – limit (5, 18) is 2.77, it's greater than F- ratio; so it's resulted that the intra department students are not significant between he usage ratios.

Intra-department-wise Magazine utilization ratio of printed verses e- resource, 3% of students 20:80; 4% of students 40:60; 8% of students 20:80; and 85% of students 20:80 usage ratio respectively. ANOVA test employed between the department, the F- ratio is 0.322 and 5% F – limit (5, 18) is 2.77, it's greater than F- ratio; so it's resulted that the intra department students are not significant between the usage ratios.

Intra-department-wise Proceedings utilization ratio of printed verses e- resource, 76% of students 20:80; 15% of students 40:60; 6% of students 20:80; and 3% of students 20:80 usage ratio respectively. ANOVA test employed between the department, the F- ratio is 0.433 and 5% F – limit (5, 18) is 2.77, it's greater than F- ratio; so it's resulted that the intra department students are not significant between the usage ratios.

Intra-department-wise Project report utilization ratio of printed verses e- resource, 35% of students 20:80; 16% of students 40:60; 16% of students 20:80; and 33% of students 20:80 usage ratio respectively. ANOVA test employed between the department, the F- ratio is 4.188 and 5% F – limit (5, 18) is 2.77, it's less than F- ratio; so it's resulted that the intra department students are significant between the usage ratios.

Intra-department-wise Back Volumes utilization ratio of printed verses e- resource, 54% of students 20:80; 14% of students 40:60; 11% of students 20:80; and 21% of students 20:80 usage ratio respectively. ANOVA test employed between the department, the F- ratio is 1.465 and 5% F – limit (5, 18) is 2.77, it's greater than F- ratio; so it's resulted that the intra department students are not significant between the usage ratios.

6. DISCUSSION

In this digital era, the printed sources are having the withstand capacity among the electronics resources through the printed books. From this research, it is found that the students are generally utilize the printed books for their syllabus oriented studies. Over all, it is justified through this study students are satisfied their basic subject thirst through the utilization of the printed books, but, it is different in inter departmental students' utilization, it shows that the Mechanical and Electronics students' usage ratio is higher than the computer and communication branch students.

Students use the printed journals for their academic projects, among the user Electronics and Mechanical branch students highly utilize the printed journals than the Information and Computer science students. Magazines are mostly preferred in the form of printing than the e magazine. It is found through the research, the printed magazines are having the top priority among the students.

It is the general attraction among the students that the utilization of proceedings of conference and seminars. Students are interested to avail the facility through the e-resources. In the domain library both digitized and printed projects are there, the rate of usage both sources is equally utilized. The back volume usage ratio is showing the interest to wards the e resources.

7. SUGGESTIONS

i. Technical college libraries may concentrate on the collection building both digital and printed sources in the library.
ii. Technical college libraries may enable the wi-fi internet connection; it will facilitate the students to access online and digital sources through the laptop.
iii. Subscribe the video lectures like NPTEL (National program on Technology Enhanced Learning).
iv. Erect an audio visual section in the library will facilitate to students to access e-learning.

8. CONCLUSION

In general, user environment enhances and accelerates the students' reading habits. Based on this study, it is identified the trend and usage of the e-resources and printed resources. Hybrid library users are attracted by the digital environment because the users are satisfied by both printed and e-resources. The college libraries are mostly housed the printed sources for the syllabus oriented access, which is necessity for the academic preparation and gained knowledge in basic level, for their advance level subject thirst, they seek the online sources. Some e-learning and video lectures are also available for the students to prepare the curriculum. Both print and online source housed hybrid libraries have good-will among the users.

REFERENCES

[1] Carol Tenopir, "Use and User of Electronic Library Resources, Council on Library and Information Resources", Washington, D.C., 2003.
[2] Bhat M Ishwara, "Increasing the Discovery and Use of E-resources in University Libraries", 7th International CALIBER-09, Pondicherry University, Puducherry, 2009.
[3] Michelle M. WU, "Why Printed and Electronics Resources are Essential to the Academic Law Library", American Association of Law Libraries, http: www.aullnet.org/sis/allsis/toolkit/index.html, 2005.

Scientometic Dimension on Gender in Thyroid Cancer: A Global Level

S. Arjunan[1] and M. Surya[2]
[1]Surya Engineering College, Erode - 638 107, Tamil Nadu
[2]Annamalai University, Annamalai Nagar - 608 002, Tamil Nadu
E-mail: sarujanan@gmail.com
(Received on 03 April 2010 and accepted on 15 July 2010)

Abstract

This study has been carried out to analyze the research field of Gender in thyroid cancer in terms of publication output as per science citation index (1991- 2010). During 1991- 2010 a total of 380 papers were published by the scientists in the field of Gender in thyroid cancer. The average number of published per year 10.78%. The highest number of papers 41 were published in 2006 and 2007. There were 50 countries involved in the research in this field. USA is top producing country with 140 publications (36.84%) followed by Italy with 44 publications (11.57%), Japan with 32 publications (8.42%),Germany with 31 publications (8.15%), Sweden with 19 Publications (5.00%). The most productive author is Clark OH with 11 papers dealing with thyroid cancer and 2.89% of all papers published in this research field. The most preferred journals by Thyroid topped the list with 30 (7.89%) followed by Journal of Clinical Endocrinology & Metabolism with 27 (7.10%) Publications, Cancer with 22 (5.78%) publications, World Journal of Surgery with 18 (4.73%) Publications, Surgery with 13 publications (3.42%). NCI is top producing Institution with 15 (3.94%) publication followed by Karolinska Institute, University of California San Francisco, University of Pisa each 13 publications. Thyroid topped the list with 273 publication followed by Cancer with 131 publications, Carcinoma with 112 publications.

Keywords: *Cancer, Carcinoma, Patients, Scientometric Analysis, Scientometric Study, Thyroid*

1. INTRODUCTION

Now-a-days the scientometrics, studying mainly the quantitative aspects of science (in cognitive, as well as in social context), has strengthen its position as a significant component of the general Science of science, and it appears to be a complete disciplinary field with clearly outlined subjects of research, specific set of good elaborated research methods and techniques, a significant concerning size and geographical scope research community, numerous research institutions. Research publications are clearly one of the quantitative measures for the basic research activity in a country. It must be added, however, that what excites the common man, as well as the scientific community, are the peaks of scientific and technological achievement, not just the statistics on publications. Many scientometrics studies have appeared in the literature to focus on the performance of science in the field of Gender in Thyroid Cancer.

2. OBJECTIVES

The main objective of the study is to present the growth of world literature in Gender in thyroid cancer deposition and make the quantitative assessment of the research in terms of year-wise research output, geographical distribution of research output, nature of collaboration, characteristics of highly productive institution and the channel of communication used by the scientists.

3. METHODOLOGY

Data was collected from the Science Citation Index (SCI) which is available via the Web of Science (WoS). The WoS is the search platform provided by Thomson Reuters (the former Thomson Scientific emerged from the Institute for Scientific Information (ISI) in Philadelphia). SCI database is one of the very comprehensive databases covering all aspects of science. The study period (1991-2010) is selected as the database is available in machine from since 1982. The search string

"Gender in Thyroid Cancer" in the "Basic search" field of SCI was used for the years 1991-2010 to download the records on the subjects 'gender in thyroid cancer'. A total of 380 records were downloaded and analyzed by using the Histcite software application as per the objectives of the study.

4. RESULTS AND DISCUSSION

Table 1(a) - Year-wise Distribution of Documents

Sl. No.	Publication Year	Recs	TLCS	TGCS
1	1991	3	3	65
2	1992	2	14	206
3	1993	2	5	58
4	1994	3	4	88
5	1995	6	20	227
6	1996	7	12	336
7	1997	13	47	610
8	1998	14	23	549
9	1999	23	38	453
10	2000	13	19	448
11	2001	19	26	422
12	2002	23	26	344
13	2003	29	26	604
14	2004	38	43	722
15	2005	26	18	437
16	2006	41	20	608
17	2007	41	19	406
18	2008	38	9	146
19	2009	34	1	24
20	2010	5	-	-

Table 1 (b) Exponential Growth in Number of Publication was Observed During 1978-2009

Five Year Blocks	No of Publication	Growth Rate
1991-1995	16	-
1996-2000	70	4.38
2001-2005	135	1.92
2006-March2010	159	1.19

During 1991-2010 a total of 380 publication were published in Gender in thyroid cancer by various countries. The average Number of Publications produced per year was 19.00%. The highest number of publications 41 was produced in 2006 and 2007.Table 1(a) was given year wise growth and collaboration rate in gender in thyroid cancer. It can be clearly visualized from the Table 1(a) that growth of the literature was very low during 2006-2010 and it peaked during 1996-2000. It indicates that research in Gender in thyroid cancer received a major impetus this period. An exponential growth in number of publication was observed during 1991-2010. The highest growth rate (4.38%) was found during 1996-2000 with 70 publication followed by (1.92%) with 135 publication, during 2001-2005, (1.19%) with 159 publications, during 2006-2010. Table 1(b) gives growth rate of publications in gender in thyroid cancer research in different five years.

