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CONTENTS

Design and Development of Gateway for Management: Special Reference to Eastern University, Sri Lanka

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Abstract

This paper describes the how the management gateway helpful to provide the services in the field of Management. The service aims to provide a trusted source of selected, high-quality Internet information and also promote the electronic resources which result from research and teaching in the Management profession developed by Eastern University Library.

Keywords: *Management Gateway, RSS feed, Subject Gateway, Web Resources*

1. INTRODUCTION

This paper emphasizes the significance, elements and functionality of subject gateway for management, the role of Librarian as identifier, selector, evaluator, organizer and disseminator of information on the web. The Eastern University, Sri Lanka Management Subject Gateway offers the user to search a variety of sources simultaneously, integrating results from online chatting, Institutional Repository, subscribed database, local databases and bibliographical descriptions of digitized material. This management also enables the user to access Eastern University, Sri Lanka Vice Chancellor's Speeches, University Events, Lectures and other Academic Programs both Audio and Video and also allows them to review their request on-line from any system that are connected to the campus network (Intranet).

A library Management serves as an integrated interface to a wide variety of digital resources and web-based library services. Web Management are also important tools for users to access and utilizes library and information services over a network. An informative home page provides the users helpful information about the library, its collection, and services. In addition of subject gateway for management library also host links to important internet resources useful for the parent organization.

2. OBJECTIVES

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

- To Design Subject Gateway for Management at Eastern University, Sri Lanka
- To incorporate web technologies and Digital Library techniques in design and delivering of information products
- To provide access facility for the Management Resources to remote users
- To provide web based information services to management communities of the University
- To enhance the web presence and usage of Library resources

3. METHODOLOGY

Developing a subject gateway for management is an information analysis and consolidation work. The major steps which have to be followed for designing of subject gateway and following:

- Planning of Designing a subject gateway for management
- Determining templates and content terms for proper navigation
- Identification of Online Reference Resources in Internet using various search engines.
- Selection of information sources by University Library professionals
- Evaluation of the resources to be organized for relevance and credibility
- Categorization and Organization of knowledge based Information Resources.

Finally presentation of Resources i.e. subject gateway for management designed with the help of webs.com online free website builder.

Eastern University, Sri Lanka subject gateway for management providing access to a variety of Web based resources available on Internet and Intranet. These resources are selected and evaluated by the Faculty, University Library It provides a way of organizing information from a variety of sources including databases and human resources.

4. EASTERN UNIVERSITY, SRI LANKA MANAGEMENT GATEWAY

Home page is the first page of the Eastern University Management Gateway (Fig. 1). Using the home page the library users can access all resources from anywhere. There were many management resources and management accounting that make our users to know about but home page alone is not Suffice to highlight and the resources.

In addition to the regular navigation and links, we have created a few features on our home page that allow us to promote new or existing management resources and services.

The links provided in the top line are Home, Digital Resources, at the lowest bottom a link of Site Map has also been provided to know about the overall areas covered in the website.

