IJISS

ISSN: 0973-8967
Vol. 5 No. 2

July - December 2011

Indian Journal of
Information Science and Services

A Refereed Research Journal on Library and Information Science

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)
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Indian Journal of Information Science and Service

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Homepages of Indian Central Universities Websites: A Study

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Abstract

Information and Communication Technology has made it very easy to access information through various channels of communication. Such one channel is homepage. University plays very important role by providing higher education. Websites are mirrors of the university, thus it should contain all kind of information which may be, courses offered, university achievement, administration and contact address etc. With these points, researcher feels that a systematic study of homepages is required for more than one reason. Firstly, such a study would give an idea about the contact, scope, coverage and depth of information provided in the homepages of Indian Central Universities. Secondly, a study of the nature would help the prospective design of university website regarding the kind of information that should be made available in websites.

Keywords: *Internet Resources,Websites, Webpage, WebPages of Indian Central Universities, Website Design.*

1. INTRODUCTION

Internet is a network of networks that links computers around the world. It allows communication across networks. One can communicate between one network and any other network. This allows people to have access to information from different websites, locations and machines. It literally puts a world of information and a potential worldwide audience at your fingers.

The internet started with the launch of Sputnik, the ensuing space race, the cold war and the development of ARPANET (Department of Defense Advanced Research Projects Agency Network) in 1950. But it really took off in the 1980s when the National Science Foundation used ARPANET to link its five regional super computer centres. From there evolved a high speed backbone of Internet access for many other types of networks, universities, institutions, bulletin board systems and commercial online services. The end of the decade saw the emergence of the World Wide Web, which heralded a platform and independent means of chain enhanced with a pleasant and relatively easy to use graphical interface.

Internet growth in India mirrors the trend worldwide, with the service being the fastest growing segment of the telecommunications sectors. An IMRB (Indian Market Research Bureau) study says that about 43 lakh households have already had a first hand experience on the net. These represent three fourth of the 5.7 million socio-economic class A and B households in the top 16 cities of the country - a group that can be referred to as relevant population for the Internet (www.imrbint.com).

2. NEED AND IMPORTANCE OF THE STUDY

The Government of India, Ministry of Human Resource Development has established 41 central Universities in India. All these universities are scattered across the country. The emergence of IT has enabled all these universities to have their own websites. Most of the universities have their websites and linked to their libraries. Theses websites act as a rich source of information for the aspiring students planning to pursue higher education and to public at large. These websites are being updated from time to time. These websites normally provide information about the university administration, authorities, courses offered, faculty, and examination procedure.

The researcher feels that a systematic study of a homepages is required. Firstly, such a study would give an idea about the content, coverage, scope and depth of information provided in the homepages on Indian Central Universities. Secondly, a study of the nature would help the prospective design of university website regarding the kind of information that should be made available in websites. Thus, the study has been chosen.

3. DEFINITIONS

A homepage is the introductory page to a collection of web information. Almost every website has a homepage. Every designer has slightly different ideas about how to arrange a homepage. However, just as the title pages of books usually follow certain conventions, a homepage usually provides an overview of the website. A homepage is the first page a user sees when he or she logs onto a website. This page often resembles a magazine cover page or a table of contents.

A website is a collection of related web pages, images, videos or other digital assets that are addressed related to a common Uniform Resource Locator (URL), often consisting of only the domain name, or the IP address, and the root path ('/') in an Internet Protocol based network. A website is hosted on at least one web server accessible via a network such as the Internet or a private local area network.

4. OBJECTIVES OF THE STUDY

The present study has the following objectives:

i. To understand the concept of homepage, website and webpage

ii. To create a directory of websites of Indian Central Universities

iii. To identify the kind of information that could be gleaned from the homepages

iv. To study and analyze the contents of homepages

v. To give related suggestions

5. SCOPE AND LIMITATIONS

This study is limited to the Central University websites of India only. The websites that are retrievable with the help of search engines only are considered. Only those websites available on the World Wide Web are considered for this study. This study has taken only 40 homepages of Indian Central University websites and their libraries. One Central University of Tamil Nadu does not have website. Mainly 35 elements have been taken for homepage analysis. They are: Title, University logo, University photo, Background picture, Sitemap, University address, Phone number, Fax number, E- mail address, Copyright, Site developed (Designed and maintained by), Courses offered, Department, Staff/ Faculty, Affiliated colleges, Distance education, Governing bodies, Administration, Vice-chancellor, Student services, Library, Research, Alumni, Established year, About university, Infrastructure, Admissions, Fees structure, Comments and suggestions (contact webmaster), feedback, Last updated, Current date, Number of visitors, Search and FAQ.

6. METHODOLOGY

The study was conducted on the homepages of 41 central universities of India, except the Central University of Tamil Nadu which does not have the website. The method followed to find out the objectives of this study is through search engines. The list of central universities taken from the UGC (University Grants Commission). Each of the homepages of these universities has been analyzed using the pre-structured checklist to know the nature of link and coverage of information about their websites.

7. CENTRAL UNIVERSITIES IN INDIA

The Government of India is responsible for arranging, locating and distributing financial resources required by the University Grants Commission (UGC) for the establishment of central universities in India. Currently, there are 41 central universities in India (Appendix 1). Improving the quality and access of higher education and research in India have become the growing needs for qualified human resources in various sectors of the economy. Therefore, it can be hoped that there would be more central universities in India in the near future. The Central Government has also been empowered by Special Act of the Constitution to maintain a particular standard, conducive to the educational health of the country.

The Central Government lays special emphasis on research and development carried out in technical as well as other institutions. Salient features of Central Universities in India are:

i. The President of India acts the 'Visitor' for all the Central Universities.

ii. The President has the power to nominate a few members to the Executive Committee/Board of Management/Court/Selection Committees of the

University in terms of the various statutes and provisions laid down in the University Act.

iii. The Ministry of Human Resources and Development (MHRD) assists the President of India in the appointment of Vice Chancellors, Court Nominees, and Selection Committee Nominees.

The present study covers all the central universities listed in the Department of Higher Education website in India. Table 1&2 shows the year of establishment of 41 central Universities in India. There was a phenomenal growth during 2001-2010; nearly 22 (53.66%) central universities were established during this period. Banaras Hindu University was the first central university established in 1915. In the last 21 years, about 30 central universities have been established, which reflects the growth of higher education in India. The distribution of Central Universities in India is given in Table 1&2. Almost all the Indian States and Union Territories have established at least one Central University. While Uttar Pradesh and Delhi have the maximum of four (9.76%) Central Universities, Andhra Pradesh has three (7.32%) followed by Assam, Bihar and Manipur with two and remaining 24 States with one Central University each.

Table 1 Chronological-wise Growth of Central Universities in India

Year of Establishment	No. of Universities	%
Before 150	04	9.76
1951 to 1960	01	2.44
1961 to 1970	00	0.00
1971 to 1980	03	7.32
1981 to 1990	03	7.32
1991 to 2000	08	19.51
2001 to 2010	22	53.66
Total	**41**	**100**

Table 2 State-wise Distribution of Central Universities in India

Name of the State & Union Territory	No. of Central Universities	Name of the State & Union Territory	No. of Central Universities
Andra Pradesh	3	Maharashtra	1
Arunachal Pradesh	1	Manipur	2
Assam	2	Meghalaya	1
Bihar	2	Mizoram	1
Chhattisgarh	1	Nagaland	1
Delhi	4	Orissa	1
Gujarat	1	Pondicherry	1
Goa	1	Punjab	1
Haryana	1	Rajasthan	1
Himachal Pradesh	1	Sikkim	1
Jammu & Kashmir	1	Tamil Nadu	1
Jharkhand	1	Tripura	1
Karnataka	1	Uttar Pradesh	4
Kerala	1	Uttaranchal	1
Madhya Pradesh	1	West Bengal	1
Total			**41**

8. INFORMATION TO BE INCLUDED IN UNIVERSITY WEBSITES

Information included in web pages is quite varied. There is no consistency of what is included and how it is presented. The provision of adding multimedia has, of course, made it possible to host attractive pages including images and Video clippings. However, a university homepage should give relevant Information without excessively taxing the end user by inclusion of large amounts of textual material and unnecessary multimedia components. While planning for a university website, certain criteria should be worked out especially such as: What is the information to be furnished? How should it be presented? Based on the study, the following are some of the information items/elements to be included in the university website.

i. Facial element: It includes Name of the University, Logo, University photo, Background Picture and sitemap

ii. Communication Elements: It includes University address, phone and fax number and e-Mail address

iii. IPR: It includes Copyright, RTI and site developer

iv. Academic elements: This includes Courses offered, Departments, Staff/Faculty, Affiliated Colleges, Distance Education, Governing Body, Administration and Vice – Chancellor.

v. Service element: It includes Library, Research, Students Services and Alumni.

vi. Inception element includes the University, Establishment year and facilities.

vii. Admission element includes the Admissions and Fee structure.

viii. Feedback element: Comments and suggestions, Feedback e-mail, and contact web master.

ix. Dynamism of Homepage which includes Last updated, number of visitors and current date.

x. Retrieval and search facility and FAQ

9. ANALYSIS AND INTERPRETATION OF DATA

The analysis and interpretation of the 40 homepages examined over the Internet is presented in this chapter. These 40 homepages represent the dynamic websites of 40 Indian Central Universities of the total 41 Central Universities. The data elements gathered are grouped into different types of elements such as inception, academic, facial, services, frames, and so on.

9.1 Facial Elements of the Homepages of Indian Central Universities (ICU)

Table 3 represents the general facial elements of the homepages of Indian Central University websites (ICU). Almost all the universities have the 'university name/ title' accounting to 40 representing 100%. Only 38 universities have 'university logos' accounts to 95%. About 31 university homepages have 'university photo' scoring 77.50%. Homepages have background picture account for 32 representing 80%. Of all the homepages only 28 university homepages have sitemaps representing 70%.

Table 3 Facial Elements of the Homepages of Indian Central Universities (ICU)

Sl. No	Elements	No of Homepages (n = 40)	%
1	Title	40	100.00
2	Logo	38	95.00
3	University Photo	31	77.50
4	Background Picture	32	80.00
5	Sitemap	28	70.00

9.2 Communication Elements of the Homepages of ICU

Most of the websites have given communication elements like university address, phone number, fax number, E-mail address, etc. Table 4 represents the communication elements of the homepages of the ICU. It can be seen from the Table 2 that about 40 University homepages have 'university address' accounts to 100%. Homepages have 'phone number' accounts for 39 representing 97.50%. 35 homepages have 'fax number' representing 87.50% and 38 homepages have E-mail address representing 95%.

Table 4 Communication Elements of the Homepages of ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	University Address	40	100.00
2	Phone No	39	97.50
3	Fax No	35	87.50
4	E - Mail	38	95.00

9.3 Intellectual Property Rights Elements of the Homepages of ICU

Most of the universities are given IPR elements like copyright, site developed (designed and maintained by), etc at the end of the homepage. Table 5 indicates that 36 homepages have the element 'copyright' accounts to 9% and 22 homepages have the element 'site developed (designed and maintained by)' scoring 55%. Right to Information Act is given by 31 universities scoring 77.50%.

Table 5 Intellectual Property Rights Elements of the Homepages of ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	Copyright	36	90.00
2	Site Developed By	22	55.00
3	Right to Information Act	31	77.50

9.4 Academic Elements of the Homepages of ICU

Universities come under the category of academic institutions. So, it is essential to put their academic elements on their websites. Some of the universities are given academic elements like courses offered, department, faculty, distance education, vice-chancellor, etc on their homepages. Table 6 represents the academic elements of the homepages of the ICU. Table 6 shows that 39 homepages have the element 'courses offered' accounts to 97.50% and the remaining elements i.e., departments, staff/faculty, affiliated colleges, distance education, governing bodies, administration and vice-chancellor that are appeared in 37, 32. 25, 17, 29, 35, and 38 homepages respectively.

Table 6 Academic Elements of the Homepages of ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	Courses Offered	39	97.50
2	Departments	37	92.50
3	Staff and Faculty	32	80.00
4	Affiliated Colleges	25	62.50
5	Distance Education	17	42.50
6	Governing Body	29	72.50
7	Administration	35	87.50
8	Vice Chancellor	38	95.00

9.5 Service Elements of the Homepages of ICU

Table 7 shows the different service elements of the homepages of ICU. Among several services, major 4 service elements like student services, library, research, alumni are listed in the table. Out of 40 homepages, research service is appeared in 19 homepages that accounts to 47.50%. The remaining service elements i.e., library, alumni, and student services are appeared in 32, 15 and 29 homepages respectively that account to 80%, 37.50% and 72.50% respectively.

Table 7 Service Elements of the Homepages of ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	Research	19	47.50
2	Library and Information Center	32	80.00
3	Alumni	15	37.50
4	Students Service	29	72.50

9.6 Inception Elements of the Homepages of ICU

Table 8 represents the breakup of general inception elements of the homepages of ICU. It may be observed from the Table 8, out of 40 homepages, 39 homepages have university information i.e., details about the university that account to 97.50%. The remaining inception elements, established year and facilities of the university are appeared in 39 and 31 homepages that account to 97.50% and 77.50% respectively.

Table 8 Inception Elements of the Homepages of ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	About the university	39	97.50
2	Established year	39	97.50
3	Facilities	31	77.50

9.7 Admission Related Elements of the Homepages of ICU

Table 9 shows the information about the admission elements like admissions and fees structure. The element 'admissions' is appeared in 33 homepages of ICU that account to 82.50% and the element 'fees structure' is appeared in 19 homepages that account to 47.50%.

Table 9 Admission Related Elements of the Homepages of ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	Admissions	33	82.50
2	Fee Structure	19	47.50

9.8 Feedback Elements of the Homepages of the ICU

Some of the university homepages have put their feedback elements like comments, suggestions, feedback, etc. Table 10 represents the feedback elements of the homepages of the ICU. 16 homepages have the element 'comments and suggestions (contact webmaster)' and it accounts to 40.00% whereas 23 of the homepages have the element 'feedback' and they constitute 57.50%.

Table 10 Feedback Elements of the Homepages of the ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	Comments/ suggestions/ Contact Webmaster	16	40.00
2	Feedback / e-mail	23	57.50

9.9 Dynamism of the Homepages of ICU

Website should be updated to view the latest information. Table 11 reveals the dynamism of the homepages of ICU. Only 10 homepages have the 'last updated' information which indicates 25%. And, only 17 university homepages have information about 'current date' that accounts to 42.50%. 14 homepages contain the information about the 'number of visitors' accounts to 35%.

Table 11 Dynamism of the Homepages of ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	Last Updated	10	25.00
2	Number of Visitors	14	35.00
3	Current Date	17	42.50

9.10 Search Facilities and FAQ on the Homepages of ICU

Table 12 indicates the breakup of search in the website facilities on the homepages of ICU. Like any other homepages, ICU also has search facilities and FAQ. 19 homepages have the search facility, which accounts to 47.50% and the element FAQ appeared in 11 homepages representing 27.50%.

Table 12 Search Facilities and FAQ on the Homepages of ICU

Sl. No	Elements	No of Homepages (n = 40)	%
1	Search	19	47.50
2	FAQ	11	27.50

10. SUMMARY

The present paper has collected the data about the websites of all Central Universities in India. Out of 41 Central Universities in India, 40 universities have their websites. As stated earlier, the researcher has concentrated only on these university homepages. Almost all the university homepages have the title element and about 95% of the Homepages have given their logos and half of the universities have given their e-mail addresses. More number of universities lack in providing the information like research, alumni and fee structure and further lack in maintaining the dynamism of the website. It appears that more systematic effort is required by the universities while designing and developing their websites. As their websites become more authentic source of information, a more serious effort is needed. A more detailed study not only on the homepages but also on the other subsequent pages of the universities is required. This would definitely help the universities to improve upon their existing websites.

REFERENCES

[1] Chandrashekara and Nandish Kumar, "Homepages of Indian Universities Websites : A Study", 3 Convention PLANNER -2005, Assam Univ., Silchar, 10-11 Nov., 2005

[2] Ramesh Babu and Jeyshankar, "Websites of Central Universities in India: A Webometric Analysis", DESIDOC Journal of Library &

Information Technology, Vol. 30, No. 4, July 2010, pp.33-43

[3] Almind, Thomas & Ingwersen, Peter, "Informetric Analysis on the World Wide Web:Methodological Approaches to Webometrics", Journal of Documentation, 1997, Vol.53, No.4, pp.404-26.

[4] R. Jeyshankar, B. Ramesh Babu and S. Gopalakrishnan, "Basic Frame Work of Webometric Study: A Study . KELPRO Bulletin, 2009, Vol.13, No.1, pp.41-48.

[5] R. Jeyshankar and B. Ramesh Babu, "Websites of Universities in Tamil Nadu: A Webometric Study", Annals Library of Information Studies, 2009, Vol.56, No.2, pp.69-79.

[6] B. Ramesh Babu, R. Jeyshankar and P. Nageswara Rao, "Measuring the Web Impact Factor of State Agricultural Universities Websites In India", Indian Journal Agri. Lib. Inform. Serv., 2009, Vol.25, No.1, pp.1-14.

[7] Pandian, M Paul and Ashok Jambhekar, "Internet for Libraries and Information Centres", New Delhi, Tata Mc Graw-Hill Publishing company limited, 2001.

[8] B.S. Saini, "Library Organization for Higher Education", Delhi, ESS ESS Publ, 1976, pp.12.

[9] Srivastav and Raj Kumar, "A Textbook of Internet and Webpage Design", New Delhi, Dominant Publishers and Distributors, 2001.

[10] http://www.education.nic.in/

[11] http://www.ugc.ac.in/

Seeking Health Information and Utilisation Behaviour Among Select Technical / Professional University Faculties in Tamil Nadu

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Abstract

In this study, an attempt is made to find out the health information use pattern among the faculty members of select Universities in Tamil Nadu. A sample of 200 faculty members selected randomly was studied. The results revealed that the members of faculty from technical, agriculture and veterinary and medical universities differed in information use pattern on the basis of community and sex.

Keywords: *Faculty, Health information, Information utilization, Information Technology.*

1. INTRODUCTION

With new technologies and increasingly easy access to the Internet, medical and health information has become more easily available. The general improvement of socio-economic conditions has resulted in people becoming more educated, which in turn has led to the desire to make better-informed decisions in all aspects of their lives, including their health. Fitness tips, symptoms of illnesses, and instructions on self-medication are some of the medical and health information that can be found easily, not only in periodicals, brochures or through word-of-mouth by friends and family, but to a greater extent on the Internet. Information Technology (IT) savvy in this technological age can easily access such information any time of the day and every day of the week. Among them are medical university faculties who become more active seekers and users of medical and health information. There are about nineteen State Universities in Tamilnadu (http://www.tnuniv.ac.in/universities.html) teaching various subjects from Graduate level to Research degree level. Most of the Universities have well developed Library and Laboratory facilities in their campus.

There is a need to assess the extent of requirement of health information and it is received due attention in the present study. The respondents' purpose of seeking health information and importance of different sources of health information could be accessed. This study takes into account of the respondents' satisfaction in utilization of information technology in searching health information and problems faced by the respondents in searching health information through information technology.

2. OBJECTIVES

In order to pursue this study, the following objectives are framed in according with the scope of this investigation:

i. To analyse the respondents' awareness about health and health information
ii. To identify the respondents' sources of seeking health information
iii. To find out the respondents' extent of need and utilization of health information
iv. To suggest some rational measures to increase the access and utilization of health information.

3. HYPOTHESES

The following hypotheses are formulated on the basis of content and coverage of framed objectives and they are tested by employing appropriate statistical tools:

i. There is a significant inter University difference in awareness about health and health information.
ii. There is an important association between socio economic status of the respondents and their sources of seeking health information.
iii. There is a significant association between socio economic status of the respondents and their extent of need and utilization of health information.

4. METHODOLOGY

This study attempts to examine the health information seeking and utilization behaviour of University library staff in Tamilnadu with reference to Anna University,

Tamil Nadu Agricultural University, Tamil Nadu Veterinary and Animal Sciences University and Tamil Nadu Dr. MGR Medical University. It is primarily a fact-finding venture in terms of identification of factors relating to knowledge of health and health information, problems in utilization of health information and satisfaction on utilization of information technology towards searching health information. The identified facts are cross tabulated with the age group, educational, occupational, institutional, income, caste and sex background of the respondents. The methodology of the study is spelt out in mode of data collection methods and data analysis operational definitions of key concepts and limitations of the study. Thus, it gives an analytical orientation to this study and the design of this study is partly exploratory in nature and partly analytical in nature.

5. SAMPLING

Among the Nineteen Government Universities in Tamilnadu, four technical/professional Universities are selected for the purpose of present study. The researcher proposed to select 200 respondents. The sampling of study is based on purposive random sampling.

6. DATA COLLECTION

The researcher has employed a well structured questionnaire for collecting the data from the respondents of Anna University, Tamil Nadu Agricultural University, Tamil Nadu Veterinary and Animal Sciences University and Tamil Nadu Dr. MGR Medical University. The researcher sent questionnaires to the teachers of the four Universities. The questionnaires have been prepared in such a way that the respondents could easily understand them.

Table 1 Questionnaire for Collecting the Data from University-wise

University	**No. of Respondents**	**%**
Anna University, Trichy	65	32.5
Tamil Nadu Agricultural University	42	21
Tamil Nadu Veterinary and Animal Sciences University	56	28
Tamil Nadu Dr. MGR Medical University	37	18.5
Total	200	100
Caste Group	**No. of Respondents**	**%**
Forward Caste	24	12
Backward Caste	61	30.5
Most Backward Caste	73	36.5
Scheduled Castes	42	21
Total	200	100
Sex	**No. of Respondents**	**%**
Male	138	69
Female	62	31
Total	200	100

A study of data in table indicates the University-wise respondents' awareness about health. It can be assessed with the help of 20 factors on a 5 point rating scale. A study of data in Table 2 indicates the University-wise respondents' awareness about health. Tamil Nadu Dr. MGR Medical University respondents rank the first position in their overall knowledge of health information as they have secure mean score 4.00 on a 5 point rating scale. Tamil Nadu Agricultural University respondents occupy the last position in their overall knowledge of health information as they have secure mean score 3.17 on a 5 point rating scale.