Table 2 Country-wise Documents Distribution

Sl. No.	Country	Recs	TLCS	TGCS
1	USA	140	185	3690
2	Italy	44	58	920
3	Japan	32	42	564
4	Germany	31	28	415
5	Sweden	19	21	328
6	Taiwan	18	5	152
7	France	17	19	427
8	Turkey	14	3	51
9	Byelarus	12	31	418
10	Spain	12	12	211
11	UK	12	6	211
12	South Korea	10	1	54
13	Canada	9	13	248
14	Finland	9	3	105
15	Greece	9	9	99
16	Israel	8	6	172
17	Norway	8	17	191
18	Peoples R China	8	9	91
19	Russia	8	25	297
20	Brazil	7	8	124

There were as many as 50 countries carrying out research in the field of gender in thyroid cancer and produced 1855 authorships. Table 2 provides a list of countries whose research output is more than 50 publications. USA is top producing country with 140 publications (36.84%) followed by Italy with 44 publications (11.57%), Japan with 32 publications (8.42%), Germany with 31 Publications (8.15%), Sweden with 19 Publications (5.00%).

Table 3 Top 20 Most Productive Authors with Respect to the Number of Article Dealing with Gender in Thyroid Cancer Source: SCI (WoS)

Sl. No.	Author	Recs	TLCS	TGCS
1	Clark OH	11	13	317
2	Lin JD	10	4	104
3	Chao TC	9	4	101
4	Ron E	9	11	320
5	Duh QY	8	9	234
6	Pinchera A	8	27	367
7	Antonelli A	7	6	162
8	Elisei R	7	18	276
9	Pacini F	7	27	353
10	Demidchik EP	6	21	306
11	Fallahi P	6	6	79
12	Ferrari SM	6	6	79
13	Ito Y	6	5	49
14	Kebebew E	6	8	245
15	Miyauchi A	6	5	49
16	Reiners C	6	10	127
17	Siperstein AE	6	7	224
18	Tuttle RM	6	8	209
19	Bhattacharyya N	5	8	63
20	Ferrannini E	5	6	79

The most productive author is Clark OH with 11 papers dealing with Gender in thyroid cancer and 2.89% of all papers published in this research field. The authors of the seminal publication on Gender in thyroid cancer given in Table 3, Lin JD and Chao TC appear on rank 2 (10 papers) and 3 (9 papers), respectively.

The most productive Journal is Thyroid with 30 papers dealing with Gender in thyroid cancer and 7.89% of all papers published in this research field. The journal of the seminal publication on Gender in thyroid cancer given Table 4, Journal of Clinical Endocrinology & Metabolism and Cancer appear on rank 2 (7.10%) and 3(5.78%), respectively

Table 5 Word-wise Distribution of Documents (First -20 Documents)

Sl. No.	Word	Recs	TLCS	TGCS
1	Thyroid	273	326	4982
2	Cancer	131	109	1997
3	Carcinoma	112	188	2787
4	Patients	65	56	1105
5	Papillary	64	64	868
6	Differentiated	45	47	750
7	Factors	43	117	1407
8	Prognostic	40	102	1439
9	Risk	31	47	657
10	Analysis	27	34	378
11	Clinical	26	19	615
12	Follicular	25	57	501
13	Treatment	24	8	377
14	Incidence	23	21	458
15	Survival	23	25	542
16	Cell	19	20	256
17	Disease	19	7	173
18	Expression	15	3	121
19	Children	14	35	462
20	Gender	14	14	133

Keywords are one of the best scientometric indicators to understand and grasp instantaneously the thought content of the papers and to find out the growth of the subject field. Analysis of the keywords appeared either on the title or assigned by the indexer or the author himself who will help in knowing in which direction the knowledge grows. The high frequency keywords will enable us to understand the various aspects of Gender in thyroid cancer under study. The high frequency keywords were: Thyroid 273 (23.23%), Cancer 131 (11.14%), Carcinoma 112 (9.538%), Patients 65 (5.53%), and Papillary 20 (1.70%).

Table 4 Top 20 Most Productive Journal with Respect to the Number of Articles Dealing with Gender in Thyroid Cancer, Source: SCI (WoS)

Sl. No.	Journal	Recs	TLCS	TGCS
1	Thyroid	30	39	569
2	Journal of Clinical Endocrinology & Metabolism	27	41	981
3	Cancer	22	57	1070
4	World Journal of Surgery	18	23	242
5	Surgery	13	32	333
6	Cancer Causes & Control	11	24	260
7	Clinical Endocrinology	11	8	182
8	International Journal of Cancer	9	3	152
9	Laryngoscope	7	5	82
10	Radiation Research	7	14	319
11	International Journal of Radiation Oncology Biology Physics	6	0	50
12	American Journal of Surgery	5	14	184
13	Annals of Surgical Oncology	5	6	87
14	BMC Cancer	5	0	24
15	Cancer Journal	5	1	23
16	Endocrine-Related Cancer	5	12	113
17	Head and Neck-Journal for the Sciences and Specialties of the Head And Neck	5	10	200
18	Journal of The American College of Surgeons	5	2	76
19	Langenbecks Archives of Surgery	5	2	20
20	Oncology Reports	5	3	17

Table 6 Source-wise Distribution Documents

Sl. No.	Document Type	RECS	TLCS	TGCS
1	Article	313	274	5048
2	Proceedings Paper	49	90	1237
3	Review	11	4	365
4	Editorial Material	3	4	100
5	Letter	3	1	3
6	Meeting Abstract	1	0	0

Gender in Thyroid Cancer Scientists communicated their research results through a variety of communication channels. Table 6 provides the distribution of publications in various channels of communication. It was observed that 82.36% of the literature was published in Article followed by 12.89% in proceeding paper, 2.89% in Review, 0.78 percent in editorial Material 0.78% in Letter and 0.26% in Meeting Abstract.

Table 7 Language-wise Distribution Documents

Sl. No.	Language	RECS	TLCS	TGCS
1	English	375	372	6741
2	German	2	1	11
3	French	1	-	1
4	Korean	1	-	-
5	Spanish	1	-	-

The Gender in thyroid cancer have contributed more predominantly in English than any other languages as 375 (98.68%) publications were in English followed by German with 2 (0.52%) publications (Table 7).

Table 8 Institution-wise Documents Distribution (First - 20 Documents)

Sl. No.	Institution	Recs	TLCS	TGCS
1	NCI	15	23	468
2	Karolinska Inst	13	15	213
3	Univ Calif San Francisco	13	19	409
4	Univ Pisa	13	26	462
5	Mem Sloan Kettering Canc Ctr	12	41	751
6	Univ Milan	11	16	206
7	Univ Texas	11	8	142
8	Chang Gung Univ	8	2	66
9	Harvard Univ	8	16	251
10	Brigham & Womens Hosp	6	12	188
11	Chang Gung Mem Hosp	6	1	37
12	Tel Aviv Univ	6	3	145
13	Univ Wurzburg	6	10	127
14	Inst Gustave Roussy	4	12	239
15	Inst Oncol	4	10	46
16	Int Agcy Res Canc	4	4	52
17	Ist Ric Farmacol Mario Negri	4	10	76
18	Univ Birmingham	4	2	74
19	Univ Roma La Sapienza	4	9	111
20	Univ So Calif	4	11	107

There were 317 institutions involved in research activity in the field of Gender in thyroid cancer. Table 8 provides publication productivity of top 20 institutions. NCI is top producing Institution with 15 (3.94%) publication followed by Karolinska Institute, University of California San Francisco, University of Pisa each 13 publications.

5. SUMMARY

In this study, the literature on Gender in thyroid cancer, a promising new material, has been analyzed by scientometric methods. The time evolution of the overall number of citations reveals that the impact increase of the Gender in thyroid cancer papers is possibly going to outrun the impact increase of the related research fields on Cancer and Carcinoma. The highest growth rate (4.38%) was found during 1996-2000 with 70 publication followed by (1.92%) with 135 publication, during 2001-2005, (1.19%) with 159 publications, during 2006-2010.

The most productive author is Clark OH with 11 papers dealing with Gender in thyroid cancer and 2.89% of all papers published in this research field. USA is top producing country with 140 publications (36.84%) followed by Italy with 44 publications (11.57%), Japan with 32 publications (8.42%), Germany with 31 Publications (8.15%), Sweden with 19 Publications (5.00%).

A research landscape has been established, illustrating the major research clusters with regard to the clustering concept. The top 20 most productive research journal & of the seminal publication on Gender in thyroid cancer, Journal is Thyroid with 30 papers dealing with Gender in thyroid cancer and 7.89% of all papers published in this research field. The high frequency keywords will enable us to understand the various aspects of Gender in thyroid cancer under study. The high frequency keywords were: Thyroid 273 (23.23%), Cancer 131 (11.14%), Carcinoma 112 (9.538%), Patients 65 (5.53%), and Papillary 20 (1.70%). It was observed that 82.36% of the literature was published in Article followed by 12.89% in proceeding paper, 2.89% in Review, 0.78% in editorial Material 0.78% in Letter and 0.26% in Meeting Abstract, News items The Gender in thyroid cancer has contributed more predominantly in English than any other languages as 375 (98.68%) publications. Among the top 20 most productive research Institution there are NCI is top producing Institution with 15 (3.94%) publication followed by Karolinska Institute, University of California San Francisco, University of Pisa each 13 publications.

Finally, a citation graph has been constructed by revealing two unequally pronounced clusters of Gender in thyroid cancer related publications: the pre-2008 articles being less cross-linked and the past-2008 papers being strongly networked with some of them being heavily cited already a few years after their publication. We suggest for tracking citation record of papers so that the impact of publications in Gender in thyroid cancer may be visible.