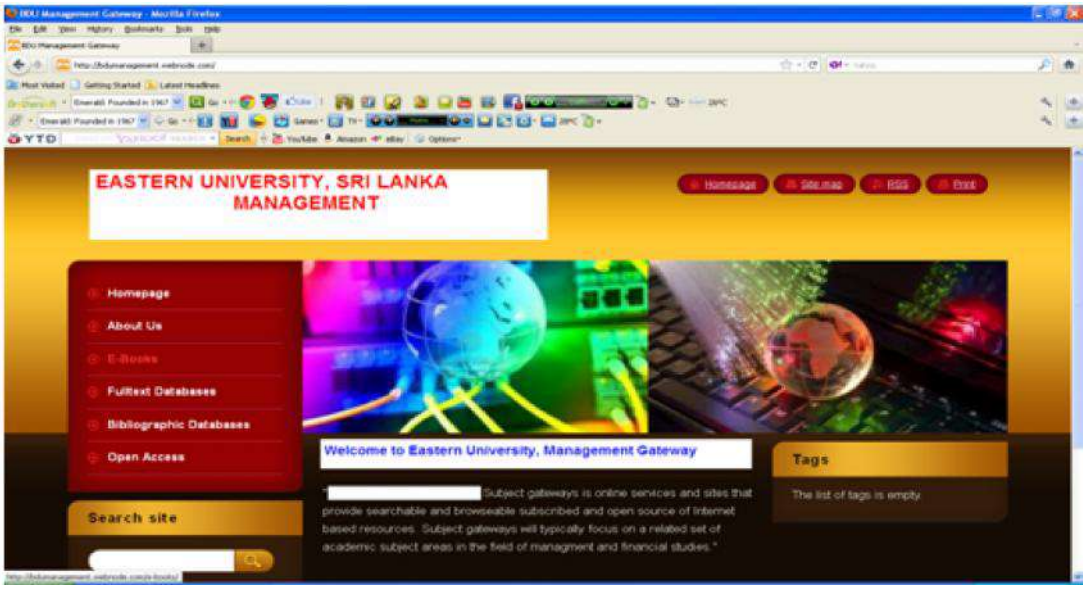

Fig.1 Eastern University, Sri Lanka Management Gateway

5. FULL TEXT DATABASES

Eastern University, Sri Lanka Subscribed online full text databases offer access to full text articles from peer-reviewed journals published by many of the world's most prestigious academic publishers. Full text databases offer tremendous value to an academic library by expanding access to the content of important publications already in the library's print or e-journal collection while, at the same time, providing new access to a great number of highly valuable full text resources previously unavailable to the library's users. It covers Sciencedirect, Emerald, Springer, JSTOR and so on. (Figure 2)

6. BIBLIOGRAPHIC DATABASES

Biographic databases are used to store collections of bibliographic records. Many traditional bibliographic databases contained fields to store information about a limited range of printed works, books, articles, meeting abstract, Conference Publications, Notes manuscripts etc. (Figure 3)