Table 2 University-wise Respondents' Awareness about Health

Awareness	Anna University, Trichy	Tamil Nadu Agricultural University	Tamil Nadu Veterinary and Animal Sciences University	Tamil Nadu Dr. MGR Medical University	Total
Taking complete physical test every year.	2.54	2.34	3.87	4.05	3.20
Fluoride toothpaste works so well that water fluoridation is no longer important.	3.77	3.17	3.98	4.12	3.76
It is difficult for busy people to eat a balanced diet.	2.65	3.35	3.56	3.98	3.39
People intelligent enough to graduate from college are unlikely to be victimized by quackery.	3.65	3.24	3.52	3.96	3.59
School Accreditation leads to sound teaching.	2.52	2.45	2.77	3.55	2.82
Cigarette smoking is the leading cause of preventable death	3.77	3.65	2.52	4.07	3.50
Sugar is a major cause of hyperactivity and other childhood behavioral problems.	4.05	3.98	3.19	4.12	3.84
No need of special training for counseling to the public.	3.77	3.99	3.42	3.52	3.68
Taking antioxidant vitamins protects against heart disease, stroke, and cancer.	2.85	2.65	4.11	4.91	3.63
Homeopathic remedies are a safe and effective alternative to many drugs that doctors prescribe.	2.86	2.46	2.96	3.55	2.96
Taking large daily doses of vitamin C can cut the incidence of colds in half.	3.77	3.57	3.98	3.98	3.83
People over age 21 should have their blood cholesterol level checked every year.	2.86	2.46	3.79	3.97	3.2 7
The Postal Service screens many ads for mail-order health products before they are published.	3.79	3.99	4.32	4.48	4.15
Indian Medical Association effectively monitoring the health practices.	3.22	2.44	3.56	3.92	3.29
Recent government reports indicate that the best person to consult for back pain is a chiropractor.	2.52	2.11	2.96	3.56	2.79
Most health-food retailers are well informed about the products they sell.	3.77	3.15	2.78	4.11	3.45
Protein or amino acid supplements help bodybuilders and other athletes improve their performance.	3.65	3.17	3.77	3.96	3.64

The emergency room of a nonprofit hospital is a relatively inexpensive place to get medical care.	3.99	3.92	3.17	3.88	3.74
Natural cancer cures are being suppressed because drug companies don't want competition.	2.11	3.96	2.58	4.12	3.19
Most health-related books and magazine articles undergo expert prepublication review.	3.55	3.42	3.97	4.21	3.79
Total	3.28	3.17	3.44	4.00	3.47

A study of data in Table 3 indicates the Caste-wise respondents' awareness about health. It can be assessed with the help of 20 factors on a 5 point rating scale. A study of data in table 3 indicates the caste-wise respondents' awareness about health. The forward caste respondents rank the first position in their overall knowledge of health information as they have secure mean score 4.09 on a 5 point rating scale. The scheduled caste respondents occupy the last position in their overall knowledge of health information as they have secure mean score 2.59 on a 5 point rating scale.

Table 3 Caste-wise Respondents' Source of Knowledge about Health Information

Source	Forward Caste	Backward Caste	Most Backward Caste	Scheduled Caste	Total
Taking complete physical test every year.	4.16	3.9	3.65	2.65	3.59
Fluoride toothpaste works so well that water fluoridation is no longer important.	4.27	3.85	3.17	3.67	3.74
It is difficult for busy people to eat a balanced diet.	4.31	3.97	3.72	1.08	3.27
People intelligent enough to graduate from college are unlikely to be victimized by quackery.	3.98	3.44	2.85	1.57	2.96
School Accreditation leads to sound teaching .	4.21	3.8	3.71	3.32	3.76
Cigarette smoking is the leading cause of preventable death	3.98	3.72	3.52	2.34	3.39
Sugar is a major cause of hyperactivity and other childhood behavioral problems.	4.1	3.85	3.71	2.9	3.64
No need of special training for counseling to the public.	3.12	3.59	2.98	1.47	2.79
Taking antioxidant vitamins protects against heart disease, stroke, and cancer.	4.21	3.91	3.52	1.52	3.29
Homeopathic remedies are a safe and effective alternative to many drugs that doctors prescribe.	4.21	4.05	3.91	3.15	3.83
Taking large daily doses of vitamin C can cut the incidence of colds in half.	4.23	3.8	3.77	2.2	3.50
People over age 21 should have their blood cholesterol level checked every year.	4.05	4.19	3.81	3.11	3.79
The Postal Service screens many ads for mail-order health products before they are published.	3.62	3.95	2.53	1.18	2.82

Indian Medical Association effectively monitoring the health practices.	4.19	3.98	2.87	1.76	3.20
Recent government reports indicate that the best person to consult for back pain is a chiropractor.	3.99	3.87	3.44	3.42	3.68
Most health-food retailers are well informed about the products they sell.	4.3	4.31	3.65	4.34	4.15
Protein or amino acid supplements help bodybuilders and other athletes improve their performance.	3.98	4.11	2.56	2.11	3.19
The emergency room of a nonprofit hospital is a relatively inexpensive place to get medical care.	4.22	3.98	2.77	2.83	3.45
Natural cancer cures are being suppressed because drug companies don't want competition.	4.39	4.05	3.45	2.63	3.63
Most health-related books and magazine articles undergo expert prepublication review.	4.33	3.79	3	4.24	3.84
Total	4.09	3.91	3.33	2.57	3.47

A study of data in Table 4 indicates the sex-wise respondents' awareness about health. The male respondents rank the first position in their overall knowledge of health information as they have secure mean score 3.63 on a 5 point rating scale. The female respondents take the second position in their overall knowledge of health information as they secure mean score 3.30 on a 5 point rating scale.

Table 4 Sex wise Respondents' Knowledge of Health Information

Sources	Male	Female	Total
Taking complete physical test every year.	3.51	3.07	3.29
Fluoride toothpaste works so well that water fluoridation is no longer important.	3.15	4.33	3.74
It is difficult for busy people to eat a balanced diet.	4.12	3.06	3.59
People intelligent enough to graduate from college are unlikely to be victimized by quackery.	3.76	1.88	2.82
School Accreditation leads to sound teaching.	4.26	3.26	3.76
Cigarette smoking is the leading cause of preventable death	4.14	1.78	2.96
Sugar is a major cause of hyperactivity and other childhood behavioral problems.	3.98	3.02	3.5
No need of special training for counseling to the public.	3.19	4.49	3.84
Taking antioxidant vitamins protects against heart disease, stroke, and cancer.	3.52	3.84	3.68
Homeopathic remedies are a safe and effective alternative to many drugs that doctors prescribe.	3.78	3.5	3.64
Taking large daily doses of vitamin C can cut the incidence of colds in half.	3.8	2.74	3.27
People over age 21 should have their blood cholesterol level checked every year.	3.88	2.52	3.2

The Postal Service screens many ads for mail-order health products before they are published.	3.56	3.22	3.39
Indian Medical Association effectively monitoring the health practices.	3.66	4.64	4.15
Recent government reports indicate that the best person to consult for back pain is a chiropractor.	4.11	3.15	3.63
Most health-food retailers are well informed about the products they sell.	2.98	2.16	2.57
Protein or amino acid supplements help bodybuilders and other athletes improve their performance.	3.57	2.81	3.19
The emergency room of a nonprofit hospital is a relatively inexpensive place to get medical care.	2.85	4.73	3.79
Natural cancer cures are being suppressed because drug companies don't want competition.	2.77	4.13	3.45
Most health-related books and magazine articles undergo expert prepublication review.	3.95	3.71	3.83
Total	3.63	3.30	3.47

6.1 Data Analysis

The collected data are classified and tabulated according to the objectives and hypotheses stated. First, the data are recorded on data sheets and then fed into the computer personally. In order to test the hypotheses, ANOVA two way model and T test have been applied. They are worked out with the help of Excel Package. The general data interpretation is made with the help of percentages and averages. In order to measure the respondents' satisfaction in using information technology towards searching health information, respondents' problems in utilization of information technology towards searching health information, respondents' sources of collection of different health information and extent of utilization of health information, the five point rating scale is applied. To study the respondents' sources and purposes of seeking health information, a 5 point rating scale has been prepared and applied. The 5 point scale consists of very high level use, high level use, moderate level use, low level use and least level use. In order to study the respondents' satisfaction in utilization of information technology towards searching health information, the researcher has applied 5 point rating scale. The satisfaction can be measured in the following way. It includes highly satisfied, satisfied, somewhat satisfied, dissatisfied and strongly dissatisfied perceptions. On the basis of the obtained score for each variable, the overall, caste wise, occupation wise and institution wise mean score values are obtained for general data interpretation. Further, ranking method and rating methods are applied.

6.2 Concepts

The following concepts are operationally defined for the purpose of the present study.

6.2.1. Extent of Utilization of Health Information

This can be measured on the basis of a five-point-rating scale Viz., very high level, high level, moderate level, low level and very low level.

6.2.2. Problems in utilization of Health Information

The problems encountered in access to information technology, problems in operation of computer and internet resources and problems in downloading information.

6.2.3. Satisfaction in Utilization of Information Technology in Searching Health Information

This includes satisfaction derived from easy and quick access to health information.

7. CONCLUSION

For educated people who know how to find useful health information on the print, digital media and Internet, regarding self-care and disease prevention, and who also know how to deal with the health care system, the print media and the Internet hold great promise. The findings of University-wise respondents' awareness about health reveal that the respondents have high level knowledge

of health information with respect to taking medicine that protects people against heart disease, stroke, and cancer etc. Though the faculties have greater awareness of the health information and its importance, still there are areas for improvement. The use of new technologies embracing the new digital age in information provision may influence this in the future. Due to time and manpower constraints, only 200 respondents were surveyed and this must be kept in mind when percentages were considered. Also, because of the narrow scope of the survey, the findings of this current study cannot be generalised to the entire faculties. It would be ideal if a larger number of respondents were sampled in future research.

REFERNCES

[1] D.E. Agosto and S.Hughes-Hassell, "People, Places, and Questions: An Investigation of the Everyday Life Information-Seeking Behaviours of Urban Young Adults", Library & Information Science Research, Vol.27, 2005, pp.141-163.

[2] Ambikapathi Shanmugam, "Information Seeking Behaviour of Trainee Teachers in Selected Teacher Training Colleges in Malaysia", Malaysian Journal of Library & Information Science, Vol.4, No.1, July 1999, pp.1-26.

[3] D.O. Case and B. Cronin, (Ed.), "Information Behavior.in", Annual Review of Information Science and Technology , Medford, NJ: Information Today, Vol.40, 2006, pp. 297-327.

[4] "Datamonitor Growth in Number Seeking Health Info Online: Nua Surveys", Retreived September 23rd 2003, from: http://www. Nua.com/surveys.

[5] M.J. Dutta-Bergman, "Primary Sources of Health Information: Comparisons in the Domain of Health Attitudes, Health Cognitions, and Health Behaviours", Health Communication, Vol.16, No.3, 2004, pp.273-288.

[6] J. A.Manganello, "Health Literacy and Adolescents: A Framework and Agenda for Future Research", Health Education Research, Vol.23, No.5, 2008, pp.840-847.

[7] Mike Benigeri and Pierre Pluye, "Shortcomings of Health Information on the Internet", Interdisciplinary Health Research Group, University of Montreal, Canada, C.P. 6128, Succ. Centre-ville, Montreal, Quebec H3C 3J7, Canada, 1998. mike.benigeri@umontreal.ca

[8] Stephen Asunka, "Understanding Academic Information Seeking Habits through Analysis of Web Server Log Files: The Case of the Teachers College Library Website", 13p, asunkas@yahoo.com, Journal of Academic Librarianship; Vol.35, No.1, 2009, pp.33-45.

Use of Electronic Journals by Arts and Science Research Scholars of Acharya Nagarjuna University, Guntur, Andhra Pradesh: A Comparative Study

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Abstract

The 21st century has brought a tremendous revolution in information and communication technology. It has resulted in perennial access to networked information and other information resources. Usage of information through electronic mode has become the order of the day. After arrival of internet facility into the society, the entire world has become a hamlet. The entire information is readily available everywhere. Today, the readers residing in a remote village are able to have access to the information whatever they want through internet facility. In order to highlight the accessibility of internet to the users in the modern era and to familiarize the multifarious utilities with the same, the author has made an earnest attempt in this paper.

Keywords: *Electronic journals, Internet, User study.*

1. INTRODUCTION

There has been a sea change in the higher education sector due to the revolution in information and communication technology. The networked information and access to information resources rather than holdings have become the order of the day. All over the world academic libraries besides individuals subscribe electronic journals to meet their users' expectation and implement the concept of consortia based subscription to electronic resources.

The World Wide Web has changed the way how the information is being transformed in the Internet. A vast field of information is now at the world's fingertips. Book lovers can order their favourite titles from an electronic books store such as amazon.com, news bounds can personalize their daily newspaper, information scientists can read the latest developments in technology, and medical researchers in labs located hundreds of miles from the nearest library can access the latest innovations in medicine. The web has increased the world's information expectations and has changed forever the infrastructure of information delivery in the science publishing community. The electronic journals are among the one led to predict the extinction of traditional academic journals. Electronic journals are an important source for scientific research and development. Journals become vital to carry out any meaningful research. This source is widely used by workers in Research and Development and other users of the libraries to carry out day-to-day qualitative research, education and knowledge. A closer examination of the ways in which digital and printed scholarly journals developed clearly indicates that most electronic journals are not all that different in their fundamental editorial processes than print.

2. OBJECTIVE

The main objectives of the present study are as follows:

i. To examine the level of computer literacy/skills among the research scholars of Arts and Sciences in Acharaya Nagarjuna University, Guntur;
ii. To know the place from where to access the electronic journals by research scholars of Arts and Sciences;
iii. To know the frequency use of electronic journals by the research scholars of Arts and Sciences;
iv. To find out the purpose of using electronic journals;
v. To know the problems faced by the research scholars of Arts and Science while using the electronic journals;
vi. To find out the different types of electronic journals available for the research scholars of Arts and Sciences;

vii. To understand various factors which discourages the research scholars of Arts and Sciences from using electronic journals;
viii. To find out the effectiveness of electronic journals;
ix. To examine the satisfaction of research scholars of Arts and Sciences with regard to electronic journals; and
x. To offer suggestions for the improvement of electronic journals consortium.

3. HYPOTHESES

i. Majority of the research scholars of Arts and Sciences in Acharya Nagarjuna University, Guntur are aware of electronic journals.
ii. The research scholars of Science are more aware than the research scholars of Arts.
iii. Most of the research scholars of Arts and Science in Acharya Nagarjuna University, Guntur are not satisfied with the electronic journals.
iv. Most of the research scholars of Arts and Sciences are facing problems while accessing electronic journals.
v. Most of the research scholars (both Arts and Sciences) realize the need for user training.

4. METHODOLOGY

Methodology has its own importance in scientific investigation, because objectivity in any research investigation cannot be obtained unless it is carried out in a very systematic and rational manner. Scientific investigation involves careful and proper adoption of research design, use of standardized tools and tests identifying adequate sample by using appropriate sampling techniques and procedures for collecting data and then after careful tabulation, the use of appropriate statistical techniques for analyzing the data.

4.1 Tools Used For The Study

The questionnaire method was used as the tool for the study for collecting data.

4.2 Questionnaire Method

Questionnaire is a tool to collect the data from the diverse large and widely scattered groups. This method of data collection is quite popular. A questionnaire consists of a number of questions printed in a definite order. In this method, a questionnaire was given to research scholars of the Arts and Sciences with a request to answer the questions and return the questionnaire. The research scholars have to answer the questions on their own.

4.3 Selection of the Sample

The present study is conducted on a sample of a total number of 200 questionnaires out of which 100 questionnaires are distributed among the research scholars of Arts and 100 among the research scholars of Sciences at Acharya Nagarjuna University, Guntur, Andhra Pradesh. Among them only 75 filled questionnaires in the research scholars of Arts and 87 filled questionnaires in the research scholars of Sciences have been received back by the investigator. Only 70 filled questionnaires in the research scholars of Arts and 80 filled questionnaires in the research scholars of Sciences have been selected for the analysis and interpretation of data, because of incomplete responses from the other research scholars.

4.4 Data Collection Procedure

The questionnaires have been distributed to the research scholars personally and have been collected from them either on the spot or after two or three days. Some of the questionnaires have been filled up by the investigator when the research scholars have been provided answers to the questions. They have assured that the data provided by them would be kept strictly confidential and used for research purpose only. The investigator has not stressed the users to give their names on the questionnaire if they are unwilling to do so. Every effort is made by the investigator to get reliable and accurate data from respondents.

5. ANALYSIS OF DATA

After collecting the data from the research scholars, the data has been checked and analyzed according to the objectives and hypotheses stated. First the data has been recorded on the data sheets and then fed into the computer personally for the calculations. However, some of the calculations have been done with the help of a calculator.

Table 1Computer Literacy/Skills

Computer Literacy/Skills	Research Scholars				Total	%
	Arts	%	Sciences	%		
Expert	11	15.71	17	21.25	28	18.67
Above Average	31	44.29	39	48.75	70	46.67
Average	24	34.29	24	30.00	48	32.00
Beginner	4	5.71	-	-	4	2.66
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 1 that 46.67% of the research scholars have above average knowledge with the computers, 32% have average knowledge, 18.67% are experts, and the remaining 2.66% are beginners in this regard. It is also evident from the above that 21.25% of the research scholars of sciences and 15.71% of research scholars of arts are experts with the computer literacy/skills, 48.75% of research scholars of sciences and 44.29% of research scholars of arts are above average, 34.29 % of research scholars of arts and 30% of research scholars of sciences have average knowledge, and the remaining 5.72% of research scholars of arts are beginners in this regard.

Table 2 Place for Accessibility of Electronic Journals

Places of Access	Research Scholars				Total	%
	Arts	%	Sciences	%		
Departmental Lab/Library	35	50.00	51	63.75	86	57.33
Computer centre	23	32.86	33	41.25	56	37.33
University Library	56	80.00	45	56.25	101	67.33

*(multiple answers are permitted)

It is evident from Table 2 that 67.33% of the research scholars are accessing the electronic journals from their central library, 57.33% are departmental libraries, and 37.33% are computer centres in this regard.

It is also clear from Table 2 that 63.75% of research scholars of sciences and 50% of research scholars of arts are accessing the electronic journals from their departmental libraries. 41.25% of research scholars of sciences and 32.86% of research scholars of arts use computer centres to access electronic journals, while 80% of research scholars of arts and 56.25% of research scholars of sciences use university libraries to access the electronic journals.

Table 3 Frequency of Using Electronic Journals

Frequency	Research Scholars				Total	%
	Arts	%	Sciences	%		
Daily	27	38.57	15	18.75	42	28.00
2/3 times a week	19	27.14	33	41.25	52	34.67
2/3 times a month	13	18.57	21	26.25	34	22.67
Once a month	8	11.43	7	8.75	15	10.00
Occasionally	3	4.29	4	5.00	7	4.66
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 3 that 34.67% of the research scholars are using the electronic journals 2/3 times a week, 28% are daily, 22.67% are 2/3 times a month, 10% use once a month, and the remaining 4.66% occasionally use in this regard.

It is also evident from Table 3 that 38.57% of research scholars of arts and 18.75% of research scholars of sciences use electronic journal daily. 41.25% of research scholars of sciences and 27.14% of research scholars of arts are using electronic journals 2/3 times a week. 26.25 % of research scholars of sciences and 18.57% of research scholars of arts are using electronic journals 2/3 times a month. 11.43% of research scholars of arts and 8.75% research scholars of sciences are using electronic journals once a month. Only 5% of research scholars of sciences and 4.29% of research scholars of arts are using electronic journals occasionally.

Table 4Amount of Time Spent

Time Spent	Research Scholars				Total	%
	Arts	%	Sciences	%		
Half an Hour	21	30.00	17	21.25	38	25.33
One Hour	43	61.43	51	63.75	94	62.67
More Than One Hour	6	8.57	12	15.00	18	12.00
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident form Table 4 that 62.67% of research scholars are accessing the electronic journal for an hour on an average, 25.33 percent for half an hour, and the remaining 12% of the research scholars indicate that they use electronic journals for more than one hour. It is also evident from Table 5 that 30% of research scholars of arts and 21.25% of research scholars of sciences indicate that they are using the electronic journals for half an hour. 63.75% of research scholars of sciences and 61.43% of research scholars of arts are using for one hour. Only 15% of research scholars of sciences and 8.57% of research scholars of arts indicate that they are using the electronic journals for more than one hour.

Table 5 Awareness of UGC-INFONET

Awareness	Research Scholars				Total	%
	Arts	%	Sciences	%		
Yes	49	70.00	67	83.75	116	77.33
No	21	30.00	13	16.25	34	22.67
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 5 that 77.33% of research scholars are aware of UGC-INFONET electronic journals consortium, whereas 22.67%of research scholars are not aware in this regard. Table 5 indicates that 83.75% of research scholars of sciences and 70% of research scholars of arts are aware of UFC-INFONET electronic journals consortium, whereas 30% of research scholars of arts and 16.25 % of research scholars of sciences are not aware of UGC-INFONET consortium.