REFERENCES

[1] A. Dikusar, "The Interrelation Between the Process of Social-Economic and Scientific Development of the Society (in Rus.)", Naukovedenie, Vol.2,1999, pp.51-74.

[2] B.S. Kademani, *et al.* "Scientometric Portrait of Noble Laureate Dr. C. V. Raman", Indian Journal of Information Library and Society, Vol.37, No.4, 1994, pp.215-49.

[3] B. S. Kademani, Vijai Kumar, Anil Sagar and Anil Kumar. "Scientometric Dimensions of Nuclear Science and Technology Research In India: A Study Based on INIS (1970-2002) Database", Malaysian Journal of Library & Information Science, Vol.11, No.1, 2002, pp.23-48.

[4] Mohammad Hossein Biglu, "Scientometric Study of Patent Literature in MEDLINE &SCI.", Ph.D. Dissertation, Humboldt - Universität zu Berlin, Institut für Bibliotheks- und Informationswissenschaft, 2008.

[5] Mohammad Hossein Biglu, The Influence of References per Paper in the SCI to Impact Factor and the Matthew Effect. Scientometrics Vol 74, 2008.

[6] Glänzel, Wolfgang and Meyer, Martin, "Patents Cited in the Scientific Literature: An Exploratory Study of Reverse", Citation Relations. Scientometrics, Vol. 58, No. 2, 2003, pp.415-428.

[7] Narin, Francis and Elliot Noma, "Is Technology Becoming Science? Scientometrics", Vol. 7, 1985, pp.369-381.

[8] United States National Library of Medicine. http://www.nlm.nih.gov/

[9] E. Bailon-Moreno, *et al.*, "The Unified Scientometric Model, Fractality and Transfractality", Scientometrics, Vol.63, No.2, 2005, pp.231-257.

[10] E. Bailon-Moreno, *et al.*, "The Pulsing Structure of Science: Ortegay Gasset, Saint Matthew, Fractality and Transfractality". Scientometrics, Vol.71, No.1, 2007, pp.3-24.

[11] J. Campanario, "Using Neural Networks to Study Networks of Scientific Journals", Scientometrics, Vol.33, No.1, 1995, pp.23-40.

[12] B. Cassiman, P. Glenisson and B. Van Looy, "Measuring Industry-Science Links through Inventor-Author Relations: A Profiling Methodology, Scientometrics, Vol.70, No.2, 2007, pp.379-391.

Information Use Pattern of Members of Faculty in Social Sciences of Annamalai University, Tamil Nadu: A Study

K. Vijayakumar
Department of Library and Information Science, Annamalai University, Annamalai Nagar - 608 002, Tamil Nadu
E-mail: Vijayakumar@yahoo.co.in
(Received on 05 March 2010 and accepted on 10 June 2010)

Abstract

This paper deals with information use pattern of faculty members in various departments of Annamalai University, Information use pattern is the chief sources of providing information to the users. It discusses the user category, Frequency of library visit, Purpose of library visit, information channels used, sources used to gather bibliographic information, Reason for gathering information, ranking of information sources. This study also analyses the ways to promote the library infrastructure and its services for the various faculty members of Annamalai University.

Keywords: *Information Use Pattern, Social Sciences*

1. INTRODUCTION

Information is an essential raw material for all human endeavours in a complex modern society. It is recognized as per prerequisite of scientific, socio-economic and cultural development of any nation. For this, it is inevitable to provide the right information to the right user at the right time at the right form.

2. INFORMATION SEEKING BEHAVIOUR

The users may seek for information in a number of ways such as reading books, browsing periodicals, consulting, abstracting and indexing periodicals, contacting colleagues and friends, seeking information from guides and senior co-workers; gathering information from library and Information centers and attending seminars, conferences etc.

This study to find out how a user seeks his information may be helpful to the library authorities in organizing their acquisition programmers effectively and to introduce appropriate services.

3. STATEMENT OF THE PROBLEM

This study is confined to the information use pattern of faculty members in social sciences of Annamalai University. The main aim of the study is to measure the success and failure of the working of the reading habits and variety of interest of the teachers in their fields, such as general and subjects. It will be a guidance to the Librarians to procure the required/ need documents so as to the result brought out.

4. OBJECTIVES

The following objectives are framed for the purpose of present study:

i To assess the information needs of faculty members in social sciences of Annamalai University
ii To study the different access of social sciences information sources
iii To study the information gathering methods and procedures followed
iv To identify the types of information sources required.
v To assess the purpose of library visit
vi To understand the awareness of available information sources and services

5. HYPOTHESES

The following hypotheses are formulated to examine the above framed objectives.

There would be significant difference between Lecturers, Readers and Professors, in using library, yet they are all bound with teaching activity.

5.1 Perceptions

i. In the frequency of library visit
ii. In information use pattern
iii. Sources used to know the bibliographical information
iv. Purpose of visiting other libraries
v. Reason of gathering information
vi. Ranking of information gathered
vii. To what extent do they make use of the services offered by the library?

6. METHODOLOGY

The study is mainly based on the primary data collected from the Social Sciences teaching community through a well designed questionnaire. Besides, the secondary data have been collected from sources like Text books, Reference books, National and International Journals and Magazines.

6.1 Sample Selection

In order to study the information use pattern of faculty members in Social Sciences of Annamalai University, there were 115 questionnaires distributed to the respondents. Among the 115 questionnaires 27 questionnaires were collected from Professors, 34 questionnaires were collected from Readers, and 54 questionnaires were collected from Lecturers. The cadre wise distribution is taken into interpretation.

As per the Table 1 given below, it is evident that out of 115 users, majority of the users (17) are taken from the Department of Commerce. From the Department of Business Administration, 14 faculty members are taken for the study. In the same way, 26 faculty members are observed for the purpose from the both the Departments of Economics and Education. 12 faculty members are studied from the Department of Linguistics, whereas from the Department of English 10 faculty members, Sociology eight and each six from Political Science, Philosophy, Population Studies and History that are included in the study. Three faculty members from Pshycology and one faculty member from Physical Education have also been observed for these study.

Table 1 User Category

Sl. No.	Departments	Professors	Readers	Lecturers	%	Total
1	Commerce	4	3	10	14.78	17
2	Business Administration	2	4	8	12.17	14
3	Economics	2	4	7	11.30	13
4	Education	3	5	5	11.30	13
5	Linguistics	5	1	6	10.43	12
6	English	4	5	1	8.69	10
7	Sociology	1	4	3	6.95	8
8	Political Science	1	1	4	5.21	6
9	Philosophy	1	3	2	5.21	6
10	Population Studies	-	2	4	5.21	6
11	History	2	1	3	5.21	6
12	Psychology	1	1	1	2.68	3
13	Physical Education	1	-	-	0.86	1
	Total	27	34	54	100	115

Table 2 Frequency of Library Visit

Sl. No.	Particulars	Large Extent			Some Extent			Less Extent			Total
		P	R	L	P	R	L	P	R	L	
1	Once in a Week	5	4	8	3	9	4	1	1	3	38
2	Every Day	2	3	3	-	4	5	1	1	7	26
3	Once in a Fortnight	1	1	1	1	2	3	2	1	4	16
4	Once in a Month	2	3	2	1	2	1	1	1	6	19
5	Occasionally	3	-	3	1	1	1	-	-	1	10
6	Never	2	1	1	-	-	-	1	-	1	6
	Total	15	12	18	6	18	14	6	4	22	115

Table 2 states that the habit of faculty members visiting the University Library and their frequency measure from the analysis is understood that most of the Faculty members prefer to go to library once a week. Out of 115 users, 9 (33.33%) Professors and 14 (41.18%) Readers highly use the library once a week. It is also noted that Lecturer mostly use the library resources every day. Some of the faculty members visit library once in a fortnight, 19 faculty members make the chance of going to library once in a month. Some of the Professors and Lecturers make use of library as occasionally. But, it is also found that six faculty members are found non uses of library for any of their purpose.

Table 2a Frequency of Library Visit

ANOVA: Two-way Classification

Source of Variation	SS	Df	MS	F	p-value	F crit
Between Sample	0.803294	5	0.160659	10.37029	0.001043	3.325837
Within Sample	0.015478	2	0.007739	0.499534	0.621185	4.102816
Error	0.154922	10	0.015492	-	-	-
Total	0.973694	17	-	-	-	-

Rows = Between Sample Columns = Within sample

The ANOVA two way model is applied to examine the variation. At one point the compared ANOVA value is 10.37 which is to refer the less tabulated value at one percent level of significance. Hence the variation in frequency of library visit is statistically identified as significant with respect to respondents of different occupational items. However, it is insignificant in respect of occupational status wise regarding the library visit. It is constituted that F value is lesser than its tabulated value at 5% level of significance.

Table 3 Purpose of Library Visit

Sl. No.	Particulars	Large Extent			Some Extent			Less Extent			Total
		P	R	L	P	R	L	P	R	L	
1	For Relaxation	3	5	9	1	12	8	23	17	37	115
2	To get Bibliographic Information	10	8	12	8	17	13	9	9	29	115
3	To get current Information	13	10	20	5	9	21	9	15	13	115
4	To get Retrospective Information	5	6	10	10	3	10	12	25	34	115
5	Conceptual Information	7	13	12	12	9	13	8	12	29	115
6	Statistical Information	3	10	9	2	10	12	22	14	33	115
	Total	41	52	72	38	60	77	83	92	175	690

Through the above Table 3, the purpose of visiting library has been analysed. Out of 115 faculty members, some of them 38 (43.71%) visit the library for relaxation. Professors 18 (66.67%) and Lecturers 25 (46.29%) show much interest in getting bibliographical information. Lecturers 41(75.92%) are found highly interest in getting current information. Retrospective information is mostly used by Professors only, the same way conceptual information is also notably used by Professors 19 (70.37%). Readers 20 (58.82%) are interested in collecting Statistical information from the library.