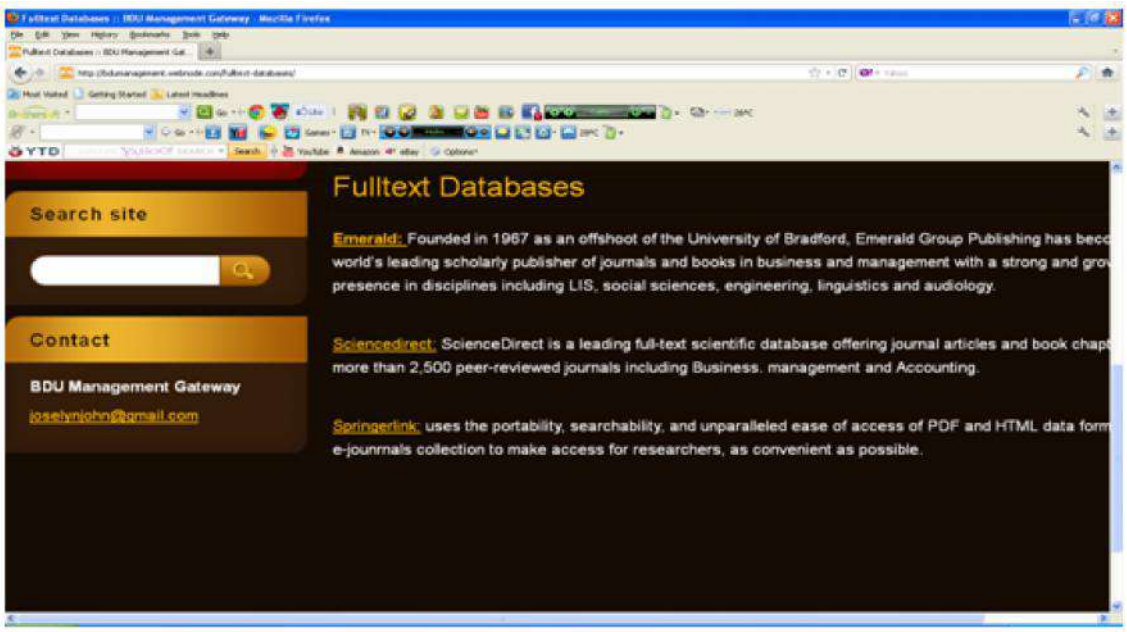

Fig.2 Full Text Database

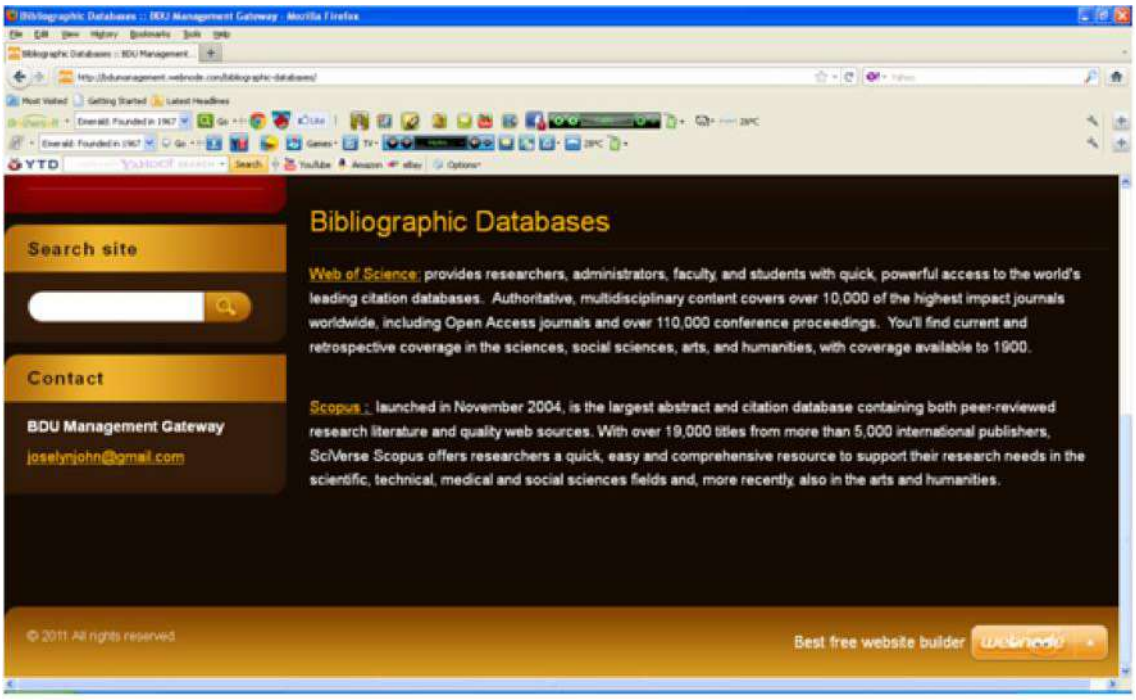

Fig.3 Bibliographic Database

7. INTRODUCING RSS FEED

Really Simple Syndication (RSS) technology uses XML and allows a user to subscribe to websites that have provided RSS feeds. Feeds typically are provided on web content that changes regularly. We have introduced RSS as its utilities was very much appreciated and are in demand by the users, because after all we are providing the services to mass and they have the right to know the latest up-dated and changes when ever is made in the website. To read the announcement, a user can put the cursor on the box, or can drag the text up and down and by clicking can view the linked file.

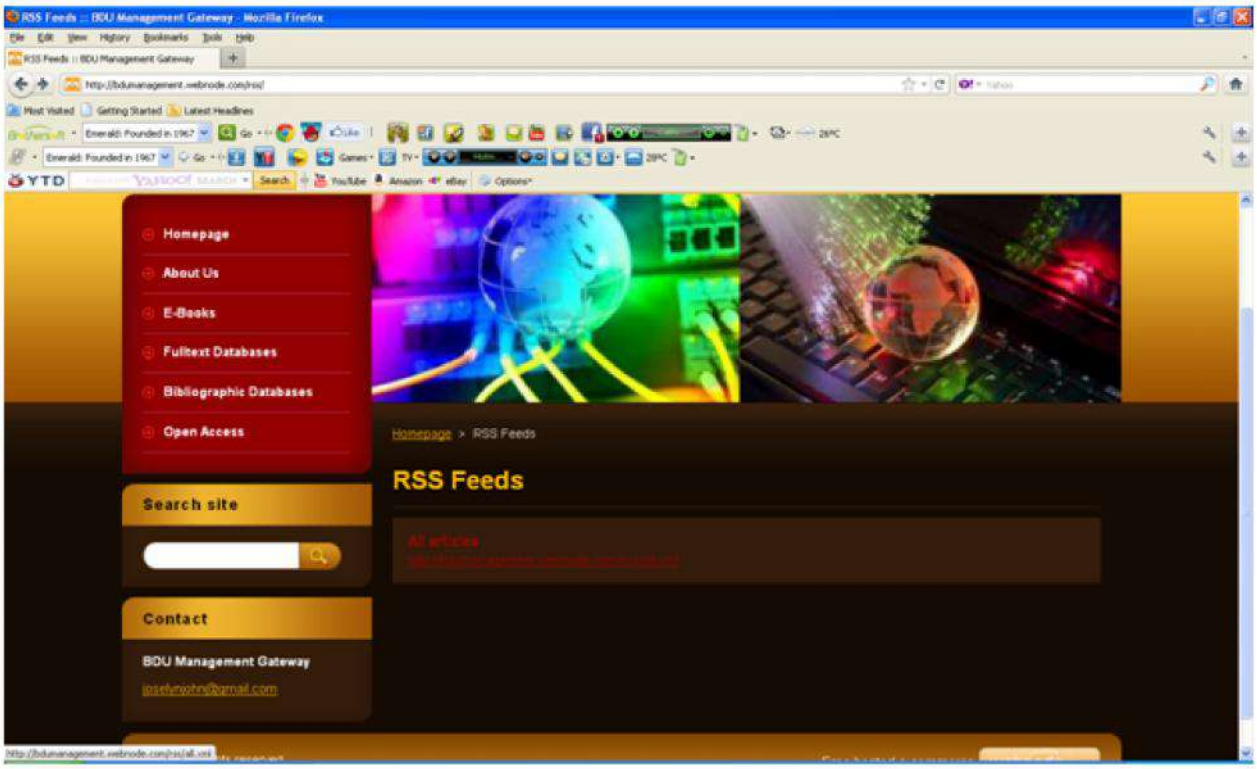

Fig.4 RSS Feeds

8. SITE MAP

A site map is a kind of interactive table of contents, in which each listed item links directly to its counterpart sections of the Web site. Site maps perform the same service that the layout maps in large shopping malls perform: without them, it is possible to explore a complex site by trial and error and so on.