Table 6 Purpose of Using Electronic Journals

Purpose	Research Scholars				Total	%
	Arts	%	Sciences	%		
To Update Knowledge	11	15.71	21	26.25	32	21.33
To Write Papers	21	30.00	25	31.25	46	30.67
For Research	53	75.71	61	76.25	114	76.00
For Study	17	24.28	19	23.75	36	24.00

*(multiple answers are permitted)

It is evident from Table 6 that 76% of research scholars indicate that they are using the electronic journals for their research purpose, 30.67% use to write papers, 24% use for their studies, and 21.33% use to update their knowledge.

It is also evident from table 6 that 26.25% of research scholars of sciences and 15.71% of research scholars of arts are using electronic journals "to update knowledge", 31.25% of research scholars of sciences and 30% of research scholars of arts are using e-journals "to write papers", 76.25% of research scholars of sciences and 75.71% of research scholars of arts are using the electronic journals "for research", and only 24.28% of research scholars of arts and 23.75% of research scholars of science are using the electronic journals "for study" purpose.

Table 7Sources of Information about Electronic Journals

Sources	Research Scholars				Total	%
	Arts	%	Sciences	%		
Internet	16	22.86	19	23.75	35	23.33
Newspapers	5	7.14	7	8.75	12	8.00
Journals	13	18.57	9	11.25	22	14.67
Colleagues	21	30.00	28	35.00	49	32.67
Research Supervisors	15	21.43	17	21.25	32	21.33
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 7 that 32.67% of research scholars are getting the information about electronic journals from their colleagues, 23.33% are from Internet, 21.33% are from research supervisors, 14.67% are from journals, and the remaining 8% of research scholars are from newspapers in this regard.

It is also evident from Table 7 that 23.75% of research scholars of sciences and 22.86% of research scholars of arts are getting the information about electronic journals from "Internet". About 8.75% of research scholars of science and 7.14% of research scholars of arts are getting from "Newspapers". 18.57%of research scholars of arts and 11.25% of research scholars of sciences are getting from "Journals". 35% of the research scholars of sciences and 30% of the research scholars of arts are getting from "Colleagues". 21.43% of the research scholars of arts and 21.25% of the search scholars of sciences are getting the information about electronic journals from "Research Supervisors".

Table 8 Relative Dependency of Various Sources

Types of Sources	Total Weightages		Mean Weightages		Rank	
	Arts	Science	Arts	Science	Arts	Science
Publishers Website	221	273	3.16	3.41	3	3
Link For E-Databases	183	224	2.61	2.80	4	4
Through Consortium	242	28	3.46	3.60	2	2
Through Search Engines	260	311	3.60	3.89	1	1

It is evident from Table 8 that the science and arts research scholars highly depend on search engines for locating and accessing the electronic journals compared to other sources. They also depend on consortium, publishers' website and link for e-databases to locate and accessing the electronic journals for their requirements.

Table 9 Search Engines Used By Research Scholars

Search Engine	Research Scholars				Total	%
	Arts	%	Sciences	%		
Google	61	87.14	56	70.00	117	78.00
Yahoo	29	41.43	48	60.00	77	51.33
MSN	11	15.71	9	11.25	20	13.33

(* Multiple answers are permitted)

It is evident from Table 9 that 78% of the research scholars are using Google search engine for accessing the electronic journals, 51.33% are using yahoo search engine, and 13.33% are using MSN search engine for accessing the e-journals. It is also evident from Table 9 that 87.14% of arts research scholars and 70% of science research scholars are using 'Google' to search electronic journals. About 60% of science research scholars and 41.43% of arts research scholars are using 'Yahoo', whereas 15.17% of arts research scholars and 11.25% of science research scholars are using 'MSN' in this regard.

Table 10 Relative Methods of Reading Full-Text E-Journals

Types Of Methods	Total Weightages		Mean Weightages		Rank	
	Arts	Science	Arts	Science	Arts	Science
On The Screen	188	223	2.69	2.79	3	3
Printouts On Paper	260	290	3.71	3.63	2	2
Down Loading In Floppy/Pen Drive	270	308	3.86	3.85	1	1

It is evident from Table 10 that the arts and science research scholars highly depend on down loading on floppy/pen drive for reading the full text electronic journals compared to other methods. They also depend on printouts on paper and the screen for reading the full text electronic journals.

Table 11 Value of Information Access

Value Level of Information Access	Research Scholars				Total	%
	Arts	%	Sciences	%		
Most Helpful	19	27.14	39	48.75	58	38.67
Helpful	41	58.57	27	33.75	68	45.33
Moderately Helpful	10	14.29	14	17.50	24	16.00
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 11 that 45.33% of research scholars are indicated that electronic journals are helpful in their research, 38.67% of them most helpful, and the remaining 16% of them are moderately helpful in this regard. No research scholar says that electronic journals are not helpful.

It is also evident from Table 11 that 48.75% of science research scholars and 27.14% of arts research scholars indicate that electronic journals are 'Most helpful' in their research work. About 58.57% of arts research scholars and 33.75% of science research scholars consider that electronic journals are 'Helpful', whereas 17.50% of science research scholars and 14.29% of arts research scholars indicate that electronic journals are moderately 'Helpful' in research.

Table 12 Skill Regarding the Use of E-Journals

Skills	Research Scholars				Total	%
	Arts	%	Sciences	%		
Expert	11	15.71	9	11.25	20	13.33
Moderate	47	67.15	59	73.75	106	70.67
Beginners	12	17.14	12	15.00	24	16.00
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 12 that 70.67% of the research scholars consider that their skills are moderate for accessing the electronic journals, 16% of them are beginners, and the remaining 13.33% are experts in this regard. It is also evident from Table 12 that 15.17% of arts research scholars and 11.25% of science research scholars are experts for accessing the electronic journals, 73.75% of science research scholars and 67.15% of arts research scholars are moderate, and 17.14% of arts research scholars and 15% of science research scholars are beginners in this regard.

Table 13 Problems Faced in Accessing E-Journals

Problems Faced	Research Scholars				Total	%
	Arts	%	Sciences	%		
Yes	57	81.43	59	73.75	116	77.33
No	13	18.57	21	26.25	34	22.67
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 13 that 77.33% of the research scholars are facing the problems in accessing the electronic journals, whereas 22.67% of them do not face any problems in this regard. It is also evident from Table 13 that 81.43% of arts research scholars and 73.75% of science research scholars face problems in accessing electronic journals while 26.25% of science research scholars and 18.57% of arts research scholars do not face any problems in accessing the electronic journals.

Table 14 Types of Problems in Accessing E-Journals

Types of Problems	Research Scholars				Total	%
	Arts	%	Sciences	%		
Internet Connectivity	17	24.29	21	26.25	38	25.33
Limited access terminals	11	15.71	19	23.75	30	20.00
low speed	38	54.29	31	38.75	69	46.00
Lack of training	29	41.43	27	33.75	56	37.33

(Multiple answers are permitted)

It is evident from Table 14 that 46% of the research scholars face 'low speed' problem in accessing the electronic journals, 37.33% of them face lack of training problems, 25.33% of them face internet connectivity problem, and 20% of them face limited access terminals problems in accessing the electronic journals. It is also evident from Table 14 that 26.25% of science research scholars and 24.29% of arts research scholars face 'Internet Connectivity' problem in accessing electronic journals. About 23.75% of science research scholars and 15.71% of arts research scholars face 'limited access terminals' problems, while 54.29% of arts research scholars and 38.75% of science research scholars suffer from 'low speed' and 41.43% of arts research scholars and 33.75% of science research scholars face problems due to 'lack of training'.

Table 15 Satisfaction of Electronic Journals

Level of Satisfaction	Research Scholars				Total	%
	Arts	%	Sciences	%		
Highly	9	12.86	7	8.75	16	10.67
Satisfied	24	34.28	29	36.25	53	35.33
Dissatisfied	37	52.86	44	55.00	81	54.00
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 15 that 54% of the research scholars are dissatisfied with the electronic journals, 35.33%are satisfied, and the remaining 10.67% are highly satisfied in this regard. It is also evident from Table 15 that 12.86% of arts research scholars and 8.75% of science research scholars are highly satisfied with the electronic journals provided by the library, 36.25% of science research scholars and 34.28% of arts research scholars are satisfied, and 55% of science research scholars and 52.86% of arts research scholars are dissatisfied in this regard.

Table 16 Need of User Training

Need of Training	Research Scholars				Total	%
	Arts	%	Sciences	%		
Yes	51	72.86	53	66.25	104	69.33
No	19	27.14	27	33.75	46	30.67
Total	**70**	**100**	**80**	**100**	**150**	**100**

It is evident from Table 16 that 69.33% of the research scholars realize the need of training, whereas 30.67% of the research scholars realize negatively in this regard. It is evident from Table 16 that 72.86% of arts research scholars and 66.25% of science research scholars realize the need of training, 33.75% of science research scholars and 27.14% of arts research scholars realize negatively in this regard.

Table 17 Ways To Make E-Journals Facility Efficient

Ways	Research Scholars				Total	%
	Arts	%	Sciences	%		
To Make Training Programmes	27	38.57	34	42.50	61	40.67
Through Cooperation From Staff	34	48.57	29	36.25	63	42.00
To Improve Speed	27	38.57	38	47.50	65	43.33

(Multiple answers are permitted)

It is evident from Table 17 that 43.33% of research scholars propose training programmes to make electronic journals facility efficient, 42% of them suggest through cooperation from staff, 40.67% of them to propose to make training programmes in this regard. Table 17 describes that 42.50% of science research scholars and 38.57% of arts research scholars propose training programmes to make electronic journals facility efficient. About 48.57% of arts research scholars and 36.25% of science research scholars suggest through cooperation from staff, whereas 47.50% of science research scholars and 38.57% of arts research scholars stress to improve speed to make electronic journals facility efficient.

6. FINDINGS

The major findings of the present study are as follows:

i. Majority of the research scholars (46.67%) have above average knowledge with the computers.

ii. Table 1 depicts that 48.75% of science research scholars and 44.29% of arts science research scholars have above average knowledge with the use of computers. It is evident from it more science research scholars are aware with the computer knowledge than the arts research scholars.

iii. Majority of the research scholars (67.33%) are accessing the electronic journals from their university library. Majority of the arts research scholars are accessing the electronic journals from university library than the science research scholars.

iv. A moderate section of the research scholars (34.67%) are using the electronic journals 2/3 times a week. More arts research scholars are using the electronic journals daily compared to science research scholars.

v. Majority of the research scholars (62.67%) are accessing the electronic journals for one hour on an average daily.

vi. Majority of the research scholars (77.33%) are aware of UGC-INFONET consortium. More science research scholars are aware of the UGC-INFONET consortium than the arts research scholars.

vii. Majority of the research scholars in science (76.25%) and arts (75.71%) are using the electronic journals for their research purpose compared to other purposes.

viii. A moderate group of the research scholars in science (35%) and arts (30%) are getting the information about electronic journals through colleagues compared to other sources.

ix. Most of the research scholars in Arts and Science highly depend on search engines for accessing and locate the e-journals compared to other sources.

x. Majority of the research scholars in arts (87.14%) and science (70%) are using the Google search engine to search for the electronic journals compared to other search engines.

xi. Majority of the arts and science research scholars highly depend on down loading on floppy/pen drive for reading the full text electronic journals compared to other methods

xii. Most of the research scholars in science (48.75%) and arts (27.14%) indicate that electronic journals are most helpful in their research work.

xiii. Majority of the research scholars in science (73.75%) and arts (67.15%) consider as moderate regarding the skills of use of the electronic journals.

xiv. Majority of research scholars in arts (81.43%) and science (73.75%) are facing the problems in accessing the electronic journals.

xv. Majority of the research scholars in arts (54.29%) and science (38.75%) are facing the problems of low speed compared to other types of problems.

xvi. Only 8.75% of science research scholars and 12.86% of arts research scholars are highly satisfied with regard to electronic journals.

xvii. Majority of the research scholars in arts (72.86%) and science (66.25%) are indicate that there is a need for training to make the electronic journals facility more efficient.

xviii. About 42.50% of science research scholars and 38.57% of arts research scholars propose training programmes. 48.57% of arts research scholars and 36.25% of science research scholars suggest through cooperation from staff, whereas 47.50% of science research scholars and 38.57% of arts research scholars emphasise to improve speed to make electronic journals facility efficient.

7. SUGGESTIONS

From the analysis and interpretations of the data and the arrived findings and observations have contributed for formulation of the following suggestions:

i. To provide electronic journals facility efficiently and effectively number of terminals and printers must be increased in the University Library.

ii. To reduce the slow down-loading problem while accessing the electronic journals, the digital library should acquire high speed internet and intranet connections.

iii. The authorities should start bulletin board services to inform the research scholars about news additions of electronic journals consortium and databases.

iv. The faculty and library should organize regular workshops to enhance usage of electronic journals.

v. User training should be given for the proper exploitation of electronic journals.

vi. Number of journals available through consortia may be increased to access more journals in their respective fields.

vii. Introduction of proper feedback systems may be helpful to know about proper use of electronic journals facility.

viii. Digital Library staff must possess additional skills to navigate various electronic resources, especially electronic journals by which they could provide better services to the user while they are facing any problems in accessing the electronic journals.

ix. In order to increase the usage of electronic journals by research scholars, they should be given more assignments related to their research topic, so that they may be forced to exploit electronic journals services more efficiently.

x. Users' studies should be conducted to know about the need of electronic information to the research scholars as well as problems they are facing while searching for the information through electronic journal consortium.

8. SUGGESTIONS FOR FURTHER RESEARCH

The present study is dealing with the use of electronic journals by arts and science research scholars in Acharya Nagarjuna University Library, Guntur, Andhra Pradesh. The researchers are of the opinion that the studies of this type can be carried out on the students and faculty members of other well-established universities in India. The similar studies of this type can also be carried out

REFERENCES

[1] H. P. Harter and H. J. Kim, "Electronic Journals and Scholarly Communication: A Citation and Reference Study", Information Research, Vol.2, 1996, http://informationr.net/ir/2-1/paper90.html.

[2] T. Kortelainen, "An Analysis of the Use of Electronic Journals and Commercial Journals Article Collections through the FinElib Portal, Information Research, Vol.9, 2004, http://informationr.net/ir/9-2/paper168.html.

[3] K. Marek and E J. Valauskas, "Web Logs as Indices of Electronic Journal Use: Tools for Identifying a Classic", Libri, Vol.55, No.2002, pp.220-230.

[4] C. McKnight and Others, "Librarians in the Delivery of Electronic Journals: Roles Revisited, Journal of Librarianship and Information Science, Vol.32, No.3, 2000, pp.117-134.

[5] J. Meadows, P.Yates-Mescer and D. McVey, "The Training of Library and Information Staff in the Handling of Online Electronic Journals, Journal of Information Science, Vol.23, No.2, 1997, pp.163-167.

[6] P. Mounissamy, "Users' Attitude Towards Electronic Journals", IASLIC Bulletin, Vol.50, No.2, 2005, pp.91-95. .

[7] B. K. Vishala and M.K. Bhandi, "Availability of Library and Information Science Electronic Journals through UGC-INFONET Project", Annals of

A Study on Job Satisfaction of Library Professionals with Reference to Colleges Imparting Management Education

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Abstract

The present study examines the issues related to the job satisfaction of the library professionals working in colleges imparting management education in and around Madurai, Tamil Nadu. Job satisfaction is a very important attribute which is frequently measured by organizations. The most common way of measurement is the use of rating scales where librarians report their reactions to their jobs. Questions relate to scale of pay, work responsibilities, variety of tasks, promotional opportunities, the work itself and co-workers. There is a need to study the job satisfaction of the librarians because the nature of job is changing. The job satisfaction is the condition of establishing a healthy organizational environment in an organization. Normally this depends on the economical, social and cultural conditions. This paper attempts to evaluate the job satisfaction of library professionals based on a questionnaire survey method. 65 questionnaires were distributed out of which 58 responses were received. Among the 58, 3 were not fully completed; we take the sample size as 55 questionnaires for this analysis. The data analyzed indicates that library professionals are satisfied with their job.

Keywords: *Job Satisfaction, Library Professionals, Madurai.*

1. INTRODUCTION

In early preliterate days, work was man's total way of life. It was not separated from other spheres of life. The incentive for work was immediate satisfaction of needs. But as society changed, magic and aesthetic considerations were stripped from work. Even when it was dissociated from the other spheres of life, it became from the most important activity of man. In ancient days manual work was thought to be monotonous, having brutalizing effect on human mind. It was to be avoided by elites. The higher castes in India also looked upon work with similar disregard.

Job satisfaction of the librarian naturally depends on the economical, social and cultural conditions. A librarian who cannot get a sufficient wage will face the problem of maintaining his or her family life. This problem puts the librarian far from being satisfied. Especially the social facilities are sufficient because of the economic conditions. Low wages, lack of status and social security affect motivation. Job satisfaction cannot be talked of where there is absence of motivation. In this respect, the question of how the material and moral element affect the job satisfaction of the librarians gains importance.

2. DEFINITION

Job satisfaction has been defined as a pleasurable emotional state resulting from the appraisal of one's job;[1] an affective reaction to one's job;[2] and an attitude towards one's job.[3] Weiss (2002) has argued that job satisfaction is an attitude but points out that researchers should clearly distinguish the objects of cognitive evaluation which affect (emotion), beliefs and behaviours.[4] This definition suggests that we form attitudes towards our jobs by taking into account our feelings, our beliefs, and our behaviors.

3. JOB SATISFACTION OF THE PROFESSIONALS

A study was conducted in the colleges imparting management education in and around Madurai, Tamil Nadu. They found out that few of the librarians are dissatisfied regarding physical working conditions, recognition with the work, obtaining respect with the job

job security, promotion, wages, social status, social services, having authority and responsibility.

4. SCOPE OF THE STUDY

In the presence scenario, there is a need to study the job satisfaction of the Library professionals, because job nature is changing the current information technology era, remuneration structure, rewards. Expectations of the library professionals at present seem to be changing. In this context, the research study is set in and around Madurai, Tamil Nadu. It includes totally 55 library professionals.

5. OBJECTIVES

This study attempts to observe the job satisfaction of the library professionals working in colleges imparting management education. The following objectives were fixed.

i. To know the level of job satisfaction of library professionals with various qualifications, gender and martial status
ii. To find the category wise job satisfaction level
iii. To find the job satisfaction for desirable life style
iv. To find the working condition of library professionals involved in the job satisfaction
v. To find the level of job satisfaction of library professionals with various organizations
vi. Scope of freedom, decision making, and initiatives are how to influence in the job satisfaction of library professionals

6. LITERATURE REVIEW

Researcher should study the summary of different points of view on the subject matter such as books, periodicals, etc., and approach to be followed at the time of research.

Julie Parmer and Dennis East's (1989) study of support staff in twelve Ohio libraries used the JSS as its basis and found that overall these workers considered themselves were basically satisfied [5]. They were strongly satisfied in the areas of supervision, coworkers, work, benefits, and pay, but were dissatisfied with operational procedures, communication, contingent rewards, and opportunities for promotion.

The relevance of job satisfaction and motivation are very crucial to the long-term growth of any educational system around the world. They probably rank alongside professional knowledge and skills, center competencies, educational resources and strategies as the veritable determinants of educational success and performance. Professional knowledge, skills and center competencies occur when one feels effective in one's behavior. In other words, professional knowledge, skills and competencies can be seen when one is taking on and mastering challenging tasks directed at educational success and performance (Filak & Sheldon, 2003)[6].

Donna K.Fitch used the Job Descriptive Index in her 1990 survey of Alabama professional job satisfaction. Though her study broke satisfaction down into components similar to those of the JSS, she made more of an effort to look at how institutional differences such as size of university and extent of library automation [7] affected job satisfaction. Again, she found that pay and promotion were the least satisfying areas. Fitch's findings are somewhat difficult to compare with those of Parmer and East or Voelck, however, she was testing significantly different variables that, as she concluded, she tended to have minimal effect on job satisfaction.

7. RESEARCH APPROACH

This research was undertaken in 20 libraries in and around Madurai (Tamil Nadu) using a questionnaire survey to study the job satisfaction amoung library professionals working in colleges imparting management edcuation. Primary data was collected from the questionnaire. 65 questionnaires were randomly distributed. Out of 65 questionnaires 58 were received. In the 58, 3 were not fully completed; we take the sample size as 55 questionnaires for this analysis. The collected primary data were keen into system by using the MS-Excel to analyze data and to generate tables. This research covers the library professionals who are working in various College Libraries in Madurai.

8. ANALYSIS AND INTERPRETATION

The researcher analyses and interprets the data collected. The data were collected between January and March 2011 through questionnaire method. After

verifying the questionnaire for completeness and editing the entries, the researcher analyzed the data using Excel. The data are presented in the form of tables.

8.1 Socio-demography Data

In this study, an attempt has been made to evaluate the job satisfaction of the library professionals working in academic libraries imparting management education. After careful observation was made, the socio demography information table divided in five sections. i.e. Professionals designation, Educational qualification, Distribution of gender, age group and professional experience.

Table 1 Socio-demography Data

Sl. No.	Socio-demography Information	No. of Respondents (n=55)	Percentage (Cumulative Percent)
Professionals Designation			
1	Librarian	13	24 (24)
2	Assistant Librarian	17	31 (55)
3	Library Assistant	25	45 (100)
Educational Qualification			
1	MLISc., M.Phil.,	20	36 (36)
2	MLISc., only	25	46 (82)
3	BLISc., only	10	18 (100)
Gender Distribution			
1	Male	31	56 (56)
2	Female	24	44 (100)
Age Group Distribution (in Years)			
1	Below 25	9	16 (16)
2	25 to 35	15	27 (43)
3	36 to 45	19	35 (78)
4	Above 46	12	22 (100)
Professional Experience (in Years)			
1	Below 10	20	36 (36)
2	11 to 15	10	18 (54)
3	16 to 20	11	20 (74)
4	21 to 25	6	11 (85)
5	Above 26	8	15 (100)

In Table 1, professional designation represents 45% of the respondents who have the post of library assistants, 31% of the respondents have assistant librarians and remaining 24% of the respondents are librarians. In educational qualification, 46% of the respondents have completed MLISc degree only, 36% of the respondents have completed MLISc with M.Phil. Degree, and the remaining 18% of the respondents have completed the bachelor degree. In the third section of gender distribution, 44% of the female respondents are involved. Age-wise the following observation are studied. Most of the respondents are under 36 to 45 age group, 27% from the middle age group, 22% from the senior professionals, other 16% from the young age group. Finally in the professional experience, 36% of the respondents have less than 10 years experience,20% are from 16 to 20

years experience, 18% are from 11 to 15 years experience, 8% professionals have vast experience and the remaining 10%are from 11 to 15 years experience.