Table 4 Showing Information Channels Used

Sl. No.	Particulars	Large Extent			Some Extent			Less Extent			Total
		P	R	L	P	R	L	P	R	L	
1	Colleagues	14	17	11	10	9	10	3	8	33	115
2	Experts	6	6	16	14	13	15	7	15	23	115
3	Librarian	12	5	8	3	8	18	12	21	28	115
4	Documentary Sources	8	7	10	14	16	18	5	11	26	115
5	Friends	7	2	10	15	6	13	5	26	31	115
	Total	47	37	55	56	52	74	32	81	141	575

By analysing the above Table 4 how far the faculty members get use of information channels have been clearly stated. Out of 115 faculty members, 24 (89%) Professors get the information from colleagues. Most of the Lecturers 31(57%) are informed through the channel of experts. Librarian (55%) becomes the most useful channel to the Professors only. Documentary sources of information channel is highly used by Readers 23(68%). Most of the Professors 22 (81%) use friends as their information channels in getting their informational needs.

Table 5 Sources Used to Gather Bibliographic Information

Sl.No.	Particulars	Large Extent			Some Extent			Less Extent			Total
		P	R	L	P	R	L	P	R	L	
1	Catalogues	5	5	12	13	13	15	9	16	27	115
2	Indexes	4	13	13	14	15	6	9	6	35	115
3	Citations	4	11	11	15	14	6	8	9	37	115
4	Reviews	2	12	12	10	15	13	15	7	29	115
5	Bibliography	9	15	14	12	14	24	6	5	16	115
6	Experts	13	13	16	9	12	15	5	9	23	115
7	Online	4	5	16	7	13	19	16	16	19	115
8	Browsing INTERNET	2	4	15	2	19	16	23	11	23	115
		INDIAN			FOREIGN			BOTH			
9	Habit of Reading Journal	9	12	25	12	4	5	6	18	24	115
	Total	52	90	134	94	119	119	97	97	233	1035

Table 5 states what are the sources used to collect bibliographical information by the faculty members of Social Sciences. Catalogue is largely regarded by the Professors as the most useful source to get bibliographic information 18 (67%). Readers are highly benefited by the sources of indexes(28), and by citations (25) in selecting their bibliographical information.

Lecturers 38 (70%) preferably show their interest in using the source of bibliography. Professors have the constant contact with the experts in collecting their bibliographical needs 22(81%). The sources of online is mostly used by the Lecturers. In the same way, they notably browse the INTERNET to collect bibliographical information. The maximum rate of reading habit of Journal is found at the Professor level 21(78%).

Table 6 Reason for Gathering Information

Sl. No.	Particulars	Yes			No			Total
		P	R	L	P	R	L	
1	For Preparing Class	18	25	44	9	9	10	115
2	For Preparing Journals Articles	21	24	30	6	10	24	115
3	Seminar / Conference	22	24	31	5	10	23	115
4	Writing Books	16	17	24	11	17	30	115
5	Research	23	28	45	4	6	9	115
6	General Purpose	9	15	30	18	19	24	115
	Total	109	133	204	53	71	120	690

Table 6 shows the purpose of gathering information from the library. It is evident that most of Lecturers (81%) collect information for the purpose of preparing class. For writing journal articles, Professors are highly prepared in collecting information. In the same way most of the Professors gather information from the library for presenting papers in Seminars and Conferences. It is found that 16 (59%) Professors show much interest in writing books. The research is highly carried out by Lecturers, most of the Faculty members gather information for specific purposes only, and not for general purpose.

Table 7 Ranking of Information Sources

Sl. No.	Particulars	Highly Useful			Useful			Not Useful			Total
		P	R	L	P	R	L	P	R	L	
1	Books	12	15	20	8	10	25	7	9	9	115
2	Journals	10	10	25	8	16	10	9	8	19	115
3	Reports	9	10	20	8	22	15	10	2	19	115
4	Audio Visual	10	13	17	13	16	20	4	5	17	115
5	Electronic Media	6	4	18	10	20	20	8	10	16	115
	Total	50	52	100	47	84	90	38	34	80	575

Table 7 shows the ranking of Information Sources used by Faculty members in terms of highly useful, useful and not useful. Books are used by all the faculty members as the reference source of information. Books are largely referred by Lecturers (83%). Even though Journals are the primary sources, it is largely used by Readers (76%). By comparing the other Sources, Reports are found less in usage. By Analyzing the data Professors and Readers highly rely on Audiovisual source. Out of 27 Professors, 23 (85%) Professors have stated it is useful source. In the same way out of 34 Readers, 29 (85%) Readers have largely chosen this source and regard them useful. The source of Electronic media is moderately used by all the Faculty members. Out of 54 Lecturers, 34 (63%) have shown their interest in using this source.

7. FINDINGS AND CONCLUSION

The analysis of the frequency of the respondents reveals that most of the Professors (30%) and Readers (30%) are using the library once in a week and the Lecturers (15%) are found utilizing the library resources everyday.

The analysis of the purpose of visiting library shows that 18 (66.67%) Professors and 25 (46.29%) Lecturers visit the Library for the purpose of collecting Bibliographical information. The purpose of visiting Library by Readers is to acquire retrospective information, conceptual information and statistical information.

Information channels analysis of the respondents reveals that 24 (89%) professors are gathering information by having contact with colleagues and Librarians. Readers (68%) are gathering information through documentary sources.

Regarding the collection of bibliographical information Catalogues and Experts are found much helpful among 18 (67%) Professors. 38 Lecturers (70%) preferably show their interest in using the source of bibliography. Reason for gathering information reveals the following facts. For preparing class, 44 (81.%) Lecturers gather information from the library. Information gathered by 24 (71%) of Readers and 21 (78%) Professors are the purpose of preparing journal articles.

By ranking the information sources, it is observed that books are highly referred by 24 (44%) Lecturers. Primary sources like journals are ranked as useful source among the 26 (76%) Readers. Audio visual source of information is found high in usage among the 26 (96%) Professors.

8. SUGGESTIONS

i. It is suggested that Library facilities should be made aware to all Departments of the University with periodic interactions and orientation so that newly appointed Faculty Member will be aware of the library holdings.
ii. Users should be encouraged to seek the information needs by themselves and enrich their capacity to have the positive and fruitful approaches towards their requirements. So that the optimum utilization of Library resources can be achieved.
iii. With regard to library services, It is suggested that the services offered by the Library may be extended towards the Department Libraries, so that the new services can easily reach to the Faculty members.
iv. The Faculty library should have some direct Co-ordination with the University Library.
v. Department Library can be connected with the internet facility with regard to the infrastructure.
vi. It is suggested that infrastructure should be extended so as to our climatic conditions. Air-conditioner facility may be extended atleast in the Reference Section.

REFERENCES

[1] Babu A Duravasa, "Information Generation and Library Use by University Teachers", Gyan Publishing House, New Delhi, 1994.
[2] G. Devarajan, "Library Information Users and Use Studies", Beacon Books. Bombay, 1991.
[3] A.J. Evans, "Education and Training of Users for Teachers", UNESCO, Paris, 1989.
[4] A.R. Sethi, "Information Seeking Behaviour of Social Scientist: An Indian Perspective", Hindustan Publication Company, Delhi, 1990.
[5] S. Pangannaya and M.R. Ramakrishnarao, "Information Gathering Habits of R & D Personnel", Annals of Library Science and Documentation, Vol.12, No.11, 1993, pp.28-42.
[6] H.N. Prasad and Tripati (Manorama), "Information Seeking Behaviour of Physical Scientist and Social Scientist. A Reports", Annals of Library Science and Documentation, Vol.45, No.2, June 1998, pp.41-48.
[7] M. Satyanaranayan "Information Needs Planning on Effective Library", Indian Journal of Information & Library Science, Vol.10, No.2, 1997.
[8] M.S. Sridhar, "Pattern of User Visit, Movement and Length of Study in Special Library", Annals of Library Science and Documentation, Vol.36, No.4, 1999, pp.134-138.
[9] K.P. Vijayakumar, "Information Sources and Services in Social Science", Kelpro Bulletin, Vol.1, No.1, 2008, pp. 15-25.
[10] http://www.alpeda.shef.ac.uk/fr-392.html

Evaluation of Indian Institute of Technology Library Websites in India

S. Srinivasa Ragavan[1], M. Dorairajan[2], R. Prabu[3] and S. Nithya[4]
[1,3&4]Bharathidasan University, Trichy-620 024, Tamil Nadu
[2]St. Joseph's College, Trichy-620 002, Tamil Nadu
E-mail: mdorairajan@gmail.com
(Received on 27 August 2010 and accepted on 05 October 2010)

Abstract

Today's savvy library users are starting to equate the library website with the physical library. The purpose of this study was to assess the content management and usability of an academic library Website. This article presents the major findings of evaluation of library web sites of all IITs in India on the World Wide Web. This article includes a brief examination of services provided on the Web sites in general and concerning library Websites in particular. The analysis made based on a list of criteria for evaluation of academic libraries.

Keywords: *Content Management, Library Web Site, Library Web Portal Evaluation*

1.INTRODUCTION

Evaluation always leads to recognition and rectification. Evaluation is the basic and core element of any concept or subject or a process or a program. Evaluation studies are the analytical studies that took part in operation research particularly in market environment [1]. Periodic evaluations to assess the impact of the product, process or people in a given current environment is immense in determination of the future course of action in redefining the role and importance in terms of the specific and customized requirements [2]. In this modern era, the knowledge society and the technology culture leads to significant changes at a great pace in day-to-day activities and practices of the social life. This has been further emphasized in terms of information technology [3]. Change is very fast in application of technology in enhancing the use of products and services and satisfying the customers behaviors [4].

The entire dimensions of Library and information science is completely changed due to the impact of information technology in generating, publishing and disseminating information, particularly the recent web technologies made the libraries to go to the users desk rather users visits the library [5]. The changing face and role of LIS Professionals necessitate them to elope with latest technologies and their applications in designing and delivery of products and services.

2. WEBSITES AS AN INTERFACE

Websites are the most important basic tools of information dissemination in this information technology era. As to the developments in communication and information technology there are many changes were happened in the past decade in designing the websites. As the mouthpiece in broadcasting the policies and products of the organizations in terms of content and application of technical features that enable sustainability and convenient use. Websites become as web portals and gateways for many organizations. They disseminate not only the information pertinent to the organization but also the related resources. Higher Education Institutions (HEI) must publish their activities to the general public, for their benefit in all aspects. Of course publications of the activities and research are one of the main thrust areas of higher education institutions. Websites are enabling this role as the windows of the educational organizations in disseminating the information to all the stakeholders. Websites of the universities and collages are even liasoning the parents and students at many times when they are at remote. Publication of the admission status, procedures, examination results and assignments carried out by the students, the attendance and the student's presence in the fieldwork etc. also can be communicated through website.

3. LIBRARY WEBSITE

Libraries as the centre of any academic organization should possess all the qualities in disseminating the

process, products and services of the institution to all its stakeholders. Libraries have undergone a revolution in the way that they operate and provide information services to users. The vast majority of library services are now accessed via the WWW and so attention is being focused on designing user-friendly and easily managed library websites.

Many library home pages offer a range of information resources and network access to users, such as "subject guides", "networked CD-ROMs" and "online databases". These choices are often based on the format of the resources (CD-ROMs, websites, printed items).

A comprehensive resourceful library website normally provides access to the following:

i. Orientation of the library services and facilities;
ii. Access to online databases and e-journals subscribed in the library;
iii. Access to other open source databases and institutional repositories on Sciences, Social Sciences and Humanities;
iv. Access to a world of information on Electronic Books, Electronic Theses and Dissertations, E-prints and Reference Sources etc;
v. Library housekeeping operations; and Information processing activities.
vi. Networked and Satellite access on services and facilities.

A number of educational institutions in India are maintaining their library websites as a portal of accessing various information resources. All these made the researcher to choose the present topic in evaluating the library sites of IIT's, the top institutes of national importance in designing and delivering information products and services to their clientele.

3. OBJECTIVES OF THIS STUDY

The following objectives are framed for this study:

i. To know the different URL's used for IIT library websites.
ii. To know whether all the IIT's are having separate websites or remaining as the part of the IIT websites.
iii. To identifying the pattern of organization of the content in the selected websites.
iv. To reveal the pattern of access made to the resources of the selected libraries through web.
v. To find the range of information services offered to the user community among these libraries through websites.
vi. To identify the level of variations among the IIT Library sites in applying the technical features.
vii. To check the level of currency of these Library websites.
viii. To evaluate the websites based on standard website assessment parameters.
ix. To access the link pattern and its effectiveness in the IIT library websites.

4. METHODOLOGY

This study is explorative in nature in identifying the design and organization of the library websites of IIT's and it is also analytical in nature in strengthening the empirical relativity due to personal observation of the selected sites at regular intervals in verifying the standard parameters and comparing the existence with relevant educational sites in the present context.

5. EVALUATION CRITERIA

The study designed the parameter after comprehensive analysis on the criteria in evaluating educational websites and library websites used in many of the higher studies. The parameters chosen for the present study are as follows.

5.1. Currency, Accuracy and Relevance

i. Retrieve all the hypertext links in the web page
ii. Given all the contact information
iii. Updation of website
iv. Copyright status are clearly stated
v. Authentication of the contents

5.2 Accessibility

i. Site is accessible from Internet explore, Netscape Navigator & Mozilla Firebox
ii. All the images icons and graphics are downloadable/ accessible
iii. The educational queries about the web site's content.
iv. Each page or section on the web site is clearly labeled.
v. Any special software requirements to view web site's content is stated clearly.

5.3. Presentation of Style

i. The graphics & texts are most clear & easy to read
ii. Web pages are easy to navigate
iii. Every page included way to turn the home page for the site.
iv. Web site is free from grammatical and typographical errors.
v. Distributed visual appear

5.4. URL Maintenance of Library Websites

i. Persons responsible for the site displayed.
ii. Allows a user to send feedback or comments in to library.
iii. Library having separate domain name.

5.5. Features of Library Websites

i. Options is there to search a library OPAC
ii. Option is there to request reference assistance such as e-mail; live chat
iii. Access to facilities and services
iv. Links to subscribe e-resources
v. Search Engine of the reference Sites made available
vi. Links for Open Access web resources

6. SIGNIFICANCE OF THE STUDY

Libraries in Higher Academic Institutions become more significant in determining the quality of the education due to the advancements and use of technology in teaching, learning process. Enormous growth of literature in various disciplines especially in micro subjects and applied research areas and also the variety of formats in organizing information emphasize the academic libraries to have more space than classrooms and laboratories. Application of Library 2.0 concepts are mainly warranting the participative approach in information design and dissemination necessitate virtual library services through an integrated website or web portal. Hence the design of library site and its updated maintenance need a lot of concern and labour in enabling quality services to its clientele. Moreover the library sites are mirrors that reflect the reputation of the library and the institutions it belongs. Hence it is appropriate to evaluate the structure and organization of the websites of the libraries of the IIT's are being institutes of National Importance, this may give new insights in designing and maintaining Higher Academic Library sites on this study.

7. ANALYSIS AND INTERPRETATION

Table 1 Library Services

Library Services	IIT-KGP	IIT-B	IIT-C	IIT-K	IIT-D	IIT-G	IIT-R
New Books Display	YES	YES	YES	YES	NO	NO	NO
Archives	YES	YES	NO	NO	NO	NF	NO
Journal Issue	YES	YES	NF	YES	NO	NO	NO
Web OPAC Facility	YES	YES	YES	YES	YES	YES	NF
Online Book Reservation	YES	YES	YES	NO	YES	YES	NF
Checking Borrowing Books Online	YES	YES	YES	NO	YES	YES	NF
Borrowing Rules	NO	YES	NO	NO	NO	YES	YES
CAS	YES	YES	YES	YES	YES	YES	YES
SDI	YES	YES	YES	YES	YES	YES	YES
Total	80	90	60	50	50	60	30

*NF = Not Found

IITs have been recognized as one of the best institutes not only in India but also abroad with worldclass faculty, top infrastructure facilities and quality manpower. By studying their websites, no symmetry was found in their contents provided by their websites. Though these websites are very informative, maintained by library professionals, but in maximum case, these websites are not very user friendly.

- All of them provide link to Web-OPAC; CAS; SDI services; e-journals; e-books.
- All of them provide Library Rules except IIT-KGP.
- All of them are member of INDEST-AICTE Consortium.
- All the websites are maintained/updated by Library Professionals.

Though all are exactly similar kind of institutes, the content management of their library pages are mostly dissimilar. Only three-library web pages give information about borrowing rules. Most of the library web pages do not provide any information about journals holding. Most of the library web pages do not provide any information, since when access to e-journals is being provided.

Website of IIT Kharagpur has classified its content as per various sections, which is not very user friendly. User is more interested in various services preferred on main page itself. User may not know that link to new books display is being given under Technical Processing Section link or similar links to e-journals subscribed under INDEST Consortium are being given under Digital Library.

Table 2 Web 2.0 Applications

Web 2.0 Applications	IIT- KGP	IIT-B	IIT-C	IIT-K	IIT-D	IIT-G	IIT-R
Ajax	NO	YES	YES	NO	YES	NO	YES
Blogs	YES	YES	YES	YES	YES	YES	YES
RSS	NO	NO	NO	YES	NO	NO	NO

The above Table depicts that the application of Web 2.0 in LIS websites of IIT'S shows that almost all the Library sites have adopted the Web 2.0 applications of Ajax, Blogs and RSS. While only the Library of IIT Kanpur, Kharagpur, Guwahati do not use the web 2.0 application of Ajax, which is used for display of new arrivals through the Web-OPAC.