With regard to economic advantages like salary allowances, etc., Respondents rate their job as

8.2 Economic Advantages

Table 2 Economic Advantages

Sl. No.	Opinion	No. of Respondents (n=55)	Percentage (Cumulative Percent)
1	Extremely Satisfying	6	11 (11)
2	Very Satisfying	12	22 (33)
3	Moderately Satisfying	27	49 (82)
4	Poor Satisfying	6	11 (93)
5	Not At All Satisfying	4	7 (100)

The Table 2 shows that 11% of the respondents are 'extremely satisfied' with the economic advantage given to them. 22% and 49% of the respondents say that it is 'very satisfying' and 'moderately satisfying'. 11% and 7% of the respondents are 'poor satisfying' and 'not at all satisfied' respectively. It is seen from the above table that as far as economic advantages are concerned, nearly half of the professionals feel that it is only moderately satisfying.

8.3 Co-operation with Higher Authorities

Do you agree that your higher authorities are co-operative, helpful and inspiring people for better and sincere work?

Table 3 Co-operation with Higher Authorities

Sl. No.	Opinion	No. of Respondents (n=55)	Percentage (Cumulative Percent)
1	Strongly Agree	13	24 (24)
2	Agree	35	63 (87)
3	Poorly Agree	2	4 (91)
4	Slightly Agree	4	7 (98)
5	Disagree	1	2 (100)

The Table 3 shows that 24% of the respondents 'strongly agree' that their authority is co-operative, helpful and inspiring people, etc. 63% of the respondents are 'agree' with higher authorities' co-operation, etc. Remaining 4%, 7% and 2% of the respondents give the following opinion i.e. 'poorly agree', 'slightly agree' and disagree' respectively that their higher authorities are co-operative, helpful and inspiring people for better and sincere work.

8.4 Profession with Family

Library profession gives sufficient time and opportunities to spend with their family.

Table 4 Profession with Family

Sl. No.	Opinion	No. of Respondents (n=55)	Percentage (Cumulative Percent)
1	Very Easily	5	9 (9)
2	Easily	26	47 (56)
3	Without Difficulty	20	36 (92)
4	With Difficulty	2	4 (96)
5	Not At All	2	4 (100)

The Table 4 shows whether the profession gives sufficient time and opportunities to spend with their family. 9% and 47% of the respondents give the opinion such as 'very easily' and 'easily'. 36% and 4% each spend their family 'without difficulty', 'with difficulty', and 'not at all' after their work respectively. Majority of the respondents spend the time with their family after the profession.

8.5 Profession with Overtime

Profession is so observing that even in the absence of over time allowance, they are willing to work on Sundays, Holidays etc., and also at late hours

Table 5 Profession with Overtime

Sl. No.	Opinion	No. of Respondents (n=55)	Percentage (Cumulative Percent)
1	Always	10	18 (18)
2	Frequently	14	26 (44)
3	Now and then	20	36 (80)
4	Under Compulsion	4	7 (87)
5	Never	7	13 (100)

The Table 5 shows that 36% and 26% of the respondents work on holidays and Sundays without remuneration 'now and then' and 'frequently'. 18% of the respondents work always and 7% work 'under compulsion' and 13% of the respondents 'never' work on Sundays, holidays, etc.,

8.6 Working Condition

The working conditions like comfortable seating, adequate temperature, humidity, hygienic and healthy environment of the work place are shown in the table below:

Table 6 Working Condition

Sl. No.	Opinion	No. of Respondents (n=55)	Percentage (Cumulative Percent)
1	Very Satisfying	9	16 (16)
2	Satisfactory	37	67 (83)
3	Only Slightly Satisfactory	7	13 (96)
4	Unsatisfactory	1	2 (98)
5	Not At All Satisfactory	1	2 (100)

The Table 6 shows the majority of the respondents (67%) say that their working condition is 'satisfactory'. 16% and 13% say that their working condition is 'very satisfactory' and 'only lightly satisfactory' respectively. Other respondents are dissatisfied with their working condition.

8.7 Professional Status

Library professional status recognize by their family members, relatives and friends are as follows

Table 7 Professional Status

Sl. No.	Opinion	No. of Respondents (n=55)	Percentage (Cumulative Percent)
1	Displeasing	1	2 (2)
2	Very Pleasing	12	22 (24)
3	Pleasing	16	29 (53)
4	Okay	25	45 (98)
5	Somewhat Displeasing	1	2 (100)

The Table 7 shows 45% of respondents say that their job is okay with their family members, relatives and friends. 29% of the respondents say 'pleasing', 22% of the respondents feel 'very pleasing' and 2% each of the respondents feel 'displeasing' and some what displeasing respectively. The status of library professionals is of debate for a long period. Some of the professionals feel that their status is not satisfied compared with IT era. Using the recent information communication technology, professionals improve their knowledge for status.

9. FINDINGS

We have found the following observations through this study:

i. Professional designation represents that 45% of the respondents have the post of library assistants.
ii. Educational qualification represents that 46% of the respondents have completed MLISc degree only.
iii. In the gender distribution, 44% of the female respondents are involved.
iv. Most of the respondents are under 36 to 45 age group, through this survey we observe the younger are disinterested.
v. In the professional experience, majority of the 36%of the respondents are from below 10 years experience.
vi. 49% of the respondents feel moderately satisfying with the economic advantages.
vii. 63% of the respondents agree with their higher authorities who are co-operative, helpful and inspiring people for better sincere work.

viii. Majority of the respondents spend their time with their family after profession.

ix. 7% of the respondents work under compulsion.

x. Library working condition is 67% satisfactory by the respondents' response.

xi. 45% of the respondents feel that their professional status is recognized by the family members, relatives and friends.

10. CONCLUSION

After the observations, it may be concluded that the job satisfaction of library professionals is related to an individual's expectation of different types of the profession and perception of how much is attained. The aspiration varies of various aspects from individuals, and within the same individual at different periods. Age, education, experience, job level may be associated with higher aspiration leading to satisfaction or dissatisfaction. This depends on the perceived potentiality of the job fulfilling those aspirations.

REFERENCES

[1] Locke, A.P. Brief and H.M. Weiss, "Organizational Behavior: Affect in the workplace", Annual Review of Psychology, Vol. 53, 2001, pp.279-307.

[2] Cranny, Smith & Stone and H.M. Weiss, "Deconstructing Job Satisfaction: Separating Evaluations, Beliefs and Affective Experiences", Human Resource Management Review, Vol.12, 2002, pp.173 -194.

[3] Brief and H.M. Weiss, "Deconstructing Job Satisfaction: Separating Evaluations, Beliefs and Affective Experiences", Human Resource Management Review, Vol.12, 2002, pp.173 -194.

[4] Colleen Parmer and Dennis East, "Job Satisfaction Among Support Staff in Twelve Ohio Academic Libraries", College & Research Libraries, Vol.54, Jan. 1993, pp. 43-57.

[5] V.F. Filak & K.M. Sheldon, "Student Psychological Need Satisfaction and College Teacher-Course Evaluations", Educational Psychology, Vol. 23, No.3, 2003, pp.235-247.

[6] Donna K. Fitch, "Job Satisfaction Among Library Support Staff in Alabama Academic Libraries", College & Research Libraries, Vol. 51, July 1990, pp.313-320.

Alternative Formats Availability and its Utilisation by Visually Impaired Students in Nigerian Secondary Schools

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Abstract

Visually impaired students need alternative format in braille, talking books and large prints to function like sighted students. As a few materials get converted into these formats, the availability and consequent use of alternative format for study and leisure byvisually impaired students has been of concern. This study delves into availability and use of alternative formats by visually impaired students in Nigerian Secondary Schools. The study is a survery and it purposively focused on southwestern, Nigeria. Using total enumeration technique, data were collected from one hundred and twenty three (123) students from six (6) purposively selected secondary schools in southwestern Nigeria. A questionnaire having two rating scales on availability and utilisation of alternative format with reliability scores of á = 0.77 and á = 0.73 respectively was used. 104 (84.5%) of the instrument was correctly admistered. The study found, that braille (77%), talking books/ tape recordings(65.4%) are not readily availabile while large prints (96.2%) are not available. Braille is the most frequently used on dailly basis (91.3%) followed by talking books (34. 6%), while large prints are not used. There was no significant positive relationships between alternative formats availability and its utilisation in the selected libraries. The study recommends increased transcription of information materials into alternative formats for the students, adequate funding from government and donors and the building of a balanced collection of alternative formats in the school libraries.

Keywords: *Alternative formats, Alternative format availability, Secondary schools, Nigeria, Utilisation, Visually impaired students,*

1. INTRODUCTION

Sighted persons can naturally read and communicate using the types of information materials available such as books, reference sources, serials, internet, etc., But for persons with visual impairment, reading and communication come in alternative format such as Braille, talking books and large prints. This is because the visually impaired cannot use the medium of the sighted owing to the consequence of their visual impairment which results in their being blind, partially sighted or low visioned.

Braille is a six embossed dots tactile device used by the blind as a medium of reading and communication. Talking books are audio recordings from books which the visual impairment can listen to, thereby providing the visual impaired with the opportunity of reading through listening. Large print materials have their print size enlarged such that this becomes visible to a low visioned or partially sighted person [1].

The provision of information materials in schools for the education of visually impaired children has remained worrisome to educationists, producers and providers of alternative formats. A few materials ever get converted to alternative formats. For instance, only five percent of books published in the United Kingdom (UK) make it into alternative format [25]. Without alternative formats, persons with visual impairment cannot read and function well as members of the society. This is why it is crucial for every country to have a well organised arrangement for the production and utilization of information materials by its visually impaired children and citizens [8].

In Nigeria, blind children did not enjoy formal education until 1953 when the first school for the blind was established at Gindiri, Plateau State[20]. The Pacelli School for the blind and partially sighted, a Roman Catholic primary school in Lagos, Nigeria, provides information materials at the primary school level. In many primary and secondary schools, pupils themselves have been known to make private and individual arrangements

for study materials. It is believed that there is acute shortage of information materials and other information resources in alternative format at the primary and secondary school levels [9].

Non-governmental organisations (NGOs) and private associations also make information materials available to visually impaired children in schools. Notable among these are Nigerwives, an association of foreign women married to Nigerian men, the Anglo-Nigerian Welfare Association for the Blind (ANWAB), the Nigerian Society for the Blind, Hope for the Blind, Gindiri Material Centre for the Blind and a few others around the country. Some Nigerian secondary schools mainstream visually impaired children with the sighted. Specialised secondary school for the visually impaired is non-existent in Nigeria. Schools with visually impaired students usually keep a sizable collection of alternative formats in an alternate library for the use of their visually impaired students. These schools lack transcription facilities, but they depend on NGOs and private bodies for the transciption of their information materials into alternative formats.

Libraries of secondary schools with visually impaired students in Nigeria are presently face with the problem of meeting the high demand for information material in alternative formats by students. The visible inadequacies in these schools had made it difficult for the libraries to meet the growing demand for information materials by the visually impaired students. The task of making alternative format availabile for use by visually impaired students is not an easy one. In Nigeria, [9],[10] and have highlighted the fact that secondary school persons with visual impairment have visited their school libraries asking for reading materials to either read or borrow. They also bring their printed matter to be transcribed to braille. These schools also contend with shortage of braillists and braille teachers, which has greatly discouraged persons with visual impairment from education and learning.

2. STATEMENT OF THE PROBLEM

Several years of observation suggest that there is acute shortage of alternative formats available in libraries of Nigerian secondary schools with visually impaired students. The schools lack transcription facilities, so very few formats are believed to have been transcribed into braille, audio recordings and large prints for use by the students. Inadequate number of available alternative formats in the school libraries, possibly explains low utilisation levels for the formats despite increased demand. This study investigates the availability and use of alternative formats for visually impaired students in selected secondary school libraries in Southwestern Nigeria.

3. RESEARCH QUESTIONS

i. What are the alternative format available to visually impaired students in the selected school libraries

ii. What is the frequency of use of alternative formats by visually impaired students in the selected school libraries ?

4. HYPOTHESIS

The hypothesis formulated was tested at 0.05 level of significance:

Availability of alternative formats is not significantly related to its use by visually impaired students in the selected school libraries.

5. LITERATURE REVIEW

The availability of information materials to persons with visual impairment has received attention of governments, organisations, institutions and individuals who strive to provide library services to persons with visual impairment in their environment. The principle underpinning library and information service provision to persons with visual impairment should be that of availability and equality of access to alternative formats.

Royal National Institute for the Blind [24], in its guidelines for any one wishing to ensure that publications are available and accessible as much as possible to people with sight problems, recommended the following:

i. Library leaflets and other printed materials should be on matt paper, with a strong contrasting colour for the print and not smaller than 12 prints and preferably 14.

ii. The weight of type should be sufficient for easy reading.

iii. The text of materials should be in mixed case, not in capitals and should not run over illustrations or over a patterned background.

iv. Publications, especially those relating to information services should be available in alternative formats.

v. Every print publication should have a clear large print statement in a prominent place about the availability of alternative formats. Providers of information services to persons with visual impairment must also take reasonable to stepping to remove or alter physical features which could be a barrier to those with visual disabilities using the library materials [14].

In his assessment of the library and information services to persons with visual impairment in New-Zealand, [26] explained that information services operated through two National Library services used on regular basis. First, the Talking book and the Braille library which make available reading materials to adults and young readers and the Homai special formats library, which meets the reading needs of blind and visually impaired children and young people in special education or mainstreamed settings.

According to International Federation of Library Association and Institutions (IFLA) (2002), the greatest limitation to information materials availability and provision to the blind is the lack of training or appropriate skills to fully develop the service and respond to the dynamics of the information age. This, it says, is evident not only in established library services, where trained professionals have no concept of special needs of print handicapped people, or in blindness or other organisations where staff may have no understanding of library services or familiarity with developing collections. In either case, weak services or information provision are the result.

Kenny (1996)[15] in his introduction of the talking book provision and services in Ireland argued that providers of talking books had to be prepared to make difficult choices, influenced by consumers demand between volume and perfection. According to Aldrich and Parker (1994) [5], the hardest and most widespread difficulty associated with tape recorded books was the problem of communicating the information given in maps, graphs, diagrams, tables and other graphic displays. Aldrich and Parker further opined that though recruiting volunteer readers were not difficult, finding readers for technical and scientific subject was a problem. It is also a mistake to assume that even the social science textbooks can be undertaken by any intelligent lay person. Clearly, it is better if readers and books are well-matched [22].

Schols (1995) [27] asserts that the availability of large print materials for the use of persons with visual impairment is aimed at the future to be able to provide every source of information; whether this concerns an article, a brochure, a manual or books in large print. Schols adds that when reprinting in large prints, special allowances are made for the visual capacity of the applicant. Both the letter type and size to be used in the large print version are chosen in consultation with the customer. All visually impaired children in Norway are integrated in schools. There are some enterprises that also produce braille, either as a sub-contractor for government producers or for organisations for the blind. The production cover reference works, textbooks, general literature, easy readers novels for children and youth [12]. In a report of the situation in Thailand, [21] reported that most textbooks in braille and other formats were produced for primary and secondary schools according to the curriculum of the Ministry of Education. Textbooks for university level are available only in subjects requested by users. Talking books are made available in cassettes by volunteers; it includes academic, fiction and non-fiction items.

Agbaje (1996)[4] reported that the availability of information materials for persons with visual impairment in schools and selected higher institutions in Nigeria was not done by their libraries. He claimed that there were no facilities and blind library users did not derive any appreciable measures of users satisfaction from school libraries. Adimorah (2000)[3] in his submission suggested the fostering of international linkages with international organisations, religious bodies and Non Governmental Organisations for the blind for donation of information resources in braille, large prints and cassettes for school libraries servicing the visually impaired in Nigeria. Adimorah further advised that we must specify clearly what the students need, so that their libraries are not flooded with unwanted materials.

According to the American Council for the Blind (2005)[6], the blind and visually impaired in the United States have been exposed to alternative formats through its affiliated organisations and through a programme of constant distribution of reading materials in alternative

formats. Some of these organisations sell the materials, while some lend them to their visually impaired users. A study on the use of alternative formats by Canadian college students with print disabilities [7] revealed that 56% of the students used tape recording frequently, 31% used large prints and 19% used braille frequently. Taped books were the most popular for students.

Ogba (2000)[19] further clarified that apart from the moon type with a few volumes existing in the library, there were numerous volumes of braille and periodicals on various subjects which provided satisfaction for the visually impaired users. Large print books are in fewer subject areas while there are many recorded cassettes. In the words of [10], it is amazing to note the number of blind persons who come to the Anglo-Nigerian Welfare Association for the Blind (ANWAB) Library, Lagos either to read or to borrow alternative formats for use in their spare time. An estimate of about 95% of the users, he adds, always requires reading materials, as they either borrow from the library or they bring printed matter to be transcribed to braille for their reading pleasure.

Aldrich and Parkin (1994) [5] in a survey of producers and users of tape recorded textbooks for the blind reported that tape has one major advantage when compared with braille and large prints. Tape does not allow direct or parallel access to information as presentation is strictly serial. Half of the students surveyed read large prints; nearly all others are braille literate. The users, Aldrich and Parkin reveal show remarkable resolve and flexibility as they are enthusiastic about the possibility of braille and large prints supplements to taped books. In another study of Aldrich and Parkin, (1987), the users of tape recorded books complained against the time it took for a book to be recorded; they felt that every opportunity should be taken to record only the relevant parts of the required books. The study suggested that providers should explore the possibility of dividing a book between several readers or volunteer recorders.

Literature has consistently revealed a decline and less usage of braille generally in many countries by students. There is a steady decrease in the percentage of blind students who use braille[16]. In Nigeria, low quality of teachers and the commonplace nature of listening and talking devices, especially among students had also brought talking books/audio materials to the fore [2].

In spite of the foregoing, it is important for students in schools to be flexible and not rigid in their preference for, or at arriving at the best format [29]. It is also pertinent for the students to understand the importance of Braille as probably the only medium of literacy and communication as recognized by IFLA/UNESCO manifesto for public libraries serving the visually impaired. Mulen (1990) [17], Paul (1993)[23] and Stephens (1989) were unequivocal in their warning that decline in braille use, if not salvaged through influx of quality teachers, will by necessity be taught so infrequently that the resultant use of braille will be near extinction.

6. METHODOLOGY

The study is purposively limited to Southwestern Nigeria and this is because this region has in it, those schools with appreciable number of visually impaired students and information materials in alternative formats useful for this study. The study adopts survey research design and the population of the study is made up of all visually impaired secondary school students in Southwestern Nigeria. In Nigeria, a few secondary schools admit visually impaired persons as students alongside sighted students as there are no secondary schools specifically meant for visually impaired students. A preliminary investigation by the author puts the number of secondary schools with visually impaired students in Southwestern Nigeria at six (6). These schools were purposively chosen for the study because they had in them appreciable number visually impaired students with information materials in alternative format useful for this study. The schools have a total population of one hundred and twenty three (123) students who are visually impaired.

Total enumeration technique was used to cover all the 123 visually impaired students in the six (6) schools. Data were gathered using a questionnaire. The questionnaire elicited information on the background of respondents, the availability and utilisation of alternative formats in the schools. Validity of instruments was achieved through expert advice while reliability of instrument came through pre-test of instrument to visually impaired students at Federal College of Education (special) Oyo who were not part of the study. The questionnaire had two scales on availability and utilisation of alternative formats. The scales had reliability scores of $\alpha = 0.77$ and $\alpha = 0.73$ respectively.

Table 1 Profile of Secondary School with Visually Impaired Students

Name of School	Location	State	Population
Queens College	Lagos	Lagos	18
Kings College	Lagos	Lagos	20
Federal Government College, Ijanikin	Lagos	Lagos	20
Yewa College	Ilaro	Ogun	20
Adeniran Memorial Grammar School	Ogbomosho	Oyo	18
Owo High School	Owo	Ondo	30

Source: Field work, 2008 n = 123

The questionnaire was read to the hearing of the respondents and their responses were affected directly on the questionnaire. Out of 123 respondents, the researcher and his assistants were able to administer correctly a total of 104 visually impaired students which represents 84.5% response rate.

7. RESULTS

7.1 Research Question 1

What are the alternative formats available in the selected libraries?

The study sought from the respondents, the availability of alternative formats which include Braille, talking book or recorded materials and large prints. It has been found that Braille materials are not readily available in the libraries surveyed according to 80 (77%) of the respondents; 4 (3. 8%) of the respondents have thought that Braille books are not available while just 1 (1.0%) of the respondents has said that Braille are available in the libraries. For talking book or recorded materials, the study revealed that 68 (65.4%) and 36 (34.6%) of the respondents said that talking books were not available and not readily available respectively in the school libraries covered by the study. In effect, (100%) of the respondents surveyed are of the view that talking books are either not readily available or not available. The data for large prints shows that large print materials are not available in the schools selected for the study representing 100 (96.2%), while a mere 4 (3.8%) said large prints are not readily available. These results have shown clearly that majority of alternative formats for persons with visual impairment in the libraries surveyed are either not available or not readily available.