Table 3 Web Enabled Features

Web Enabled Features	IIT- KGP	IIT-B	IIT-C	IIT-K	IIT-D	IIT-G	IIT-R
Digital Library	NF	YES	YES	NF	NO	NO	NO
Children's Library Corner	NO	NO	YES	NO	NO	NO	NO
E-Book Drop System	NO	NO	NO	YES	NO	NO	NO
Auto Check and Check Out System	NO	NO	NO	YES	NO	NO	NO
Z39.50 Web-Portal	NO	NO	NO	YES	NO	NO	NO
Auto Binding	NO	NO	NO	YES	NO	NO	NO
Projects	NO	NO	YES	NO	YES	NO	NO
FAQ'S	NO	NO	YES	NO	YES	NO	YES
Ask the Librarian	NO	YES	YES	NO	NO	NO	NO
E-Portal	NO	NO	YES	NO	NO	NO	NO
Virtual Tour	NO	NO	YES	NO	NF	NO	NF
MRC-Media Resource Centre	NO	NO	YES	NO	NO	NO	NO

* NF= Not Found

By visiting all the seven IIT Library websites only Kanpur Library is having E-Book drop system facility, Autocheck-in and checkout system, Z39.50 web-portal, Auto-binding facility. Library portal, virtual tour, MRC-Media resource centre. Since all the other IIT Library websites does not having these facilities.

Digital Library facilities are available in IIT Chennai Library and Mumbai Library. Delhi, Roorkee, and Guwahati Library does not having Digital Library facilities. The search result is NOT FOUND for Kanpur and Kharagpur Library. Ask the Librarian; FAQ'S are available only in Chennai, Delhi, and Roorkee Library. Other IIT Library website is not having these facilities.

The above table describes that all the IIT Libraries are providing links. But the link given by IIT Bombay is in large number.Next to that is Chennai, and the others such as Kharagpur, Delhi, Kanpur, Guwahati. But the links given by Roorkee Library is very less in number.

Table 4 Links

Sl. No.	Name of the IIT's	Links
1	Kharagpur	553
2	Bombay	837
3	Chennai	638
4	Kanpur	470
5	Delhi	526
6	Guwahati	199
7	Roorkee	90

Table 5 Technical Features

Technical Features	IIT-KGP	IIT-B	IIT-C	IIT-K	IIT-D	IIT-G	IIT-R
Site Map	NO	YES	NO	NO	YES	NO	NO
Front-End Language	XML	PHP	PHP	HTML	HTML	PHP	HTML
Type of Scripting Language	NF	YES	YES	NF	YES	YES	YES
Software	LIB SYS	LIB SUITE	LIB SYS	SOFT GRANTH	LIB SYS	LIB SYS	LIB SYS

- While comparing all the seven IIT Library library websites IIT Mumbai Library, IIT Delhi Library is having sitemaps. All the other Library websites does not having the sitemap.
- The Front-End Languages used by IIT Delhi, Roorkee and Kanpur Libraries are HTML.Chennai, Mumbai, and Guwahati are having PHP as their FrontEndLanguage.Since Kharagpur is the only library, which is having XML as their FrontEndLanguage.
- The Scripting Language JAVA is used by all the IIT libraries. But the scripting language used by Kanpur and Kharagpur libraries is NOT FOUND.

Table 6 Analysis Based on Evaluation Criterial

SL.No.	Name of the Titles	IIT K	IIT B	IIT C	IIT - Kanpur	IIT D	IIT G	IIT R
1	Content Links	42	45	32	16	52	58	30
2	Educational Queries	YES	YES	YES	YES	NO	NO	NO
3	Grammatical and Typographical Errors	YES	NO	YES	YES	YES	NO	YES
4	Unique URL Address	YES	YES	YES	YES	NO	NO	NO
5	External Links to the Website	YES	NO	YES	NO	YES	NO	NO
6	Website Updating	NO	NO	YES	NO	NO	NO	NO
7	Aesthetic or Visual Appeal	Good	Good	Good	V.Good	Excell ent	Good	Good
8	Clearly Labeled to Access	YES	YES	YES	YES	YES	YES	YES
9	Special Software Requirements	NO	NO	NO	NO	NO	NO	NO

7. FINDINGS

i. It is found from the Evaluation study that Library home pages retrieve all the hypertext links on the web page and sub pages also.
ii. Majority of home pages have provided the contact information of Organization and linked a separate menu of Library staff with designation, phone nos. & E-mail address.
iii. The study shows that Libraries have updated their websites very frequently. Some of the libraries are not updating regular intervals.
iv. Most of the site can be accessible from both the browsers, Internet Explore and Mozilla Firefox.
v. Majority of the Library homepages have included the graphics, images & icons, the sites retrieve the pictures very fast and gives clear picture.
vi. All the Library homepages are easy to read the text & have given the most clear text & graphics.
vii. The results shows that the library homepage, all the graphics & images are relevant to the text, it is used most appropriate middle group and for graphic use.
viii. The results have also identified that all the library websites were easy to navigate and provided comprehensive search facilities & also included a way to turn to the homepages of the sites.
ix. It was found from the study that, majority of the Library homepages, persons responsible for the sites have been displayed and the contact phone nos. & email addresses are provided.
x. The result shows that all the library homepages have provided the Web OPAC.
xi. The results showed that majority of libraries include the option to request reference assistance to provide the information for the users such as e-mail, online chatting etc.

8. SUGGESTIONS

i. The currency is the extent to which materials can be identified as up-to-date. The information located on the WebPages should be current every now and then the expired pages should be removed from the website frequently.
ii. A clearly organized scheme of movement around the web page/site enhances the users ability to get the information, the presentation of the page title, section headings and descriptive links.
iii. The survey reveals that, majority of the libraries have been updating their websites regularly. Constant updation of the websites is a very important aspect as far as libraries are concerned. The library websites have to assure their users 24/7 access to the knowledge content of the library.
iv. The feedback mechanism must be carefully inserted in the websites to attract the suggestions, comments about the pages. In case of library websites the feed back mechanism will enable the Librarians to know about user requirements.
v. The Library websites should be a knowledge resource portal to give one stop answer to their user community. Hence, the open access information relevant to the user group must be classified and presented in the library websites.
vi. The library websites must include the links to other library and information centres relevant to the area of study of the user group.

9. CONCLUSION

This study concludes that many of the IIT Library sites lacks in maintaining the standards though they were organized well in general. Even some of the IITs were not updating their contents and not using latest technology. For example, no RSS and still using HTML as front-end language. Library sites to be constructed organized and maintained with all quality parameters like any good institution of Higher Learning. In this knowledge era present technology has become change and easier day by day, library professionals and the management give much emphasis on library website and web content design are arrangement as this reflect the quality and image of the organization in total. More over library websites of Higher Education institution should offer almost all types of services at the users desktops though they are remote and should be interactive, dynamic, easy to use and facilitating in application of latest web technologies.

REFERENCES

[1] Brekons and Mathew, "What Do Evaluation Instruments Tell Us about the Quality of Complementary Medicine Information on the Internet" Journal of Medical Internet Research, Vol.10, No.1, 2008, pp.4.

[2] Henriksson and Ander, "Evaluation Instrument for E-government Websites", Electronic Government an International Journal, Vol.4, No.2, 2007, pp.204-226.

[3] Kanazawa and Midori**,** "An Evaluation of Public Library Websites: Describing Children's Services in Japan." Public Library Quarterly, Vol.27, No.4, 2008, pp.291-310.

[4] Jayaprakash, *et.al.*, "Evaluation of Internet Resources", IASLIC Conference, Vol.xxv, 2005, pp.63-66.

[5] Sachin Vaidya, "Evaluation of Internet Resources", IASLIC Conference, Vol.xxv, 2005, pp.73-76.

Impact and Use of ICT Based Resource among the Faculties and Students of Autonomous Colleges Affiliated to Thiruvalluvar University: A Study

R. Magesh, M. Nagarajan and S. Mohammed Esmail
Department of Library and Information Science, Annamalai University, Annamalai Nagar - 608 002, Tamil Nadu
E-mail: magesh_spd@yahoo.co.in, au_nagarajan@yahoo.com,smedlis@gmail.com
(Received on 11 October 2010 and accepted on 06 December 2010)

Abstract

In recent years, ICT based resources particularly Internet has become most popular source of information for the researchers, teachers, professionals and students. The main aim is to determine the Impact of ICT based resource (Internet) among the faculties and students of Autonomous Colleges affiliated to Thiruvalluvar University and to find out the necessity and usage of Internet and how far their information needs are fulfilled by the information resources available through ICT based resource.

Keywords: *ICT based Resources, Internet*

1. INTRODUCTION

The present decade has been dubbed as the information age. While this concept is not a new phenomenon especially when viewed against its historical perspective, the revolution in Information and Communication Technology (ICT), and particularly the internet, is exerting profound effects on information-based services. The future of universities greatly hinges on their ability to embrace and leverage the potentials of these emerging technologies at all levels of their business activities and strategies.

2. OBJECTIVES OF THE PRESENT STUDY

i. To know the awareness of internet of the users.
ii. To find out the frequency of using internet by the users.
iii. To find out the proficiency in using internet by the users.
iv. To identify the place of accessing internet by the users.
v. To study the purpose of use of internet by the users.
vi. To rank the importance given to Internet resources and tools by the users. .
vii. To study the' preference on use of internet search engine by the users.
viii. To find out the impact of internet services on communication of academic activities
ix. To study the satisfaction level of using internet by the users.
x. To identify the problems faced while using the internet

3. METHODOLOGY

For the purpose of accomplishing above mentioned objectives, a questionnaire has been structured to collect primary data from the faculty members and students of the autonomous colleges under Thiruvalluvar University. The data collected through the questionnaire were coded and tabulated. For the purpose of analyzing the primary data the statistical tools such as simple percentage method has been used. To test the hypothesis the following formulae were used.