Table 2 Alternative Formats Availability in the Selected School Libraries

Alternative Formats	Readily Available		Available		Not readily Available		Not Available		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Braille Materials	19	18.3	1	1.0	80	77	4	3.8	104	100
Talking book/ recorded materials	-	-	-	-	36	34.6	68	65.4	104	100
Large prints	-	-	-	-	4	3.8	100	96.2	104	100

Sources: field work 2008

7.2 Research Question 2

What is the frequency of use of alternative formats in the selected libraries?

From the data gathered on the frequency of use of alternative formats, it was discovered that Braille materials enjoy high frequency of use among the respondents. Ninety five (95; 91.3%) used Braille materials daily while 6 respondents (5.8%) used Braille for two or three days a week. The survey revealed that the frequency of utilization of talking books or recorded materials among the students persons with visual impairment in the school libraries was less, compared to Braille materials.

Thirty six respondents (34.6%) use talking books daily. However, 17 respondents (16.3%) use talking books once a week, while 22 (21.2%) consult talking books once a month . Large prints, according to this study, are not used daily. However, 101 (97.1%) said they used large prints once a month. This low level of utilization for large prints could be attributed to the fact that large print publications and availability is very low in Nigeria and also that majority of the respondents are totally blind and cannot use large prints.

Table 3 Frequency of Utilization of Alternative Format

Period of Utilization	Braille		Talking Books		Large Prints	
	Freq.	%	Freq.	%	Freq.	%
Daily	95	91.3	36	34.6	-	-
Two/Three Days Weekly	6	5.8	26	25	-	-
Weekly	1	1.0	17	16.3	2	2.0
Fortnightly	-	-	3	3.0	1	1.0
Monthly	2	2.0	22	21.2	101	97.1
Never	-	-	-	-	-	-
Total	104	100	104	100	104	100

8. HYPOTHESIS

Availability of alternative formats is not significantly related to its use by visually impaired students in the selected school libraries. To test this hypothesis, alternative formats availability was correlated with its utilization by persons with visual impairment in the selected school libraries in order to predict the relationship between alternative formats availability and its use in the libraries. The findings showed a Pearson Correlation Coefficient r = .312 (P>0.05) calculated, which revealed no significant relationship between alternative format availability and its utilization. So, the hypothesis was accepted. In effect, the availability of alternative formats in the selected school libraries had no positive relationship with its utilization by the visually impaired students.

Table 3 Correlation between Alternative Format Availability and Utilization in the Selected School Libraries

Variables	N	Mean (x)	Std. Deviation	R	Sig. Value	Remark
Alternative format availability	104	4.72	1.49	0.312	0.25	P>0.05
Alternative format utilization	104	9.39	2.42			

** Correlation is significant at 0.05 level (2 tailed) Decision: Not Significant

9. DISCUSSION

Majority of the students in this study were below 20 years old. Many of them were also above teenage which is an indication of the slow educational progression of visually impaired students. The findings of this study have confirmed that educational space and opportunities for the visually impaired are limited, judging from the few schools that cater to the visually impaired in Nigeria.

The study has revealed that braille materials are not readily available in the school libraries studied. In the same vein, talking books/audio recordings as well as large Prints are also not available. This clearly indicates that the level of availability of alternative formats in the school libraries leaves much to be desired and does not complement the teaching and learning activities of the schools. This is not only common in developing countries as Atinmo[8] and Ng"anga[18] have corroborated, but also in many developed countries as reported by Vitzansky (1996)[30] and [11]; while users have consistently shown strong desire for information materials in readable format.

Braille materials form the bulk of materials available in the libraries surveyed. Talking books are few while large prints were practically non-existent in many of the libraries. Many of the respondents (the partially sighted) complained that they hardly came across large print materials for use. In summary, alternative formats available in the school libraries selected for this study are inadequate to meet the reading interest and information needs of the visually impaired students. Braille materials available in the secondary schools surveyed were not being used by the students regularly because the materials needed by the students were sourced through private arrangement by the students.

As observed from the result, the most frequently used alternative format among visually impaired students in the school libraries was braille, followed by talking books or tape recordings. The reason for Braille being the most utilized format in this study could be because alternative format use is limited by availability. Braille is the most utilised because it is available in large quantity.

The study has revealed that alternative formats availability in the libraries surveyed are not significantly and positively related to utilization of alternative formats materials. The import of this finding is that availability of alternative format in the libraries studied does not bring about appreciable levels of utilization. The availability of materials in the libraries is not encouraging or serving as incentive for the utilization of the alternative materials. Utilization of information materials cannot take place unless materials are available; though there is general inadequate information materials in alternative formats for persons with visual impairment in Nigeria.

10. CONCLUSION AND RECOMMENDATIONS

The study has brought to the fore the conditions of libraries servicing the visually impaired students in Nigerian schools; in terms of the availability and the use of alternative formats. The study clearly suggest that attention and policy needs to be refocused on making alternative formats available for the use of the visually impaired students in schools. Another implication of the findings of this study is that alternative format use by the students is rather low which is a consequence of low transcription activities of information materials into alternative formats in Nigerian schools with visually impaired students.

The study recommends that increased transcription of information materials into alternative format should be done in order to improve the number of information materials in the school libraries. Adequate funds by the government and donors should also be directed for this purpose. They should also balance their collection by increasing talking books and large prints collections considerably as well as braille, such that available formats will adequately address the reading interest and information needs of the students for leisure and academic purposes.

REFERENCES

[1] A. A. Adetoro, "Relationship Among Reading Interest, Information Materials Availability and Alternative Format Utilisation by Persons With Visual Impairment in Selected Libraries in Southwestern Nigeria", Ph.D Thesis, Department of Library, Archival and information studies, University of Ibadan, 2009.

[2] N.Adetoro, "Reversing the Low Level Literacy Among the Visually Impaired Through Information Services", Journal of Advocacy and Rehabilitation In Special Education, Vol.3, No.3, 2005, pp.71-76.

[3] E.N.O. Adimorah, "Access to Information for all: Development of Resources for the Visually Handicapped in Nigeria. Journal of Association of Libraries for the Visually Impaired. Vol.1, No.1, 2000, pp.1-9.

[4] S.A.Agbaje, "Access to and Retrieval of library Resources by the Blind in Selected Higher Institutions in Nigeria.Current Researches on Special Education in Nigeria. T.C. Obani Ed. Oyo: FCE Special, 1996, pp.188-195.

[5] F.K.Aldrich and A.J. Parkin, "Tape Recorded Textbooks for the Blind: A Survey of Producers and Users", Retrieved 5th Nov., 2005 from http/ www.rnib.org.uk/contact/surveys html, 1994.

[6] American Foundation for the Blind, IDEA 97: Important Changes for Students Who are Blind or Visually Impaired. Retrieved 5th Nov., 2005 from http/www.afb.org/jvib/idea97 html, 2005.

[7] M. Anne, "Library Services to Canadian Students. Retrieved 4th Nov., 2005 from EFFP/http/ www.langara.bc/ca/cba html, 2000.

[8] M.I. Atinmo, "Availability and Accessibility of Library Resources to the Visually Handicapped in Nigeria. The way forward. Journal of Association

of Libraries for the Visually Impaired, Vol.1, No.1, 2000, pp.15-22.

[9] M I. Atinmo, "Nigeria national proposal for visually Impaired Persons", A proposal for IFLA / Ulverscoff Foundation for the Fredrick Thorpe Award for organisation, 2002, pp.8.

[10] D. Basharu, "Equipping Libraries for the Blind with Reading Materials", Journal of Association of Libraries for the Visually Impaired, Vol.1, No.1, 2000, pp.56-61.

[11] I. Bruce and M.Baker, "Access to Written Information and the View of 1000 People with Sight Problems London: RNIB", Retrieved 31st Dec., 2005 from http/www.bpm.mb-online.org/chapter5/ html, 2001.

[12] G.K. Horten and E.K. Horten, "Electronic Books for the Visually Impaired: the Norwegian Project. Retrieved 4th of Nov., 2005 from http/ www.ifla.org/contacts/html, 1995.

[13] "International Federation for Library Association and Institutions IFLA, 2002", Strategic Plan 2002-2003 Retrieved 5th of Nov., 2005 from http/ www.ifla.org/iv/66/actionplanhtml.

[14] M. Jean, "Library and Information Services for Visually Impaired People", National Guidelines. London: Library Association Publishing, 1996.

[15] D. Kenny, "Introducing a Talking Book Service to Ireland", British Journal of Visual Impairment, Vol.8, 1996, pp.88-89.

[16] C. Kirchner, "Data On Blindness And Visual Impairment in The US: A Resource Manual on Social Demographic Characteristics, Education, Employment, Income and Service Delivery**",** New York: AFB, 1998.

[17] E. Mulen, "Decreased Braille Literacy: A Symptom of a System in Need of Reassessment Review", Vol. 23, 1990, pp.164-169.

[18] S.K.Ng'ang'a, "Why Deliver Services to Print Handicapped People through Public Libraries: The Kenyan Experience", Paper Presented at the World Library and Information Congress. 69th IFLA General Conference and Council Berlin. 1-9 August, 2003.

[19] U.Ogba, "Library And Information Services to the Visually and Physically Handicapped in Library for the Handicapped", Imo State Library Board, Owerri, Journal of Association of Libraries for the visually impaired, Vol.1, No.1, 2000, pp.10-14.

[20] J.O. Olukotun, "Teaching Children with Blindness and Visual Impairment", Ibadan : codat.pupl, 2003.

[21] C. Pansida, "Library Services for the Visually Handicapped in Thailand", A Paper Presented at the IFLA Pre-conference of Literacy for the Visually Handicapped in Developing Countries, Dehardun. 25-37 August, 1992

[22] A.J.Parkin and F.K. Aldrich, "Facilitating the Use of Tape Recorders Texts by Visually Handicapped Students", London : RNIB, 1987.

[23] B.J. Paul, "Low Tech' Braille Vital to High Level Literacy. Counter Point", Vol.1, 1993, pp.3.

[24] Royal National Institute For The Blind RNIB, 2003. See It Right Pack. 12 Booklets With Practical Advice On Designing, Producing And Planning For Accessible Information. Retrieved 3rd Dec., 2005 from http/www.rnib.org.uk/accessible information/ html.

[25] Royal National Institute for the Blind 2006. Making Your Teaching Inclusive: What is visual impairment? Retrieved 18th of February, 2009 from http// www.open.ac.uk/inclusive teaching/pages/ understanding and awareness/what.

[26] M.A.Schnackenberg, "International Yearbook of Library Service for Blind and Physically Handicapped Individuals, Vol1, 1995, pp.35-41.

[27] M.Schols, "Extra Large: Large Print on Demand", Paper Presented at the 61st IFLA General Conference August 20-25. Retrieved 5th Nov. 2005 from http/www/ifla.org/contact.html, 1995.

[28] O. Stephens, "Braille: Implications for Living. Journal of Visual Impairment and Blindness, Vol.38, 1989, pp.288-289.

[29] D.W. Tuttle, "Is listening literacy? An Effective Alternative", Journal of Visual Impairment and Blindnes. May/June . Retrieved 4th Nov., 2005 from http.www.braille.og/paper/ jvib0696/vb 960313html, 1996.

[30] W. Vitzansky, "The Development of National Strategies for Library Service for Blind and Print Handicapped People", Paper Delivered at the 62nd IFLA General Conference. August 25-31. Retrieved 5th Nov., 2005 from http.www.ifla.org/ iv/66/conference proceedings/papers, 1996.

Bibliometric Analysis of DESIDOC Journal of Library & Information Technology

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Abstract

This paper presents a bibliometric analysis of the journal titled "DESIDOC Journal of Library & Information Technology" for the period between 2006 and 2010. The data were downloaded from the journal's website. The analysis covers mainly the number of articles, authorship pattern, subject-wise distribution of articles, average number of references per articles, forms of documents cited, year-wise distribution of cited journals etc. All the studies point towards the merits and weakness of the journal which will be helpful for its further development. The result showed that out of 199 articles, joint authors contributed 116 (58.29%) articles while the rest 83 (41.71%) articles were contributed by single author. Study reveals that most of the contributions are from India with 93.97 % and the rest 6.03% only from foreign sources.

Keywords: *Authorship pattern,Bibliometrics, Bibliography, Citation,Dissertations,Geographical distribution, Source of Information, Websites.*

1. INTRODUCTION

Periodicals are the primary source of information and an important media for communication. They play a major role for communicating the latest research findings and publishing the articles containing the current development in any field of knowledge. Research is a prolonged process, aiming at discovering the truth and is a means for acquiring knowledge about any natural or human phenomena. Research in all fields is growing at a faster rate and particularly the field like Library and Information Science is advancing. This is due to the gradual change in the trends of research. In the process of identifying the research trends in a field, it is essential to analyse various patterns that are evident in the field of literature. Due to information explosion, from the multidisciplinary growth of subjects, it is very difficult to analyse the various patterns that are evident in the field.

The bibliometric studies are mostly related to quantification of items and their pattern of distributions is useful in understanding some of information phenomena and may help in planning many of the library activities. The first recorded study of Bibliometric topic was in 1971 by Coles and Eales with the 'Statistical analysis of literature of history of comparative anatomy; which served as a model for applying the counting technique in the evaluation of international activities [1]. Alan Pritchard first introduced the term Bibliometrices' in 1969 to mean 'the applications of mathematics and statistical methods to books and other media of communications [2].

The very basic attribute of bibliometrics governing the relationships between information items and activities has thus made librarians and statisticians to conduct the bibliometric studies. Hence, we are witnessing large number of bibliometric studies for over last tow decades. The present study has been undertaken in order to know the nature and contents of articles in the DESIDOC Journal of Library & Information Technology.

2. NEED FOR THE STUDY

The periodicals are the indicators of literature growth in any field of knowledge. They emerge as the main channel for transmitting knowledge. Due to the escalating cost of the periodicals and lack of adequate library budgets, the selection of any particular journal for a library should be done more carefully. Therefore, the library authorities are forced to reduce the number of journal subscriptions. Bibliometric analysis has many applications in the Library and Information Science field in identifying the research trends in the subject, core journals, etc., and thereby framing new subscription policy will be useful for tomorrow. These studies will be helpful for librarians to plan a better collection development.

3. DESIDOC JOURNAL OF LIBRARY & INFORMATION TECHNOLOGY

DESIDOC Journal of Library & Information Technology (DJLIT) endeavours to bring recent developments in information technology, as applicable to library and information science, to the notice of librarians, documentation and information professionals, students and others interested in the field. It is published bi-monthly. The articles published in the Journal are indexed in Library and Information Science Abstracts (LISA) and Indian Science Abstracts. The full text of DJLIT is being reproduced in electronic database of HW Wilson Company, namely, OMNIFILE Full Text and OMNIFILE Full Text Mega.

4. OBJECTIVES OF THIS STUDY

The present study has been undertaken with the objective of analysing the following aspects:

4.1 Analysis of Articles

i. To make an analysis of articles published in DESIDOC Journal of Library & Information Technology from 2006 to 2010.
ii. To identify the number of contributions published during the period of study
iii. To determine the year wise distribution of articles
iv. To study the authorship pattern
v. To find out the ranking of leading contributors
vi. To identify geographical distribution of articles
vii. To study the length of articles
viii. To study the subject coverage of articles

4.2 Analysis of Citations

i. To discover the number of cited documents and the average number of references per article.
ii. To identify the number and forms of documents cited.
iii. To identify the year-wise distribution of cited journals.
iv. To study the age of cited journals.

5. METHODOLOGY

Methodology applied in the present study is bibliometric analysis which is used to study the bibliographic features of the articles in detail and citation analysis of reference appended at the end of each article, published in DESIDOC Journal of Library & Information Technology from 2006 to 2010. The data pertaining to DESIDOC Journal of Library & Information Technology regarding 199 articles made from volume 26 in 2006 to volume 30 in 2010. Then, they are tabulated and analysed for making observations.

5.1 Analysis

The analysis was done in two parts: a) Analysis of Articles b) Analysis of Citations.

5.2 Analysis of Articles

All the details such as authors, title, year of publication, pagination, institutional affiliation, etc., of all articles published from 2006 to 2010 were recorded for the following analysis:

5. DISTRIBUTION OF CONTRIBUTION

The DESIDOC Journal of Library & Information Technology regularly publishes international journals of repute. The journal published 199 research papers during the period of study i.e. from 2006 to 2010. The journal, on an average, has published 40 research papers per year. The above table showed that the maximum number of articles were published in 2008 & 2009 (50) and minimum in 2006 (18) articles. The number of research publications of DESIDOC Journal of Library & Information Technology for the period 2006-2010 has been given year wise in Table 1.

Table 1 Year- wise Distribution of Articles

Year	Vol. No.	No. of Issues	No. of Contribution	%
2006	26	6	18	9.04
2007	27	6	34	17.08
2008	28	6	50	25.13
2009	29	6	50	25.13
2010	30	6	47	23.62
Total		**30**	**199**	**100**

The Table 2 reveals distribution of articles (Issue-wise). Volume No. 28 and 29 show the highest number of total articles. The second highest position is occupied by volume no.30. It is followed by volume no.27. The lowest number of total articles in volume no.26. The contribution of articles in volume no.29 and 30 are more in January and September respectively.

Table 2 Issue-wise Distribution of Articles

Month	Volume Number					Total
	26	27	28	29	30	
January	3	7	9	11	7	37
March	5	4	10	10	8	37
May	2	4	7	9	7	29
July	2	7	10	6	8	33
September	4	5	8	9	11	37
November	2	7	6	5	6	26
Total	**18**	**34**	**50**	**50**	**47**	**199**

The Table 3 above showed the majority of the contributions appeared under user studies, with 41 (20.60%) followed by Library and Information Science and Information Literacy with 34 (17.08%), Internet, consortia and web technology with 32 (16.09%), Library profession and academic, public, special libraries with 28 (14.07%), digital library and computer application with 27(13.57%), library automation with 20 (10.05%) and Bibliometric Studies 17 (8.54%).

Table 3 Subject-wise Distribution of Articles

Subject	No. of Articles	%
Library and Information Science & Information Literacy	34	17.08
Library Profession & Academic / Public / Special Libraries	28	14.07
Library Automation	20	10.05
Digital Library & Computer Application	27	13.57
Internet, Consortia & Web Technology	32	16.09
Bibliometric studies	17	8.54
User studies	41	20.60
Total	199	100.00

Collaborative research is very much a feature of the library and information Science especially during the 21st century.

It is a natural reflection of complexity, scale and costs of modern investigations in Library and Information Science. Multi-authorship provides different measures of collaboration in the subject. Table 4 reveals the authorship pattern of the articles published during the period of study. Maximum number of articles were contributed by single author with 83 (41.72%). This is followed by two authors with 68 (34.17%) articles, three authors contributed 33 articles (16.58%) and four authors contributed 12 articles (6.03 %). The five and more authors contributed 3 (1.50%) of the total articles.

Table 4 Authorship Pattern

Year	Number of Authors					Total
	1	2	3	4	5 & More	
2006	3	9	3	2	1	18
2007	18	7	7	2	-	34
2008	31	11	4	4	-	50
2009	17	19	11	3	-	50
2010	14	22	8	1	2	47
Total	**83**	**68**	**33**	**12**	**3**	**199**
%	**41.72**	**34.17**	**16.58**	**6.03**	**1.50**	**100**

The Table 5 showed that out of 199 articles, joint authors contributed 116 (58.29%) articles, while the rest 83 (41.71%) articles, were contributed by single author.

The Table 6 envisages the institution wise contributors. These sectors have been grouped into five distinct categories for the convenience of the study. The highest contributions were from universities with 68 (34.15%). This is followed by research institutions with 49 (24.64%), Colleges with 35 (17.58%) and government departments with 29 (14.58%). The remaining 18 articles (9.05%) were contributed by societies.

Table 5 Year-wise Authorship Pattern

Authorship	Year					Total	%
	2006	2007	2008	2009	2010		
Single	3	18	31	17	14	83	41.71
Joint	15	16	19	33	33	116	58.29
Total	**18**	**34**	**50**	**50**	**47**	**199**	**100**

Table 6 Institution-wise Contribution of Articles

Name of the Institution	No. of Articles	%
Universities	68	34.15
Colleges	35	17.58
Research Institutions	49	24.64
Govt. Departments	29	14.58
Societies	18	9.05
Total	**199**	**100**

The Table 7 has shown that most of the contributions are from India with 93.97 % and the rest 6.03% only are from foreign sources.

Table7 Geographical Distribution of Articles

Name of the Institution	No. of Articles	Percentage
India	187	93.97
Foreign	012	6.03
Total	**199**	**100**

Table 8 shows the geographical distribution of contributions at international level. Table 7 reveals that majority of contributors were from India with 187 (93.97%) contributors, followed by Singapore with 4 (2.02%) and Greece with 2 (1.01%) contributions. Contributors from USA, United Kingdom, Taiwan, Srilanka, Spain and Canada and their contribution is 0.50% respectively.

Table 8 Geographical Distribution of Articles at International Level

Name of the State	No. of Articles	%
India	187	93.97
Singapore	4	2.02
Greece	2	1.01
USA	1	0.50
United Kingdom	1	0.50
Taiwan	1	0.50
Srilanka	1	0.50
Spain	1	0.50
Canada	1	0.50
Total	**199**	**100**

Table 9 reveals that the majority of articles 101 (50.75%) have the length of 5-8 pages followed by 52 (26.13%) articles with 9-12 pages, 26 (13.07%) articles with 13 and more pages and the remaining 20 (10.05%) articles have the length of 1-4 pages.

Table 9 Length of Articles

Pages	Year					Total	%
	2006	2007	2008	2009	2010		
1-4	1	2	6	10	1	20	10.05
5-8	8	15	26	30	22	101	50.75
9-12	4	12	13	8	15	52	26.13
13 & More	5	5	5	2	9	26	13.07
Total	**18**	**34**	**50**	**50**	**47**	**199**	**100**

6. CITATION ANALYSIS

The references provided by the authors at the end of their articles are the basis of citation analysis. Citation traces a connection between two documents, one which cites and the other which is cited. Citation analysis is one of the popular methods applied to derive the following benefits.