4. STATEMENT OF THE PROBLEM

The present study intends to study the impact and usage of ICT based resources by faculty and students and hence the problem is entitled as "Impact and use of ICT based resource (Internet) among faculty and students of autonomous colleges in Thiruvalluvar University: A Study

5. SCOPE AND LIMITATIONS OF THE STUDY

i. The present study, is based on a sample 184 respondents who using ICT based resource (Internet)
ii. The study is confined only to 5 Autonomous affiliated colleges in Thiruvalluvar University.
iii. The sample for the study consists of faculty members and PG Students from various discipline.

6. DATA COLLECTION

A structured questionnaire was used to collect data necessary for this study. The questionnaire was administered after consultation with experts and pre-tested before the final application. An unstructured interview was also conducted. The questionnaire consists of 25 questions.

The investigator personally distributed 300 questionnaires: Faculties 150 Students 150 of these 184 were filled in and returned.

7. DATA ANALYSIS

Table 1 Demographic Characteristics of Respondents

Demography of Respondents		Counts	%
Gender	Male	88	47.83
	Female	96	52.17
Age	<25	103	55.98
	26-35	15	8.15
	>36	66	35.87
Discipline	Arts	91	49.46
	Science	93	50.54
Designation	Faculty	81	44.02
	Students	103	55.98

The data summarized in Table1 indicate the demographic characteristics of respondents. It shows that 88 (47.83%) were male and 96 (52.17%) were female selected from the five autonomous colleges under Thiruvalluvar University. Studies making 184 individuals in total. 56% of the respondents fall under the age group of below 25 years. Sum of 8.15% of respondents are in the age bracket 26-35 years and 35.87 per cent of respondents are above 36. Out of 91 (49.46%) respondents fall under Arts discipline, 93 (50.54%) respondents fall under Science discipline. 81(44.02%) respondents faculty members and 103 (55.98%) students were selected from the above colleges.

Table 2 summarizes the awareness of internet among the students and faculty. It is clear from the table that 66% of respondents are very good knowledge in using the internet, and 28% respondents are good knowledge in using the internet, and 15% of respondents are poor knowledge in using the internet. There fore most of the 66% of respondents are aware of internet.

Table 2 Distribution of Respondents' Awareness of Internet

Institution	Very Good	Good	Poor	Total
Auxilium College	18 [15%]	7 [25%]	2 [6%]	27 [15%]
DKM College	13 [11%]	8 [29%]	3 [9%]	24 [13%]
Muthurangam College	24 [20%]	4 [14%]	12 [34%]	40 [22%]
Sacred Heart College	38 [31%]	3 [11%]	10 [29%]	51 [28%]
St. Joseph's College	28 [23%]	6 [21%]	8 [23%]	42 [23%]
Total	121 [66%]	28 [28%]	35 [15%]	184 [100%]

Table 3 Distribution of Respondents' Frequency of Using Internet

Institution	Daily	Weekly	Monthly	Occasionally	Total
Auxilium College	16 [14%]	7 [19%]	3 [14%]	1 [7%]	27 [15%]
DKM College	14 [13%]	5 [14%]	2 [9%]	3 [20%]	24 [13%]
Muthurangam College	15 [14%]	9 [25%]	10 [45%]	6 [40%]	40 [22%]
Sacred Heart College	39 [35%]	6 [17%]	3 [14%]	3 [20%]	51 [28%]
St. Joseph's College	27 [24%]	9 [25%]	4 [18%]	2 [13%]	42 [23%]
Total	111 [60%]	36 [20%]	22 [12%]	15 [8%]	184 [100%]

Table 3 elicits that the frequency of using the internet by the faculty members and students. It is clear that 60% of the respondents are using the internet daily, 20% of the respondents are using the internet weekly, 12% of the respondents are using the internet monthly and 8% of the respondents are using the internet occasionally. Thus most of the respondents are using the internet daily.

Table 4 Distribution of Respondents' Proficiency in Using the Internet

Institution	>1 Year	1 Year	2 Year	More than 2 Years	Total
Auxilium College	2 [6%]	4 [12%]	5 [19%]	16 [18%]	27 [15%]
DKM College	6 [17%]	5 [15%]	2 [7%]	11 [13%]	24 [13%]
Muthurangam College	13 [36%]	9 [27%]	8 [30%]	10 [11%]	40 [22%]
Sacred Heart College	10 [28%]	9 [27%]	8 [30%]	24 [27%]	51 [28%]
St. Joseph's College	5 [14%]	6 [18%]	4 [15%]	27 [31%]	42 [23%]
Total	36 [20%]	33 [18%]	27 [15%]	88 [48%]	184 [100%]

Table 4 discloses the experience in using the internet. by the faculty members and students. It is clear that 20% of the respondents are using the internet less than one year, 18% of the respondents are using the internet at least one year, 15% of the respondents are using the internet 2 years. 48% of the respondents are using the internet more than 2 years. Thus most of the respondents are using the internet more than 2 years.

Table 5 Distribution of Respondents' Place of Accessing the Internet

Institution	Personal Homes	College Library	Café (Outside Campus)	Computer Centre	Others	Total
Auxilium College	13 [16%]	4 [19%]	7 [13%]	2 [14%]	1 [7%]	27 [15%]
DKM College	10 [12%]	6 [29%]	3 [6%]	2 [14%]	3 [21%]	24 [13%]
Muthurangam College	14 [17%]	1 [5%]	19 [37%]	4 [29%]	2 [14%]	40 [22%]
Sacred Heart College	26 [31%]	6 [29%]	14 [27%]	3 [21%]	2 [14%]	51 [28%]
St. Joseph's College	20 [24%]	4 [19%]	9 [17%]	3 [21%]	6 [43%]	42 [23%]
Total	83 [45%]	21 [11%]	52 [28%]	14 [7%]	14 [7%]	184 [100%]

Table 5 shows the distribution of respondents' place of accessing internet. It is clear that 45% of the respondents are accessing the internet in personal homes, 11% of the respondents are accessing the internet in college library, 28% of the respondents are using the internet on net café (Out side campus). 7% of the respondents are using internet on computer centre. 7% of the respondents are using the internet on other places. Thus, most of the respondents are accessing the internet on personal homes.

Table 6 Distribution of Respondents' Purpose of Use of the Internet

Institution	Teaching	Study	Research	Project Work	Paper Presentation	Total
Auxilium College	5 [9%]	12 [17%]	5 [20%]	2 [12%]	3 [18%]	27 [15%]
DKM College	7 [13%]	10 [14%]	3 [12%]	3 [18%]	1 [6%]	24 [13%]
Muthurangam College	13 [23%]	16 [23%]	6 [24%]	4 [24%]	1 [6%]	40 [22%]
Sacred Heart College	19 [34%]	12 [17%]	9 [36%]	5 [29%]	6 [35%]	51 [28%]
St. Joseph's College	12 [21%]	19 [28%]	2 [8%]	3 [18%]	6 [35%]	42 [23%]
Total	56 [30%]	69 [37%]	25 [14%]	17 [9%]	17 [9%]	184 100%]

Table 6 shows the distribution of respondents' purpose of use of the internet. It is clear that 30% of the respondents are using the internet for teaching purpose, 37% of the respondents are using the internet for study purpose, 14% of the respondents are using the internet for research purpose, 9% of the respondents are using the internet for project work & paper presentation. Thus most of the respondents are using Internet for study purposes.

Table 7 Distribution of Respondents' Importance given to the Internet Resources and Tools

Internet Resources & Tools	Very Important	Important	Slightly Important	Not Important
E-mail	115 [19%]	36 [11%]	29 [9%]	4 [1%]
Internet Search Engines	114 [19%]	21 [6%]	20 [6%]	29 [5%]
WWW Resources	143 [24%]	32 [10%]	7 [2%]	2 [0%]
Electronic Journals	42 [7%]	49 [15%]	29 [9%]	64 [11%]
Downloading Software	82 [14%]	22 [7%]	22 [7%]	58 [10%]
Discussion lists, Newsgroups	24 [4%]	44 [13%]	78 [25%]	38 [6%]
Telnet Connections	11 [2%]	29 [9%]	30 [9%]	114 [19%]
FTP	35 [6%]	22 [7%]	18 [6%]	109 [18%]
Gopher	14 [2%]	38 [11%]	49 [15%]	83 [14%]
Online Databases	19 [3%]	38 [11%]	36 [11%]	91 [15%]

Table 7 shows that distribution of respondents according to their opinion about importance of the internet resources and tools. Majority of the respondents said that e-mail, internet search engines, www. resources, downloading software are very important. While most of the respondents said that electronic journals, Telnet connections, FTP, Gopher & online databases are not important for the same. It could be seen from the table that General Internet Resources such as email, internet search engines, www resources and downloading software used for their academic performance.