Table 10 Year-wise Distribution of Citations

Year	No. of Citations	%
2006	295	11.71
2007	357	14.17
2008	685	27.19
2009	485	19.26
2010	697	27.67
Total	**2519**	**100**

The above Table 10 showed that maximum number of citations with 697 (27.67%) produced in 2010 followed by 685 (27.19%) citations in 2008, 485 (19.26%) citations in 2009, 357 (14.17%) citations in 2007 and 295 (11.71%) in 2006.

Table11 Forms of Document Cited

Forms of Document	Total No. of Citation	%
Journals	969	38.47
Seminar/Conference Proceedings	624	24.78
Books	254	10.08
Websites	136	5.39
Research Reports	120	4.77
Special Publications	95	3.78
Reference Books	83	3.29
Dissertations	80	3.18
Abstracts	64	2.54
Annual Reports	52	2.06
Newsletters	42	1.66
Total	**2519**	**100**

The Table 11 given above showed that majority of the contributors preferred journals as the source of information which occupied the top position with the highest number of citations with 969 (38.47%) of the total 2519 citations followed by Seminar / Conference Proceedings with 624 (24.78%) citations, Books with 254 (10.08%) citations, Websites with 136 (5.39%) citations, research reports with 120 (4.77%) citations, special publications with 95 (3.78%) citations, reference books with 83 (3.29%) citations, dissertations with 80 (3.18%), abstracts with 64 (2.54%) citations, annual reports with 52 (2.06%) citations and newsletters with 42 (1.66%) citations. It is found that the researchers have preferred journal articles more frequently for their research work than any other types of communication channels.

Table12 Authorship Pattern of Cited References

Authorship Pattern	Total No. of Citation	%
Single	1023	40.62
Two	747	29.66
Three	574	22.79
Four	138	5.47
Five and more	37	1.46
Total	**2519**	**100**

On analysing the extent of collaborations, it was found that only 40.62% citations (1023) involved single authors followed by 29.66% citations (747) involved two authors, 22.79% citations (574) involved three authors, 5.47% citations (138) involved four authors and 1.46% citations (37) involved five and more authors.

Table 13 Age of Journals Cited

Year	No. of Citations	%
Before 1971	187	7.42
1971-1980	98	3.89
1981-1990	739	29.34
1991-2000	861	34.18
2001-2010	634	25.17
Total	**2519**	**100**

The above Table 13 revealed that maximum number of citations accounted in the period from 1991 to 2000, 861 (34.18%) followed by 29.34% in 1981-1990, 25.17% in from 2001 to 2010.

7. FINDINGS AND CONCLUSIONS

Bibliometric techniques are being used for a variety of purposes like determination of various scientific indicators, evaluation of scientific output, selection of journals for libraries and even forecasting the potential of a particular field. The popularity in the adaptation of bibliometric techniques in various disciplines stimulated stupendous growth of literature on bibliometrics and its related areas. The journal has published 199 articles during the period of study. The maximum number of contributions are single authors with 83 (41.72 %). The present study reveals that the highest number of articles have appeared in the area of user studies in library and information science. Similarly most of the contributions are from India with 93.97%, while foreign contribution is very less.

The study revealed that the highest contributions were from universities with 68 (34.15%). Majority of the authors preferred journals as the source of information providing the highest number of citations (38.47%). The study revealed that maximum number of citations accounted in the period 1991-2000, 861 (34.18%). Hence it is concluded that DESIDOC Journal of Library & Information Technology is the highly preferred journal for communication by the scientists.

REFERENCES

[1] F.J.Cole and N.B.Eales, "The History of Comparative Anatomy. Part-1: A Statistical Analysis of Literature", Science Progress, Vol.11, 1971, pp.578-596.

[2] A. Pritchard, "Statistical Bibliography or Bibliometrics", Journal of Documentation, Vol.25, No.4, 1969, pp.38-349.

A Bibliometric Study of Ethnobotany Journal – 1999 to 2008

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Abstract

The paper is an attempt to derive nature of growth of literature in Ethnobotany during 1999-2008, type of collaboration and degree of collaboration among authors, and pattern of articles during the period of study. On the basis of study, it is concluded that Ethnobotany is a developing branch because the collaborative publications are coming regularly, but will take to become an independent subject of study.

Keywords: *Bibliometrics, Bibliometric Study, Collaboration, Degree of Collaboration, Ethnobotany and Single Journal Study*

1. INTRODUCTION

Bibliometrics is a methodological sub-discipline of library science, including the complex of mathematical and statistical methods, used for analysis of scientific and non-scientific documents, library networks, indexing languages, information systems, communication systems, etc., [3]. This term first of all was coined by Prichard (1969)[14], and since then it has emerged as a research front in its own right in Library & Information Science. Various types of bibliometrics studies have been carried out by different workers by now and single journal study is one of its types of frequently taken study.

In single journal study, data are gathered from a single primary, secondary or tertiary journal covering a particular period and analyzed from various angles to find out year wise distribution of articles, language wise breakup of the articles, male - female ratio, and subject wise breakup of the articles published etc. 102 papers on such type of the studies were published up to 1997 in the world [21], which have increased further by 82 by the year 2009 [1]. When a single journal is studied bibliometrically, it creates a portrait of the journal, providing a description that offers an insight that is beyond the superficial. It can indicate the quality, maturity and productivity of the journal in any field, in a country or region. It also informs us about the research orientation that it supports to disseminate and its influence on author's choice as a channel to communicate or retrieve information for research needs. Almost always, the journal being studied is regarded as important or significant in the field, important enough to be studied, to make inferences that the journal speaks for authors who publishes in the field and somehow reflects the activity of research in the field. Nebelong-Bonnevie and Frandsen (2006) have indicated that single journal studies provide a detailed multi-faceted picture of the characteristics of a single journal. The assessment tool used for single journal studies is almost and always bibliometric indicators to uncover the characteristics, quality and status of the journal.

Ethnobotany is defined as the study of the relationship between people and plants and most commonly refers to the study of indigenous uses of plants. In other words, it is the marriage between cultural anthropology and botany, a study that investigates the roles of plants as medicine, nourishment, natural resources or gateways to the Gods. Officially it has only been recognized as an academic discipline for more than hundred years, as the term *Ethnobotany* was first applied by Harshberger (1895)[12] but it is gaining importance in India just for the last forty-fifty years (Jain, 1992)[13]. Ethnobotanical data may be utilized by Ethnobotanists for discovering new plant species, for fresh ideas to environment planner, a tool for basic selection of plant species for development of drugs by Pharmacologists, Phytochemists and Clinicians, as a new source of history of plant names for linguistics, and a source for locating new germplasm for agriculturists etc. (Dhiman, 2001). So, Ethnobotany is getting much attraction of the scientists.

2. OBJECTIVES OF PRESENT STUDY

Various studies on single journal have been carried out by different workers from time to time, like – Halkar et al, 1998[11]; Thajuddin, 1998[20]; Tiew, 1998[22]; Prasher, 2001[17]; Dhiman, 2002[9]; Tiew and Sen, 2002[23]; Narang, 2004[15]; Dhiman and Rani, 2005[10] and Biswas et al., 2007[2] etc., who have analyzed single journal from various point of view. Biswas *et al*, (2007) in their study have analyzed Economic Botany journal for various objectives and this study can be supposed to be very close to Ethnobotany field because Economic Botany field is more or less very similar to Ethnobotany branch of Botanical Sciences. But if we talk about the Ethnobotany branch of Botanical Sciences in its true sense, only two papers have been seen to be contributed by Dhiman (2000)[6] and Dhiman and Sinha (2001)[8], the author of this paper itself, so this field further needs some studies. Hence, the present study is chosen and it will be viewed for the following objectives.

i. Year-wise Distribution of the Articles
ii. Authorship Pattern in the Articles
iii. Female Ratio among the Authors
iv. Collaboration among Authors
v. Language wise Distribution of Articles
vi. Analysis of Acknowledgments given in the Articles
vii. Distribution of Illustrations in the Articles
viii. Organization-wise Distribution of Articles
ix. Dispersion of References per Article
x. Length-wise Distribution of Articles
xi. Country-wise Distribution of Articles
xii. State-wise Break up of Indian Contributions

3. SOURCE JOURNAL

The journal Ethnobotany, which is a half-yearly publication but appears as a single volume annually and is brought out by the Society of Ethnobotanists, C/O National Botanical Research Institute, Lucknow, and published by Deep Publications, A - 3/27 A, DDA Flats, Paschim Vihar, New Delhi-63 was chosen for the study. It is a multidisciplinary journal in nature and carries articles on Ethnobotany of various tribes including Ethno-medicine, Ethno-chemistry, Ethno-pharmacology, Ethno-taxonomy and Ethno-pharmacogonosy. It publishes original research papers, review articles and short communications on such fields (Jain and Mudgal, 1999). Its Editorial Board and Executive Committee Members comprise of Eminent Scientists/Professors from different parts of India and abroad. It is the only journal of its kind which is completely devoted to Ethnobotanical branch of Botanical Sciences.

4. METHODOLOGY

Twenty one volumes of Ethnobotany journal have been published by now. As I Dhiman (2000)[6] have already studied its pattern of earlier ten issues from 1989 to 1997, hence next ten issues from 1999 to 2008 are selected for further study. They are thoroughly scanned manually and data relating to the objectives stated-year-wise distribution of the articles, authorship pattern in the articles, female ratio among the authors, collaboration among authors, language-wise distribution of articles, analysis of acknowledgments given in the articles, distribution of illustrations in the articles, organization-wise distribution of articles, dispersion of references per article, length-wise distribution of articles, country-wise distribution of articles, and state-wise break up of Indian contributions etc., are recorded on the cards. Finally, they are tabulated and analyzed for getting concrete results.

5. DATA ANALYSIS AND INTERPRETATION

The scanning of ten issues of Ethnobotany journal shows that all the 272 articles are published in its 10 year issues during 1999-2008. Table 1 shows that a minimum of 23 papers are published in 2000 and a maximum of 33 papers in the year 2005. It is noteworthy to mention that the issue of 2005 is its silver jubilee volume, in which 33 papers are included. So, it can be interpreted that the hike in paper number during 2005 may be due to its silver jubilee occasion. Otherwise, all the issues have papers below 30 in number.

If we see percentage-wise production of the articles, it is depicted that minimum of 8.45% of the total contribution comes in 2000 and the maximum of 12.13% in 2005 followed by 11.02% in 2004.

Table 1 Year-wise Distribution of the Articles

Year of Publications	Total Number of Publications	% of Publications	Cumulative %
1999	26	09.55	09.55
2000	23	08.45	18.00
2001	27	09.92	27.92
2002	25	09.19	37.11
2003	28	10.29	47.40
2004	30	11.02	58.42
2005	33	12.13	70.55
2006	26	09.55	80.10
2007	27	09.92	90.02
2008	27	09.92	99.94
Total	272	99.94	99.94 = 100

6. AUTHORSHIP PATTERN IN THE ARTICLES

An author is a person who originates or gives existence to anything. Random House Dictionary of English Language has defined an author as 'a person who writes a novel, poem, essay etc., and the composer of literary work as distinguished from a compiler, translator, editor or a copyist.' Sometimes, joint authorship, mixed authorship, co-authorship etc. are used synonymously with multiple authorships. But as predicted by Price (1965)[18], single authored papers have not been completely extinct, they are continuously contributed by number of authors in different fields. However their percentage is comparatively very low, especially in Science and Technology field.

Table 2 presents the picture of authorship pattern. Multi-authorship trend is seen among the Ethnobotanists in India. It is noted from the table that only 28.30% contributions are from single authors. Rest comprising of 71.70% of the articles have come from multi-authored contributions. Among them two-authored papers dominate over others with 42.64% contributions in all in all. It is followed by 20.95% contribution with 57 papers out of 272 from three-authors and 05.88% papers of four authors and 01.47% papers from five authors. A very few articles have come from more than five-authored contribution, which accounts 0.73% of the total contribution.

Table 2 Authorship Pattern in the Articles

Authors	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	%
Single	7	3	6	8	9	8	12	7	9	8	77	28.30
Two	7	12	14	9	11	16	14	14	11	8	116	42.64
Three	8	5	6	4	7	3	7	2	5	10	57	20.95
Four	4	1	1	3	1	1	–	3	1	-	16	05.88
Five	–	–	–	1	–	2	–	–	1	1	4	01.47
> Five	–	2	–	–	–	–	–	–	–	-	2	0.73
Total	26	23	27	25	28	30	33	26	27	27	272	99.97= 100

7. FEMALE RATIO AMONG AUTHORS

Today's females are coming with enthusiasm and zeal in each and every field of life. As such an analysis was also made to get female ratio among the articles published in the journal during 1999-2008. Table 3 reveals the situation, where solo contribution is seen very low. It is seen from the table, only 61 females have contributed

towards authorships in the total articles contributed by 577 authors. Out of 61 contributions, 27 have come as first author, 18 as second author, and 12 as third author and very few comprising of 5 in number at other places.

In an average, it is only 11.24% per issue in the last ten years. Though, it is very low, the efforts are on the way and it can be said that it will be high in the coming years.

Table 3 Female Ratio among the Authors

Year	Sole Author	Ist Author	IInd Author	IIIrd Author	Multiple Author	Total of Female Authors	Total Authors	%
1999	–	2	1	–	–	3	61	4.91
2000	–		2	1	1	4	58	6.80
2001	–		2	2	–	4	56	7.14
2002	–	3	2	1	2	8	55	14.54
2003	2	2	1	1	–	6	56	10.71
2004	–	3	3	2	1	9	63	14.28
2005	–	3	2	2	–	7	61	11.40
2006	–	5	–	1	1	7	53	13.20
2007	–	3	2	–	–	5	55	11.00
2008	-	6	3	2	-	11	59	18.64
Total	**2**	**27**	**18**	**12**	**5**	**61**	**577**	**112.62**

8. COLLABORATION AMONG AUTHORS

Scientific research is subject to peer reviewing, publication and scrutiny by the rest of scientific community. The results of research become completely scientific only when they are published. Scientific writing is essentially a tool for information exchange. It is also considered as a medium for promoting self-interest on the road to recognition and for enhancing professional reputation in one's field of specialization. Pursuit on research in modern science requires inputs from various branches of knowledge. Thus, inter-disciplinary interaction amongst scientists is on the increase, which is known as collaboration.

Table 4 Collaboration Among Authors

Year	Total Publications	No. of Coauthored Publications	%	Degree of Collaboration
1999	26	19	73.07	0.73
2000	23	20	86.95	0.87
2001	27	21	77.77	0.78
2002	25	17	68.00	0.68
2003	28	20	71.42	0.71
2004	30	22	73.33	0.73
2005	33	21	63.33	0.64
2006	26	19	73.07	0.73
2007	27	18	66.66	0.67
2008	27	19	70.37	0.70
Average Collaboration	272	196	72.05	0.72

The degree of collaboration can be calculated using following formula : C = Nm/Nm+Ns, where, Nm = Numbers of Multi-authored papers Ns =Numbers of Single-authored papers, and C = Degree of Collaboration. In the present study, it is increased and is ranging between 0.64 and 0.87 with an average of 0.72. When, it is compared with earlier findings of Dhiman and Sinha (2001), it is found that the present degree of collaboration is quite higher than the earlier one, which is ranging between 0.50 and 0.69. So, it can be inferred that multi-subject researches are increasing day-by-day in this scientific branch of knowledge.

9. LANGUAGE WISE DISTRIBUTION OF ARTICLES

The analysis of language used to transmit a subject literature is useful as a guide to coverage patterns as well as an indication of the foreign language problem likely to face users. Therefore, the language of initial publication of the items is noted in which the articles are written.

Table 5 Language-wise Distribution of Articles

Year	Total	English Language	%	Hindi Language	%
1999	26	25	96.15	1	03.84
2000	23	22	95.65	1	04.34
2001	27	27	100.00	-	00.00
2002	25	24	96.00	1	04.00
2003	28	27	96.42	1	03.57
2004	30	30	100.00	-	00.00
2005	33	33	100.00	-	00.00
2006	26	25	96.15	1	03.84
2007	27	26	96.29	1	03.70
2008	27	26	96.29	1	03.70
Total (Average)	**272**	**265**	**97.41**	**7**	**02.57**

Table 5 depicts that majority of the articles are in English and only a few i.e., 7 out of 272 articles are in Hindi. It comes to 02.57% of all contributions. So, it is inferred that English is the lingua franca in this subject. However, some initiatives have been taken by Hindi Scientists.

10. ANALYSIS OF ACKNOWLEDGMENTS GIVEN AT THE END OF ARTICLES

The act of acknowledging or statement of indebtedness to others is a common practice to give due recognition to individuals or parties for the successful completion of a research article, book, theses, project or experiment. Acknowledgements do give others a perception of many contributions by others to the work completed and reflect a rich mix of personal, moral, instrumental, financial, technical and conceptual support received from institutions, agencies, coworkers, peers, family members, subjects and mentors[5].

The importance of acknowledging in bibliometric studies has been overlooked many times or neglected at times by bibliometricians who show more inclination to citation studies. However, there are a few studies on the practices, patterns and norms of acknowledgments and of its existence in the sphere of scholarly writings. Cronin (1991) [4] says that historically the bibliometrics research community has ignored acknowledgements but its very importance as compared to citations cannot be proposed that acknowledgements and citations should be used jointly in the assessment of research performance and in disciplinary exegesis. Tiew and Sen (2002)[23] are of the opinion that the study of acknowledgements is gaining ground especially in the United States.

Table 6 Analysis of Acknowledgments Given at the End of Articles

Year	Total Number of Paper with Acknowledgements	Total Number of Articles Published in a Volume	%	Cumulative %
1999	19	26	73.07	73.07
2000	17	23	73.91	146.98
2001	22	27	81.48	228.46
2002	14	25	56.00	284.46
2003	18	28	64.28	348.74
2004	24	30	80.00	428.74
2005	17	33	51.51	480.25
2006	19	26	73.07	553.32
2007	21	27	77.77	631.09
2008	19	27	70.37	701.46

Table 6 depicts that the trend of acknowledging is also prevalent among the Ethnobotanists, as about 70% articles are noted with acknowledgement. Hence, some relationship of contributors with the acknowledgementees can be established and trend of researches on particular theme can be interpreted by studying them further.

11. ANALYSIS OF ILLUSTRATIONS

Ethnobotany is a branch of Botanical Sciences, which is primarily based on the study of plant-man relationship, hence illustrations are the important in understanding the plants' parts used, identification of plant species, mode of preparation of drugs etc. or the way in which various plants' parts are used.

Table 7 Distribution of Illustrations

Year	Total Number of Articles	Chart		Diagram		Photos		Maps		Tables	
		Number	%	Number	%	Number	%	Number	%	Number	%
1999	26	5	19.23	2	07.69	14	53.84	1	03.84	18	69.23
2000	23	–	–	4	17.39	4	17.39	3	13.04	20	86.95
2001	27	4	14.81	–	–	2	07.40	1	03.70	22	81.48
2002	25	1	04.00	1	04.00	2	08.00	2	08.00	17	68.00
2003	27	–	–	–	–	12	44.44	1	03.70	13	48.14
2004	30	–	–	–	–	–	–	–	–	14	46.66
2005	33	1	03.03	–	–	14	42.42	2	06.06	17	51.51
2006	26	4	15.38	–	–	19	73.07	2	07.69	12	46.15
2007	27	2	07.40	2	07.40	7	25.92	3	11.11	12	44.44
2008	27	-	-	-	-	3	11.11	4	14.81	11	40.74
Total	**272**	**18**	**63.85**	**9**	**36.48**	**77**	**152.52**	**19**	**39.67**	**156**	**583.3**

An analysis of illustrations, chart, maps and photographs and table etc. given with the articles is made in the Table 7. It is revealed from the analysis that average percentage of Chart comes to 06.38; Diagram to 03.64; Photos to 15.25; Maps to 03.96; and Tables comes to 58.33 per issue of the journals.

Though the number of illustrations seems to be less in comparison with the articles published, this is a good attempt from scientists of this field for the researchers in understating of various things clearly.

12. ORGANIZATION–WISE DISTRIBUTION OF THE ARTICLES

The importance of any organization, particularly of research type of the organization is revealed to some extent through its research publications. Thus, the publication's output can be said an indicator of organization's popularity and standards.

Table 8 Organization-wise Distribution of the Articles

Name of Organization	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	%
College	4	3	3	5	4	7	4	3	9	10	52	19.11
University	9	3	14	11	9	12	11	8	9	10	95	34.92
Private Research Institutes	5	5	3	–	1	–	7	1	2	-	24	08.82
Govt. Research Institutes	3	6	5	4	4	4	4	7	4	5	47	17.27
Wild Research Govt. Research Institutes	3	1	1	3	4	4	2	3	–	-	21	07.72
Associations	1	1	–	–	1	–	1	–	–	-	4	01.47
Industries	–	3	–	–	–	–	–	–	–	-	3	01.10
Others	1	1	1	2	5	3	4	4	3	2	26	09.55
Total	**26**	**23**	**27**	**25**	**28**	**30**	**33**	**26**	**27**	**27**	**272**	**99.96 = 100**

It is revealed through the Table 8 shows that maximum contribution is from universities, which accounts for 34.92%. It is followed by contribution from the college fraternity which is 19.11 of the total contribution during ten years. Besides, government research organizations also contribute well and they form 17.27% of the total contribution. Private research institutes and wild research government research institutes contributed 08.82% and 07.72% contributions respectively.

13. DISPERSION OF REFERENCES PER ARTICLE

The dispersion of references in any articles determines its nature, i.e., the articles contributed are of conceptual type in nature or review type of the articles. It is a general phenomenon that the papers which contain more references are of review type of the papers and the papers with few references are said to be of conceptual type of the paper contributing original contents.

Table 9 that normally the number of references per article ranges in between 6-10 as 28.30% contribution falls in this category. It is followed by 11-15 references comprising of 22.42% and 1-5 references accounting for 19.85% of the total contribution. Some papers have more than 100 references, which account for 01.47 percent only.

So, it can be concluded that majority of the papers have a few references, they may be considered as original contribution in nature. Because, original papers have a few references rather than the papers which are of review type in nature.

14. LENGTH-WISE DISTRIBUTION OF ARTICLES

It is generally assumed that the paper which are conceptual type in nature and are primarily contribution to a subject field, contain a few pages. In other words, the papers which are finishing in a few pages can be considered of conceptual type in nature and of primarily findings. While review type of the papers contain lengthy matter and completed in more pages than compared to original contribution.

Table 9 Dispersion of References per Article

Range of References	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	%
Nil	–	–	–	1	1	2	1	1	1	–	7	02.57
1–5	9	5	5	5	8	7	5	2	4	4	54	19.85
6–10	4	6	8	8	10	4	13	6	10	8	77	28.30
11–15	7	6	9	5	5	9	3	6	5	6	61	22.42
16–20	4	3	1	3	4	3	4	4	1	4	31	11.39
21–25	2	2	–	2	–	1	2	1	3	2	15	05.51
26–30	–	1	–	–	–	1	2	2	–	1	7	02.57
31–35	–	–	–	–	–	–	–	–	2	1	3	01.10
36–40	–	–	–	1	–	1	1	1	–	–	4	01.47
41–45	–	–	2	–	–	2	1	–	–	–	5	01.83
46–50	–	–	1	–	–	–	–	–		1	2	00.73
51–55	–	–	–	–	–	–	–	1	–	–	1	00.36
56–60	–	–	–	–	–	–	–	–		–	–	–
61–65	–	–	–	–	–	–	–	–	–	–	–	
66–70	–	–	–	–	–	–	–	–	–	–	–	–
71–75	–	–	–	–	–	–	–	–	–	–	–	–
76–80	–	–	–	–	–	–	–	–	–	–	–	–
81–85	–	–	1	–	–	–	–	–	–	–	1	00.36
86–90	–	–	–	–	–	–	–	–	–	–	–	–
91–95	–	–	–	–	–	–	–	–	–	–	–	–
96–100	–	–	–	–	–	–	–	–	–	–	–	–
101>*	–	–	–	–	–	–	1	2	1	–	4	01.47
Total	**26**	**23**	**27**	**25**	**28**	**30**	**33**	**26**	**27**	**27**	**272**	**99.93 = 100**

Table 10 Length-wise Distribution of Articles

Length of Paper	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total Numbers	%
1–3	8	3	5	7	10	10	10	4	7	6	70	25.73
4–6	11	15	14	12	12	15	9	13	15	13	129	47.42
7–9	4	3	4	3	4	5	6	4	3	6	42	15.44
10–12	2	1	3	3	1*	–	6	3	–	1	20	07.35
13–15	–	1	1	–	–	–	2	1	1*	-	6	02.20
16–18	1	–	–	–	1	–	–	–	1*	1	4	01.47
19–21	–	–	–	–	–	–	–	–	–	–	–	–
>21	–	–	–	–	–	–	–	1	–	–	1	0.36
Total	**26**	**23**	**27**	**25**	**28**	**30**	**33**	**26**	**27**	**27**	**272**	**99.97 = 100**

Note : * Purely review type of the papers

Table 10 shows that 47.42% papers are finished in 4-6 pages and 25.73% in 1-3 pages, followed by 15.44% articles in 7-9 pages. This forms 88.59% of the total articles, which means maximum no.of papers are of original thoughts and contents published in Ethnobotany journal during 1999-2008. Rest of the papers finish in more pages interpreting that these are review types of the papers in nature. It means most of the articles published in this journal are primary contribution to the universe of knowledge.

15. COUNTRY-WISE DISTRIBUTION OF ARTICLES

The research and developmental activities of any country play an important role in the economy of that country. One has to either scan citation indexes, abstracting journals or the articles in primary journals in order to know the contribution made by a country in a specific subject field. The extent to which a particular country is advanced in its research activity in a particular subject field is revealed by this study.

Table 11 Country-wise Distribution of Articles

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	%
Argentina	–	–	–	–	–	–	–	–	–	1	1	0.36
Bhutan	–	–	–	–	–	–	–	–	–	1	1	0.36
Canada	–	–	–	–	–	–	–	1	1	–	2	0.72
China	1	2	–	1	1	1	3	1	1	–	12	4.41
Germany	–	–	1	–	–	–	–	–	–	–	1	0.36
India	20	21	26	23	24	27	19	24	23	23	230	84.85
Nepal	1	–	–	1	2	1	2	–	1	1	8	2.94
Nigeria	2	–	–	–	1	–	1	–	1	1	6	2.20
UK	–	–	–	–	–	–	2	–	–	–	2	0.72
USA	2	–	–	–	–	1	5	–	–	–	8	2.94
Sri Lanka	–	–	–	–	–	–	1	–	–	–	1	0.36
Total	**26**	**23**	**27**	**25**	**28**	**30**	**33**	**26**	**27**	**27**	**272**	**99.92 = 100**

Table 11 shows that India tops among the contribution and it is likely to be because the journal itself is coming from India. But if we talk about other countries, China is among the topper list of foreign contribution with 12 papers out of 272 in the last ten years. It is followed by 2.94% (8 papers) from Nepal and USA respectively and 2.20% contribution from Nigeria with 6 papers. Other countries' contribution is very low.

16. STATE-WISE BREAK UP OF INDIAN CONTRIBUTIONS

The journal Ethnobotany is of Indic origin and maximum contribution have come from India itself. Hence a study on state-wise contribution of the articles is also made and Table 12 depicts the situation. It is seen that Uttar Pradesh is topper amongst all the states with an average contribution of 27.39%.

It is followed by 10.43% contribution by Maharashtra and 7.82% contribution by Gujarat and Orissa respectively. Other notable states which have contributed significantly are West Bengal, Madhya Pradesh, and Assam with 6.08, 5.65 and 4.78% respectively.

17. COMPARISON WITH EARLIER FINDINGS

As stated earlier, one such type of study is made by Dhiman (2000) - the author of current paper in 2000 by analyzing its ten year issues from the inception of the journal in 1989 up to 1998. Present findings are compared with earlier findings to see what changes have occurred in another decade in the journal style and contribution. Table 13 depicts the clear situation.

It can be inferred from the table that this time there is much increase in total production by the authors as there are 272 recorded papers, which are much higher

Table 12 State -wise Break up of Indian Contributions

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	%
Andhra Pradesh	2	1	3	1	1	1	–	–	1	1	11	4.78
Arunachal Pradesh	–	–	2	1	–	–	–	1	–		4	1.73
Assam	1	–	2	1	–	1	1	1	2	2	11	4.78
Bihar	2	1	–	–	–	3	–	–	–	1	7	3.04
Chattisgarh	–	–	–	1	–	–	–	–	–	–	1	0.43
Delhi	1	–	–	–	1	1	–	–	–	–	3	1.30
Gujarat	3	1	2	4	1	2	–	1	3	1	18	7.82
Haryana	–	–	–	–	1	–	–	–	–	–	1	0.43
Himachal Pradesh	–	–	–	–	–	–	–	1	–	–	1	0.43
Jammu & Kashmir	–	–	–	–	1	–	1	1	–	–	3	1.30
Jharkhand	–	–	–	–	–	–	1	–	1	1	3	1.30
Karnataka	1	–	–	1	–	–	–	–	–	–	2	0.86
Kerala	–	1	–	–	2	1	–	1	3	1	9	3.91
Madhya Pradesh	–	1	1	2	–	2	1	3	2	1	13	5.65
Maharashtra	–	5	–	3	2	5	1	2	2	4	24	10.43
Manipur	–	–	–	–	–	–	–	–	–	1	1	0.43
Meghalaya	1	–	–	–	–	1	–	–	–	–	2	0.86
Mizoram	1	–	–	1	–	–	–	–	–	–	2	0.86
Nagaland	–	–	–	–	–	–	–	–	–	1	1	0.43
Orissa	2	1	3	–	2	1	1	1	5	2	18	7.82
Pondicherry	–	–	–	–	1	–	1	–	–	–	2	0.86
Rajasthan	–	–	1	1	–	1	1	1	1	2	8	3.47
Tamil Nadu	–	–	2	–	–	–	–	–	–	–	2	0.86
Uttar Pradesh	4	7	9	7	8	3	10	8	3	4	63	27.39
Uttarakhand	–	–	–	–	1	2	–	2	–	1	6	2.60
West Bengal	2	3	1	–	3	3	1	1	–	–	14	6.08
Total	**20**	**21**	**26**	**23**	**24**	**27**	**19**	**24**	**23**	**23**	**230**	**99.85 = 100**

than its first decade of inception of 175 articles. Multi-authored trend is increasing in present decade. As far as the contribution from other countries is concerned, this is more or less same. But this time, university contribution is much more than college contribution, which is 34.92% this time, while college contribution is only 19.11%. In state-wise dispersion of articles, Uttar Pradesh tops the list with 63 articles, followed by 24 from Maharashtra and 18-18 from Gujarat and Orissa respectively. Earlier, the degree of collaboration among authors were 50-69 while this time it comes between 64-87, which is much higher and it is interpreted that this subject is growing fast as collaboration is increasing among them.

Table 13 Comparison with Earlier Findings

Sl. No.	Earlier Findings (1989-1998)	Present Findings (1999-2008)
1.	A total of 175 articles were contributed by authors in 10 year issues of the journal.	A total of 272 articles are contributed by the authors in 10 year issues of the journal this time.
2.	The distribution of articles in this duration was not consistent as it ranges between 8-29, stating a difference of 21 between them.	This time the distribution of articles is somewhat consistent as it ranges between 23-33, with a difference of only 10 articles between minimum and maximum contribution.
3.	Authorship pattern show that solo trend of authorship was prevalent at that time with an overall contribution by solo author of 39.6 percent in comparison to 35.0 percent contribution of two-author articles and 17.8 percent of three-authored articles.	Mutli-authored trend is seen prevalent during present study. Single author contributed only 28.30 percent articles against 42.64 percent of two-authored articles. 71.7 percent of the total articles are contributed in collaboration.
4.	Maximum contribution during the time observed was from college with 47.5 percent of the total contribution followed by university contribution of 30.2 percent.	This time, university contribution is high with 34.92 percent of overall contribution. Colleges could contribute only 19.11 percent articles.
5.	India was among the top of the country wise distribution with 81.7 percent contribution.	India is still among the topper in the list.
6.	12 other countries also contributed in this journal, which was 08.3 percent of total contribution. China, Nigeria, UK and USA contributed 5 articles respectively, followed by 3 articles from Japan.	There are 11 contributions from other countries, which is more or less the same. This time maximum 12 articles are contributed by China, followed by 8-8 from Nepal and USA.

18. CONCLUSION

Ethnobotany Journal is an Indian publication of its own kind in the field of study, which is devoted to ethnobotanical observations and research findings. It is interesting to note that single authors were heading the total contributions (single author Vs two author 69: 61; single author Vs three author 69: 32 and single author Vs multiple author 69: 13) in 1989-1998 study (Dhiman, 2001 and Dhiman and Sinha, 2001), but now the subject is getting much concentration of the researchers from different fields. Hence collaborative publications are coming out. Two-author contribution is now very much ahead with 116 numbers of single author contributions, which could score 77 papers. This supports the fact that Ethnobotany branch of science is growing day-by-day because collaboration of authors help in the increase in the number of publications in this subject. Earlier, totally 175 articles were contributed during ten- year duration and this time 272 papers are contributed. So, it can be inferred that journal is getting popularity among scientific fraternity and University sharing in researches is also increasing. But foreign contribution is static, some more popularity is needed to spread the journal world wide.

However, it is suggested that further investigations should be carried out by taking the larger database from the allied journals of this field like – Journal of Economic & Taxonomic Botany and the Indian Journal of Traditional Knowledge. The Journal of Economic & Taxonomic Botany is a publication devoted to broader field of Botany and occasionally it publishes some special series on Folk Uses of the plants, but Indian Journal of Traditional Knowledge is a regular journal of NISCAIR, New Delhi, which publishes regular articles on folk uses of plants and related topics. So, the study of this journal may give some better results in future.

REFERENCES

[1] Anyi, Kevin Wan Utap, A.N. Zainab and N.B. Anuar, "Bibliometric Studies on Single Journals: A Review", Malaysian Journal of Library & Information Science, Vol.14, No.1, 2009, pp.17-55.

[2] Biswas, Ch. Bidhan, Amit Roy and B.K. Sen, "Economic Botany : A Bibliometric Study", Malaysian Journal of Library & Information Science, Vol. 12, No.1, 2007, pp.23-33.

[3] M.Bonitz, "Scientometric, Bibliometric, Informetric. Zentrablattfur Bibliothekswesen", Vol.6, No.2, 1982, pp.19-23.

[4] B.Cronin, "Let the Credits Roll: A Preliminary Examination of the Role played by Mentors and Trusted Assessors in Disciplinary Formation", Journal of Documentation, Vol.47, 1991, pp.227-39.

[5] B. Cronin and S. Weaver-Wozniak, Online Access to Acknowledgements. In Wiliams, M. E. edited "Proceedings of the 14th National Online Meeting 1993, New Jersey, May 4-6, 1993". Learned Information Inc., New York. 1993, pp. 93-97.

[6] A.K. Dhiman, "Ethnobotany Journal : A Ten Year Bibliometric Study", IASLIC Bulletin, Vol.45, No.4, 2000, pp.177-82.

[7] A.K. Dhiman, "Ethnobotanists in New Millennium", Advances in Plant Sciences, Vol. 14, No.2, 2001, pp.653-56.

[8] A.K. Dhiman and S.C. Sinha, "Impact of Research Collaboration on Growth of Literature in Ethnobotany : A Bibliometric Study", SRELS Journal of Information Management, Vol.38, No.1, 2001, pp.53-62.

[9] A.K. Dhiman, "Self - Citation Behaviour of Library Scientists: A Case Study", of ILA Bulletin. CLIS Observer, Vol.19, No.1-2, 2002, pp.31-35.

[10] A.K.Dhiman and Yashoda Rani, "Indian Botanist's Contribution: A Bibliometric Study", Based on Journal of Indian Botanical Society, 1997-2001. Indian Journal of Information, Library & Society, Vol.18, No.3-4, 2005, pp. 108-15.

[11] G.G. Halkar, S.K. Senapati and S. Chand, "Journal of Family Welfare : A Bibliometric Study", IASLIC Bulletin, Vol.43, No.2, 1998, pp.89-94.

[12] J. W. Harshberger, "Some New Ideas : the Plants Cultivated by Aboriginal People and How Used in Primitive Commerce", The [Daily] Evening Telegraph, Philadelphia, Vol.64, No.134, 1895, pp.2.

[13] S.K. Jain, "Ethnobotany-What and Why", Ethnobotany, Vol.4, No.1-2, 1992, pp.75-79.

[14] S.K. Jain and V. Mudgal, "A Hand Book of Ethnobotany", Bishen Singh Mahendra Pal Singh, Dehradun, 1999, pp.1-13.

[15] A. Narang, "Indian Journal of Pure and Applied Mathematics : A Bibliometric Study", Annals of Library and Information Studies, Vol.51, No.1, 2004, pp.28-38.

[16] Nebelong-Bonnevie, Ellen and Tove Faber Frandsen, "Journal Citation Identity and Journal Citation Image: A Portrait of the Journal of Documentation", Journal of Documentation, Vol.62, No.1, 2006, pp.30-57.

[17] R.G. Prasher, "Library Science with a Slant to Documentation and Information Studies: A Bibliograpical and Bibliometric Study", Ludhiana, Medallion Press, 2001, pp.160.

[18] D.J.De Solla Price, "Networks of Scientific Papers", Science, Vol.149, 1965, pp.510-15.

[19] A.Prichard, "Statistical Bibliography or Bibliometrics", Journal of Library and Documentation, Vol.25, No.1, 1969, pp.348-49.

[20] S. Thajuddin, "Journal of Plantation Crops: A Bibliometric Appraisal", Annals of Library Science and Documentation, Vol. 45, No.4, 1998, pp.117-24.

[21] W. S.Tiew, "Single Journal Bibliometric Studies: A Review", Malaysian Journal of Library & Information Science, Vol.2, No.2, 1997, pp.93-114.

[22] W. S.Tiew, "Journal of Malaysian Branch of the Royal Asiatic Society (JMBRAS) 1987-1996: A Ten Year Bibliometric Study", Malaysian Journal of Library and Information Science, Vol.2, No.2, 1998, pp.49-66.

[23] W.S. Tiew and B.K. Sen, "Acknowledgement Patterns in Research Articles: A Bibliometric Study based on Journal of Natural Rubber Research 1986-1997", Malaysian Journal of Library & Information Science, Vol. 7, No.1, 2002, pp.43-56.

Mapping of Protein 53 Research Output in India

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Abstract

This study has been carried out to analyze the research field of Protein 53, Tumor Protein 53, P 53 in terms of publication output as per Science Citation Index (1978-2012) from Web of Science. During 1999- 2011, a total of 1301 papers were published by the Indian Scientists in the field of Protein 53. The average number of published papers per year is 14.53 %. The highest number of papers were 204 published in 2011. The most productive author is Sarkar C with 29 papers dealing with Protein 53. The most productive Journal is Journal of Biological Chemistry with 31 papers dealing with Protein 53.

Keywords: *Protein 53, Tumor Protein 53, P 53*

1. INTRODUCTION

The gene TP53 (also known as protein 53 or tumor protein 53), encoding transcription factor P53, is mutated or deleted in half of human cancers, demonstrating the crucial role of P53 in tumor suppression. The human P53 protein contains 393 amino acid and has been divided structurally and functionally into four domains. The first 42 amino acids at the N-terminus constitute a transcriptional activation domain that interacts with the basal transcriptional machinery in positively regulating gene expression. Amino acids 13–23 in the P53 protein are identical in a number of diverse species.

There are reports of nearly 250 independent germ line P53 mutations in over 100 publications. The P53 protein has the structure of a transcription factor and is made up of several domains. The main function of P53 is to organize cell defense against cancerous transformation. P53 is a potent transcription factor that is activated in response to diverse stresses, leading to the induction of cell cycle arrest, apoptosis or senescence.

Scientometrics is a discipline which analyses scientific publications and citations appended to the papers to gain an understanding of the structure of science, growth of science at global level, performance of a country in a particular domain, performance of institutions, departments/divisions and scientific eminence of an individual scientist. It also helps in knowing the information seeking behaviour of scientists and engineers by way of identifying where they publish and what they cite (Sagar et al. 2009ab).

2. OBJECTIVES

The main objective of this study is to analyze the research performance of India in Protein 53 in the national and global context, as reflected in the publication's output during 1999- 2011. In particular, the study focused on:

i. Indian research out, its growth, and global publications' share and impact
ii. The Patterns of International and major collaborative partners
iii. The Publications' productivity and impact of leading institutions of India
iv. The characteristics of the most prolific authors and high-cited papers and
v. The patterns of research communication in the most productivity journals

3. METHODOLOGY

Data was collected from the Science Citation Index (SCI) which is available via the Web of Science (WoS). The WoS is a 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 (1999-May2011) selected as the database is available in machine from 1973. The search string "Protein 53" in the "Basic search" field of SCI was used during 1999-2011 to download the records on the subjects of Protein 53. A total of 1301 records were downloaded and analyzed by using the Histcite Software Application as per the objectives of the study.

4. RESULTS AND DISCUSSION

Table 1 Year wise Distribution of Documents

Sl. No.	Publication Year	Records	%	TLCS	TGCS
1	1999	37	2.84	64	520
2	2000	57	4.38	72	1165
3	2001	38	2.92	37	620
4	2002	77	5.92	81	1105
5	2003	56	4.30	85	1061
6	2004	61	4.69	53	1159
7	2005	91	6.99	109	1443
8	2006	76	5.84	52	1236
9	2007	117	8.99	61	1592
10	2008	125	9.62	54	1122
11	2009	173	13.30	51	1026
12	2010	189	14.53	33	699
13	2011	204	15.68	8	232
	Total	**1301**	**100**	**760**	**12980**

During 1999 - 2011, a total of 1301 publications i.e., were published in Protein 53 by Indian Context. The highest number of publications i.e., 204 was produced in 2011. Table 1 was given year-wise growth and collaboration rate in Protein 53. It can be clearly visualized from the Table1 that growth of the literature was very low during 1999. It indicates that research in Protein 53 received a major impetus during this period.

Table 1(a) Exponential Growth Rate of Publications

Sl. No.	Publication Year	Records	Exponential Growth Rate
1	1999	37	-
2	2000	57	1.54
3	2001	38	0.66
4	2002	77	**2.03**
5	2003	56	0.73
6	2004	61	1.09
7	2005	91	1.49
8	2006	76	0.84
9	2007	117	1.54
10	2008	125	1.07
11	2009	173	1.38
12	2010	189	1.09
13	2011	204	1.07
	Total	**1301**	**14.53(1.11)**

The above table reveals the exponential growth rate of publication on Protein 53 during 13 years (1999 to 2011). An exponential growth in number of publication was observed during 1999-2011. The highest growth rate was 2.03% found during 2002. It was found very low growth rate in 2001 with 38 publications. The total exponential growth rate value is 14.53; it is found that the average exponential growth rate is 1.11% during sample periods.