Table 8 Distribution of Respondents' Preference on Use of the Internet Search Engine

Institution	*Google*	*Yahoo!*	*MSN*	*Alta Vista*	*Lycos*	*Ask.com*	Total
Auxilium College	12 [14%]	8 [23%]	1 [6%]	2 [20%]	1 [7%]	3 [13.64%]	27 [14.67%]
DKM College	17 [20%]	2 [6%]	1 [6%]	1 [10%]	1 [7%]	2 [9.09%]	24 [13.04%]
Muthurangam College	17 [20%]	8 [23%]	6 [38%]	2 [20%]	3 [21%]	4 [18.18%]	40 [21.74%]
Sacred Heart College	19 [22%]	7 [20%]	5 [31%]	4 [40%]	7 [50%]	9 [40.91%]	51 [27.72%]
St. Joseph's College	22 [25%]	10 [29%]	3 [19%]	1 [10%]	2 [14%]	4 [18.18%]	42 [22.83%]
	87 [47%]	35 [19%]	16 [8%]	10 [5%]	14 [7%]	22 [11%]	184 [100%]

Table 8 shows the distribution of respondents' preference on use of internet search engine. It is clear that 47% of the respondents are using Google Internet Search Engine, 19% of the respondents are using Yahoo Search Engines, 8% of the respondents are using MSN internet search engines, 5% of the respondents are using Alta Vista Search Engines.7% of the respondents are using Lycos internet search engines and 11% of the respondents are using Ask.com internet search engines. Thus most of the respondents are using Google Search Engine.

Table 9 Distribution of Respondents' Impact of Internet services on Communication of Academic Activities

Impact	Increase	Decrease	No Change
Prompt Access to Information Needs in Journals and Conference Proceedings	33 [7%]	37 [16%]	114 [19%]
Fast / Quick Communication of Findings	86 [18%]	32 [14%]	66 [11%]
Easy and Fast Communication with Colleagues	104 [22%]	17 [7%]	63 [11%]
Publication of Research Findings on the Internet	63 [14%]	24 [10%]	97 [16%]
Increase Pace of Work	52 [11%]	38 [16%]	94 [16%]
Ability to Perform New Task	35 [8%]	66[29%]	83 [14%]
Improve Quality of Research / Study	93 [20%]	17 [7%]	74 [13%]

Table 9 shows the distribution of respondent Impact of the internet services on communication of academic activities. It is clear from the table that majority of the respondents said that only some of the communication activities such as fast communication of finds, easy and fast communication with colleagues and improving the quality off research on study were increases by the use of internet services.

Table 10 Distribution of Respondents' Satisfaction Level of Using the Internet

Institution	Very Satisfied	Satisfied	Slightly Satisfied	Not Satisfied	Total
Auxilium College	19 [20%]	4 [12%]	3 [9%]	1 [4%]	27 [15%]
DKM College	13 [14%]	2 [6%]	6 [18%]	3 [13%]	24 [13%]
Muthurangam College	16 [17%]	4 [12%]	11 [33%]	9 [39%]	40 [22%]
Sacred Heart College	24 [25%]	11 [33%]	10 [30%]	6 [26%]	51 [28%]
St. Joseph's College	23 [24%]	12 [36%]	3 [9%]	4 [17%]	42 [23%]
Total	95 [52%]	33 [18%]	33 [28%]	23 [13%]	184 [100%]

Table 10 shows the distribution of respondents' satisfaction level of using the internet. It is clear that 52% of the respondents are very satisfied in using internet, 18% of the respondents are satisfied in using the internet, 28% of the respondents are slightly satisfied in using the internet, 13% of the respondents are not satisfied in using the internet. Thus most of the respondents are using very satisfied in using the internet.

Table 11 Distribution of Respondents' Problem Faced While Using the Internet

Institution	Retrieval Problem	Slow Internet Connection	Slow Process of Computers	Poorly Designed Websites	Too much E-Mails	Insufficient Time and Training	Total
Auxilium College	7 [17%]	8 [21%]	1 [4%]	6 [24%]	2 [10%]	3 [8.57%]	27 [14.67%]
DKM College	9 [21%]	6 [16%]	2 [8%]	2 [8%]	2 [10%]	3 [8.57%]	24 [13.04%]
Muthurangam College	6 [14%]	7 [18%]	6 [25%]	3 [12%]	7 [35%]	11[31.43%]	40 [21.74%]
Sacred Heart College	8 [19%]	9 [24%]	12 [50%]	4 [16%]	7 [35%]	11[31.43%]	51 [27.73%]
St. Joseph's College	12 [29%]	8 [21%]	3 [13%]	10 [40%]	2 [10%]	7 [20%]	42 [22.83%]
	42 [23%]	38 [21%]	24 [13%]	25 [13%]	20 [11%]	35 [19%]	184 [100%]

Table 11 shows the distribution of respondents' problem while using the internet. It is clear that 23% of the respondents are faced retrieval problem, 21% of the respondents are faced slow internet connection, 13% of the respondents are faced slow process of computer, Too much e-mails 11% of the respondents are faced too much e-mails. 11% of respondents are faced insufficient time and training in using the internet. Thus most of the respondents are faced Retrieval problem while using the internet..

8. CONCLUSION

A Sum of 8.15% of respondents are in the age bracket 26-35 years and 35.87% of respondents are above 36. Most of the 66% of respondents are aware of the internet and are using the internet daily. Most of the respondents are accessing the internet at their home and for study purposes. General Internet Resources such as email, Internet search engines, www resources and downloading software are being used for their academic performance. Majority of the respondents said that only some of the communication activities such as fast communication of finds, easy and fast communication with colleagues and improving the quality off research on study were increases by the use of the internet services.

REFERENCES

[1] H. Saeed, M. Asghar, M.Anwar and M.Ramzan, "Internet Use in University Libraries of Pakistan", Online Inf. Rev., Vol.24, No.2, 2000, pp.154-160.

[2] A. Singh, "Uses of Internet in a University Library: A Case Study", ILA Bull., Vol.37, No.4, 2000, pp.150-152.

[3] M. Madhusudhan "Internet use by Research scholars in University of Delhi, India", Library Hi-Tech News, Vol.8, 2007, pp.36-42.

[4] E.W.Nwagwu, J.Adekannbi and O. Bello, "Factors Influencing Use of the Internet: A Questionnaire Survey of the Students of University of Ibadan", Nigeria. Electron. Libr. Vol.27, No.4, 2008, pp.718-734.

[5] T.K. Srikantaiah and D. Xiaoying, "The Internet and its Impact on Developing Countries: Examples of China and India", Asian Lib., Vol.7, No.9, 1998, pp.199-209.

Indian Journal of Information Science and Services (IJISS)

(ISSN: 0973-8967)
(A half-yearly refereed research journal on Library and Information Science)

Information for Authors

1. All papers should be addressed to The Editor-in-Chief, Indian Journal of Information Science and Services (IJISS), Bannari Amman Institute of Technology, Sathyamangalam - 638 401, Erode District, Tamil Nadu, India.
2. Two copies of manuscript along with soft copy are to be sent.
3. A CD-ROM containing the text, figures and tables should separately be sent along with the hard copies.
4. Submission of a manuscript implies that : (i) The work described has not been published before; (ii) It is not under consideration for publication elsewhere.
5. Manuscript will be reviewed by experts in the corresponding research area, and their recommendations will be communicated to the authors.

Guidelines for submission

Manuscript Formats

The manuscript should be about 8 pages in length, typed in double space with Times New Roman font, size 12, Double column on A4 size paper with one inch margin on all sides and should include 75-200 words abstract, 5-10 relevant key words, and a short (50-100 words) biography statement. The pages should be consecutively numbered, starting with the title page and through the text, references, tables, figure and legends. The title should be brief, specific and amenable to indexing. The article should include an abstract, introduction, body of paper containing headings, sub-headings, illustrations and conclusions.

References

A numbered list of references must be provided at the end of the paper. The list should be arranged in the order of citation in text, not in alphabetical order. List only one reference per reference number. Each reference number should be enclosed by square brackets.

In text, citations of references may be given simply as "[1]". Similarly, it is not necessary to mention the authors of a reference unless the mention is relevant to the text.

Example

[1] K.C.Garg, B.Dutt and Suresh Kumar, "Scientometric Profile of Indian Science as Seen Through Science Citation Index", Annals of Library and Information Studies, Vol. 53 No. 3, 2006, pp.114-125.
[2] S.Mohamed Esmail, G.Vetrikondan and M.Raja, "Information Access Pattern of Teaching Staff and Research Scholars of Natural Science in Annamalai Univiersity", Indian Journal of Information, Library and Society, Vol. 17 No. 1-2, 2004, pp.17-26.

SUBSCRIPTION

The annual subscription for IJISS is Rs.500/- which includes postal charges. To subscribe for IJISS a Demand Draft may be sent in favour of IJISS, payable at Sathyamangalam and addressed to IJISS. Subscription order form can be downloaded from the following link http:// www.lib.bitsathy.ac.in./ ijiss.html.

For subscription / further details please contact:

IJISS
Learning Resource Centre
Bannari Amman Institute of Technology
Sathyamangalam - 638 401, Erode District, Tamil Nadu Ph: 04295 - 226340 - 44
Fax: 04295 - 226666 E-mail: ijiss@bitsathy.ac.in Web:www.lib.bitsathy.ac.in

Indian Journal of Information Science and Services

Volume 4 Number 2 July - December 2010

CONTENTS

Published by

Learning Resource Centre

BANNARI AMMAN INSTITUTE OF TECHNOLOGY

(Autonomous Institution Affiliated to Anna University of Technology, Coimbatore - Approved by AICTE - Accredited by NBA & NAAC with 'A' Grade)

Sathyamangalam - 638 401 Erode District Tamil Nadu India

Ph: 04295-226340 - 44 Fax: 04295-226666

Web: www.lib.bitsathy.ac.in E-mail: ijiss@rediffmail.com