Table 2 India with Collaborative Countries (Top 15)

Sl. No.	Country	Records	TLCS	TGCS
1	India	1278	749	12331
2	USA	100	58	1918
3	Japan	29	41	603
4	Germany	24	5	271
5	UK	14	9	234
6	Unknown	13	5	345
7	France	11	11	142
8	Saudi Arabia	9	2	41

9	Canada	8	0	54
10	Italy	7	0	85
11	Singapore	7	4	129
12	Peoples R China	6	2	108
13	South Korea	5	0	55
14	Sweden	5	0	38
15	Switzerland	5	0	66

The Extent of International Collaboration as seen from co-authored is presented in Table 2. India has collaborated often with USA, Japan and Germany with 100, 29 and 24 papers respectively. 20 research papers are from other countries that are collaborated with India.

Table 3 Top 15 Most Productive Authors

Sl. No.	Author	Records	%	TLCS	TGCS
1	Sarkar C	29	0.76	30	236
2	Singh N	26	0.68	23	296
3	Kumar S	24	0.63	22	240
4	Singh S	24	0.63	20	170
5	Ralhan R	23	0.60	38	501
6	Sharma MC	22	0.58	18	179
7	Sinha S	21	0.55	21	225
8	Somasundaram K	21	0.55	33	430
9	Chattopadhyay S	20	0.53	43	223
10	Kumar R	20	0.53	11	101
11	Shukla Y	20	0.53	30	252
12	Pillai MR	19	0.50	31	300
13	Das S	17	0.45	29	284
14	Kundu TK	17	0.45	46	511
15	Das T	16	0.42	36	374

The most productive author is Sarkar C with 29 papers, dealing with Protein 53 and 0.76% of all papers published in this research field, among the authors of the seminal publication on Protein 53, given in Table 3.

The most productive Journal is Journal of Biological Chemistry with (31) 5.18% papers dealing with Protein 53 followed by (22) 3.67% in International Journal of Cancer, (18) 3.00% Indian Journal of Animal Sciences.

There were 883 institutions involved in research activity in the field of Protein 53. Table-5 provides publication productivity of top 15 institutions. All India Institute of Medical Science topped the list with 114 publications followed by Indian Institute of Science with 45 publications, Banaras Hindu University with 35 publications.

Table 4 Top 15 Most Productive Journal

Sl.No.	Journal	Records	%	TLCS	TGCS
1	Journal of Biological Chemistry	31	5.18	57	1000
2	International Journal of Cancer	22	3.67	54	467
3	Indian Journal of Animal Sciences	18	3.00	0	18
4	Molecular and Cellular Biochemistry	18	3.00	14	139
5	Biochemical and Biophysical Research Communications	16	2.67	21	224
6	Cancer Letters	15	2.50	22	250
7	Oral Oncology	15	2.50	45	294
8	Indian Journal of Medical Research	14	2.34	3	49
9	Journal of Environmental Pathology Toxicology and Oncology	13	2.17	4	39
10	Plos One	13	2.17	0	59
11	Cancer Biology & Therapy	11	1.84	6	80
12	Neurology India	11	1.84	7	47
13	Oncogene	11	1.84	14	190
14	Asian Pacific Journal of Cancer Prevention	10	1.69	1	17
15	Febs Letters	10	1.69	23	261

Table 5 Institution-wise Documents Distribution (First - 15 Documents)

Sl. No.	Institution	Records	%	TLCS	TGCS
1	All India Institute of Medical Science	114	12.91	108	1279
2	Indian Institute of Science	45	5.10	47	805
3	Banaras Hindu University	35	3.96	26	267
4	Indian Institute of Technology	34	3.85	10	373
5	Regional Cancer Center	32	3.62	48	459
6	Tata Memorial Hospital	32	3.62	42	290
7	Postgrad Institute of Medical Education & Research	31	3.51	2	182
8	Annamalai University	26	2.94	13	218
9	Center Cellular & Molecular Biology	26	2.94	27	257
10	University of Delhi	26	2.94	12	268
11	Bose Institute	25	2.83	43	642
12	Institute of Life Science	24	2.72	22	207
13	Panjab University	23	2.60	1	163
14	Bhabha Atomic Research Center	22	2.49	7	178
15	Indian Institute of Chemical Biology	22	2.49	20	202

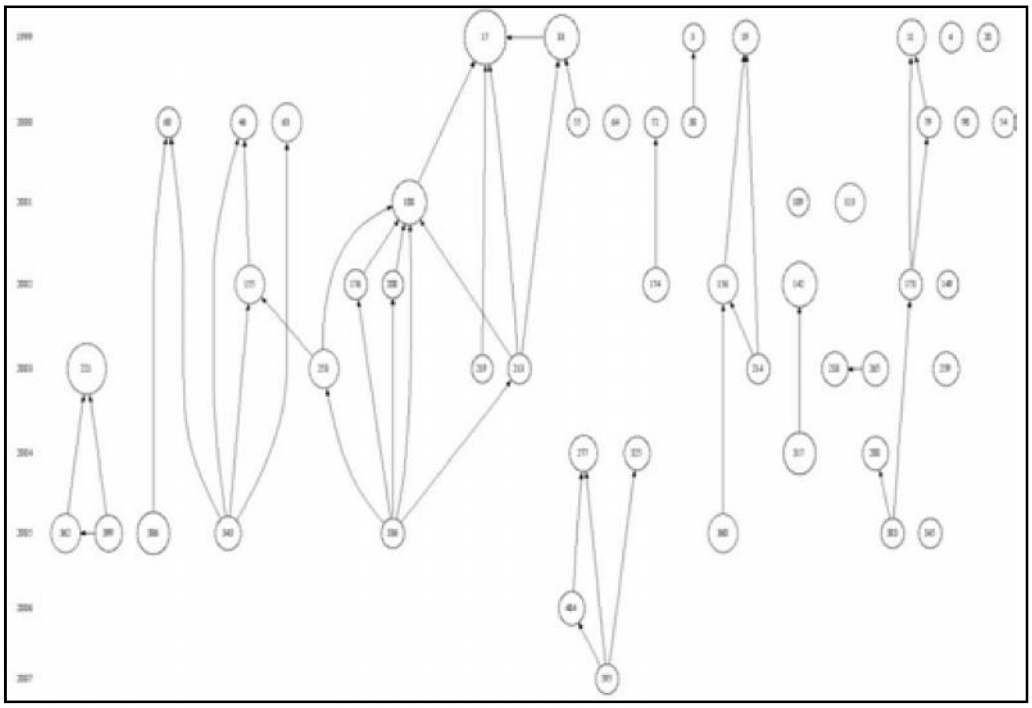

Fig. 1 Historiograph of Protein 53 research in India based on local citation scores

Nodes:50,Links:42
LCS, top 50; Min: 4, Max: 15 (LCS scaled)

Sl. No.			LCS	GCS
1	3	Nair P, 1999, PATHOL RES PRACT, V195, P163	4	17
2	4	Pillai MR, 1999, J CANCER RES CLIN, V125, P55	5	23
3	11	Agarwal S, 1999, ORAL ONCOL, V35, P209	7	39
4	17	Saranath D, 1999, ORAL ONCOL, V35, P242	15	33
5	19	Das T, 1999, BIOCHEM BIOPH RES CO, V260, P105	6	17
6	20	Radha V, 1999, FEBS LETT, V453, P308	4	19
7	33	Kannan K, 1999, INT J ONCOL, V15, P1133	10	20
8	38	Nair P, 2000, ACTA ONCOL, V39, P65	5	22
9	46	Das BC, 2000, CURR SCI INDIA, V78, P52	6	18
10	54	Misra S, 2000, EUR J SURG ONCOL, V26, P164	5	20
11	55	Kannan K, 2000, INT J ONCOL, V16, P585	4	19

12	60	Ralhan R, 2000, INT J CANCER, V85, P791	5	33
13	63	Katiyar S, 2000, CANCER, V88, P1565	8	35
14	64	Bharti AC, 2000, IMMUNOL LETT, V72, P39	6	29
15	72	Sarkar C, 2000, PATHOLOGY, V32, P84	5	10
16	79	Ralhan R, 2000, AM J PATHOL, V157, P587	5	20
17	90	Shanker A, 2000, TUMOR BIOL, V21, P315	5	23
18	108	Tandle AT, 2001, BRIT J CANCER, V84, P739	10	25
19	109	Reddy VG, 2001, BIOCHEM BIOPH RES CO, V282, P409	4	33
20	113	Gupta S, 2001, J BIOL CHEM, V276, P10585	8	48
21	142	Arora A, 2002, NUTR CANCER, V44, P89	10	27
22	149	Datta K, 2002, INT J BIOCHEM CELL B, V34, P148	4	51
23	155	Nagpal JK, 2002, INT J CANCER, V97, P649	8	44
24	156	Choudhuri T, 2002, FEBS LETT, V512, P334	8	117
25	173	Pande P, 2002, ORAL ONCOL, V38, P491	5	27
26	174	Sarkar C, 2002, BRIT J NEUROSURG, V16, P335	6	14
27	176	Saranath D, 2002, GYNECOL ONCOL, V86, P157	5	33
28	208	Bhattacharya P, 2002, CANCER LETT, V188, P207	4	19
29	213	Mitra S, 2003, ANN HUM GENET, V67, P26	5	12
30	214	Bhattacharyya A, 2003, CARCINOGENESIS, V24, P75	5	21
31	219	Vora HH, 2003, J SURG ONCOL, V82, P34	4	31
32	221	Kaul R, 2003, INT J CANCER, V103, P606	13	33
33	233	Das S, 2003, J BIOL CHEM, V278, P18313	6	20
34	253	Katiyar S, 2003, MOL CELL BIOCHEM, V252, P117	8	36
35	259	Das S, 2003, ONCOGENE, V22, P8394	6	23
36	265	Wajapeyee N, 2003, J BIOL CHEM, V278, P52093	6	51

37	277	Banerjee S, 2004, MOL CELL BIOL, V24, P2052	7	27
38	288	Jayasurya R, 2004, INT J CANCER, V109, P710	6	21
39	317	Arora A, 2004, MOL CANCER THER, V3, P1459	9	25
40	325	Balasubramanyam K, 2004, J BIOL CHEM, V279, P51163	6	214
41	336	Mitra S, 2005, J CLIN PATHOL, V58, P26	5	25
42.	343	Katiyar S, 2005, CANCER LETT, V218, P69	6	24
43	345	Chhipa RR, 2005, TOXICOL APPL PHARM, V202, P268	5	18
44	362	Jalota A, 2005, J BIOL CHEM, V280, P16019	8	14
45	368	Choudhuri T, 2005, J BIOL CHEM, V280, P20059	8	93
46	383	Jayasurya R, 2005, MODERN PATHOL, V18, P1056	5	20
47	386	Mir MM, 2005, INT J CANCER, V116, P62	9	23
48	399	Rampalli S, 2005, MOL CELL BIOL, V25, P8415	7	38
49	484	Das C, 2006, MOL CELL BIOL, V26, P8303	6	22
50	595	Batta K, 2007, MOL CELL BIOL, V27, P7603	5	16

An attempt has been made to trace the evolution of Protein 53 research in India by constructing historiographs using HistCite software (developed by Garfield and colleagues) in conjunction with Web of Science. All the India's 1301 Protein 53 papers have been considered. All the references quoted in these 1301 papers have been included. All the papers that have cited these 1301 papers as well as all the references quoted in those citing papers have been added. The resulting aggregate is called the Protein 53 India collection. The collection is exported to HistCite to obtain a large list of 10298 cited references along with their local and global citation scores (LCS and GCS).

The LCS for a paper denotes the number of times the paper is cited within the Protein 53 India collection and the GCS denotes all citations to the paper (found in Web of Science). Thus, LCS will always be a subset of GCS. HistCite enables one to draw a citation network among highly cited papers from which one gets a feel for the evolution of the subject (or research front) over the years. What HistCite does is to reduce the clutter. In the huge population of papers and citations that constitute the Protein 53 India collection, one will not get anywhere if one tries to view all the citation links. By clever use of algorithms and networking tools, HistCite prunes many of the not so important links and leaves one with a manageable and compact scientograph. Figure 1 is the historiograph of Protein 53 research in India based on the 50 most highly cited papers in the Protein India collection based on their LCS. It covers the period from 1999 to 2011. In this historiographs, the story begins with a paper by Nair P in Pathology Research and Practice published in 1999. In paper no.3 (1999), Nair P from Regional Cancer Center in Thiruvananthapuram has studied the quality aspects of a few varieties of Protein 53. This paper has received 21 citations so far.

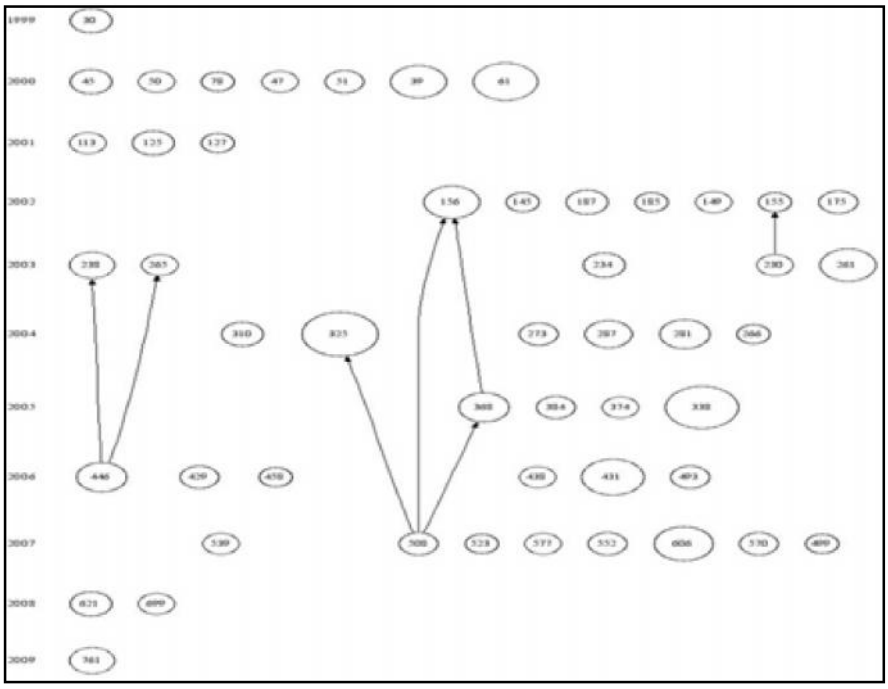

Fig. 2 Historiograph of Protein 53 research in India based on global citation scores

Nodes:50,Links:7
GCS, top 50; Min: 44, Max: 214 (GCS scaled)

Sl. No.			LCS	GCS
1	30	Ranjan A, 1999, P NATL ACAD SCI USA, V96, P14067	0	67
2	39	Tuteja R, 2000, CRIT REV BIOCHEM MOL, V35, P1	0	122
3	45	Kaur J, 2000, INT J CANCER, V85, P1	0	64
4	47	Bahl R, 2000, ONCOGENE, V19, P323	2	48
5	50	Thatte U, 2000, CELL MOL BIOL, V46, P199	0	52
6	51	Ramachandran A, 2000, J GASTROEN HEPATOL, V15, P109	0	60
7	61	Sakaguchi K, 2000, J BIOL CHEM, V275, P9278	3	157
8	78	Salimath B, 2000, ONCOGENE, V19, P3470	1	46
9	113	Gupta S, 2001, J BIOL CHEM, V276, P10585	8	48
10	125	Lakshmikanth GS, 2001, NAT STRUCT BIOL, V8, P799	1	65
11	127	Mohanty D, 2001, HEPATOLOGY, V34, P666	0	46
12	145	Kaur R, 2002, APPL ENVIRON MICROB, V68, P152	0	47

13	149	Datta K, 2002, INT J BIOCHEM CELL B, V34, P148	4	51
14	155	Nagpal JK, 2002, INT J CANCER, V97, P649	8	44
15	156	Choudhuri T, 2002, FEBS LETT, V512, P334	8	117
16	175	Hartwig A, 2002, FOOD CHEM TOXICOL, V40, P1179	0	58
17	185	Sairam K, 2002, J ETHNOPHARMACOL, V82, P1	0	45
18	187	Shrivastava R, 2002, FEMS IMMUNOL MED MIC, V34, P1	1	66
19	230	Nagpal JK, 2003, ORAL ONCOL, V39, P213	3	54
20	234	Viswanathan M, 2003, INT J CANCER, V105, P41	1	72
21	238	Nair P, 2003, J VIROL, V77, P7106	2	79
22	261	Snehalatha C, 2003, DIABETES CARE, V26, P3226	0	120
23	265	Wajapeyee N, 2003, J BIOL CHEM, V278, P52093	6	51
24	266	Saha S, 2004, LECT NOTES COMPUT SC, V3239, P197	0	46
25	273	Agarwal MK, 2004, CELL CYCLE, V3, P205	0	60
26	281	Jana NR, 2004, J BIOL CHEM, V279, P11680	2	102
27	287	Mukherjee B, 2004, TOXICOL LETT, V150, P135	0	84
28	310	Surjit M, 2004, BIOCHEM J, V383, P13	1	65
29	325	Balasubramanyam K, 2004, J BIOL CHEM, V279, P51163	6	214
30	338	Sengupta S, 2005, NAT REV MOL CELL BIO, V6, P44	3	196
31	368	Choudhuri T, 2005, J BIOL CHEM, V280, P20059	8	93
32	374	Sen S, 2005, BIOCHEM BIOPH RES CO, V331, P1245	4	51
33	384	Pedeux R, 2005, MOL CELL BIOL, V25, P6639	1	57
34	429	Chanda S, 2006, TOXICOL SCI, V89, P431	2	60
35	431	Biswas S, 2006, BIOCHEM PHARMACOL, V71, P551	0	141
36	438	Ray PS, 2006, EMBO REP, V7, P404	3	52
37	446	Mungamuri SK, 2006, CANCER RES, V66, P4715	1	102
38	458	Kaur G, 2006, FOOD CHEM TOXICOL, V44, P984	0	46
39	493	Sah NK, 2006, CANCER LETT, V244, P164	3	61

40	499	Shaikh SMT, 2007, DYES PIGMENTS, V73, P211	0	46
41	508	Shishodia S, 2007, ADV EXP MED BIOL, V595, P127	0	60
42	523	Shah S, 2007, BIOORG MED CHEM LETT, V17, P921	0	46
43	539	Chauhan M, 2007, INORG CHEM, V46, P3072	0	48
44	552	Mantelingu K, 2007, CHEM BIOL, V14, P645	1	56
45	570	Bhumkar DR, 2007, PHARM RES, V24, P1415	0	62
46	577	Molinolo AA, 2007, CLIN CANCER RES, V13, P4964	0	53
47	606	Ray S, 2007, J AM CHEM SOC, V129, P15042	2	133
48	621	Rana SVS, 2008, J TRACE ELEM MED BIO, V22, P262	1	65
49	699	Chatterjee S, 2008, J BIOL INORG CHEM, V13, P1149	0	52
50	761	Kurrey NK, 2009, STEM CELLS, V27, P2059	1	80

Figure 2 is a similar historiograph but based on the GCS. It includes period from 1999 to 2011. In this historiographs, the story begins with a paper by Ranjan A. Proceedings of the National Academy of Sciences of the United States of America published in 1999. In paper no.30 (1999), Ranjan A from International Centre for Genetic Engineering and Biotechnology has studied varieties of Protein 53. This paper has received 67 citations so far.

5. CONCLUSION

In this study, the literature on Protein 53, 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 Protein 53 papers is possibly going to outrun the impact increase of the related research fields on Protein 53.

The average number of publications produced per year is 14.53%. The highest number of publications produced in 2011 is 204. It could be clearly visualized from Table 1(a) that the exponential growth rate of publications was very low during 2001 and it peaked during 2002.

The most productive author is Sarkar C with 29 papers dealing with Protein 53. India has collaborated often with USA, Japan and Germany with 100, 29 and 24 papers respectively. Other countries have less than 20 research papers collaborated with India.

A research landscape has been established illustrating the major research clusters with regard to the clustering concept. The most productive Journal is Journal of Biological Chemistry with (31) 5.18 Percent papers dealing with Protein 53 followed by (22) 3.67 percent in International Journal of Cancer, (18) 3.00 percent Indian Journal of Animal Sciences.

Among the top 15 most productive research Institutions, there are All India Institute of Medical Science topped the list with 114 publications followed by Indian Institute of Science with 45 publications and, Banaras Hindu University with 35 publications.

For India we have also identified the key researchers and institutions using HistCite and for the visualization technique developed by Garfield and colleagues, we have constructed the historiographs for India based on both local citation scores (LCS) and global citation scores and identified key papers. We find that the Protein 53 Protein 53 research knowledge flows among different Institutions in India.

REFERENCES

1] 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, pp.23-48.

[2] http://eprints.rclis.org/archive/00007485/01/INIS_MJLIS_Final_18_10_2006.pdf), 2002

[3] E. Bailon-Moreno, *et al.* "The unified scientometric model. Fractality and transfractality", www.springerlink.com/index/N011GW5854W75485.pdf, Scientometrics, Vol.63, No.2, 2005, pp.231-257.

[4] B.Cassiman, P. Glenisson, B. Van Looy, "Measuring Industry-Science Links through Inventor-Author Relations: A Profiling Methodology", Scientometrics, Vol.70, No.2, 2007, pp.379-391. http://www.iese.edu/research/pdfs/DI-0624-E.pdf

[5] Biglu, Mohammad Hossein, "Scientometric Study of Patent Literature in MEDLINE & SCI. Ph.D. Dissertation, Humboldt - Universität zu Berlin, Institut für Bibliotheks- und Information swissenschaft.http://www.collnet.de/Berlin-2008/BigluWIS2008smo.pdf, 2008.

[6] Subbiah Arunachalam and B. Viswanathan, "A Historiographic Analysis of Fuel-Cell Research in Asia-China Racing Ahead", Current Science, Vol.36, No.95, 2008, pp.1-10.

[7] http://thomsonreuters.com/products_services/science/science_products/az/science_citation_index.

Indian Journal of Information Science and Services

Volume 5 Number 2 **July - December 2011**

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

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[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.

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