Salient Features of EASTERN UNIVERSITY, SRI LANKA Management Gateway

The main challenge after launching EASTERN UNIVERSITY, SRI LANKA Subject Gateway for management Library Management is how to make it live, how to guarantee its future success, and how to encourage users to use it. Here are some policies we have adopted:

- Ensuring the information is kept up to date:
- Clear and suitable organization of the information:
- Quality of the content:
- Listening to the users needs:
- Friendly interface:

9. CONCLUSION

We have designed the subject gateway for library in such a way that helps us to re-build the library and information services to maximize the usage and draw users back into the library. But we are still waiting for the maximum utilization of the library services through the web. A few new advanced features have been introduced and the users need to train how to utilize them for bring out their maximum result. But we, being the University library staff members are sure that our users will cope up with the latest technology and will utilize the library web portal in a better way for their research and development programme.

In the EASTERN UNIVERSITY, SRI LANKA, we continue to explore new ways to connect with both traditional library users and new users who have never visited the library. By viewing changes in technology and communication patterns as opportunities to reach our users rather than as barriers that keep them away, we are better able to serve our community.

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Citation analysis of IEEE Transaction on Pattern analysis and Machine Intelligence (2007-2016)

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Abstract

The present study deals the citation analysis of 74084 citations from IEEE Transaction on Pattern analysis and Machine Intelligence for the period of 2007-2016. The results show that the highest number of citations 9831 has been appeared in the year of 2013. A significant note of the study is that the majority of references are contributed by two authors 25141(34%).It is found that out of 74084 citation ,highest number of journal cited 4312 in the year 2013. This study shows that the proceedings 33764 were the most cited sources of information in the field of electrical engineering for the period of 2007-2016.

Keywords: *Authorship Pattern, Citation Analysis, Form-wise Distribution, IEEE Transactions on Pattern Analysis & Machine Intelligence, Journal citation.*

1. INTRODUCTION

Bibliometrics have been mainly applied for the metric citations and research groups in different areas of knowledge. A citation is a reference that provides the research to acknowledge the sources what they use in a formal academic paper, and helps a reader to locate those sources through the key information it provides.
A citation gives ideas and holistic view of research. Citation analysis helps to find out the impact of a particular article. It provides more knowledge about a field or topic. Citation analysis explained the primary and historical sources.

The IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) is published monthly. The Journal publishes articles on computer vision and image understanding, pattern analysis and recognition, and some areas of machine intelligence, with a particular emphasis on machine learning for pattern analysis. ISSN 0162-8828. The journal published by IEEE Computer Society of India. The impact factor of journal is 6.07.
The present study deals the citation analysis of 1594 articles contains 74084 references from IEEE Transaction on Pattern analysis and Machine Intelligence for the period of 2007-2016.

2. REVIEW OF LITERATURE

Lavanya D et al (2017)[1] has discussed about the citations of Asia Pacific journal of Management for the period of 2011-2015. The journal contained 19567 citations and average number of citation per articles id 85. It shows that the authorship patterns, the authored citations are dominant than others and it is 36.93 %. The results show that the overall self citations is 91.7%.

Tiew W.S,and Kaur K. (2000)[2]analyzedthe Journal of Natural Rubber research 1988-1997. An analysis was carried out on 4181 citations appended to the reference section of 250 research articles and 8 short communications. It was found that the journal were most cited sources of information. The study also highlights that the collaborative research among rubber scientists as two or more authors authored 61.56% .

Simisaye A.O., Osinaike A.B.(2000)[3] examines the citation analysis of the Journal of Library and Information science from 2004-2009, with 72 articles . It analyzed that the total numbers of references 998 and average citation per articles is 13.7. The result shows that journals were the most cited materials followed by books. The individual articles that had the highest citation had 44 references and was published in 2008.

Kumar k.and Raghunadha Reddy T. (2012)[4] analyzed the citation analysis of Dissertations submitted to the department of Library and Information science, Sri Venkatesara University covering 991 citations. It shows that the authorship patterns in library and information science renews that 80.32% of citations are contributed mainly by single authors. The results shows that the journal articles contributed highest number of citations accounting for 40.06%. Annals of Library Science and Documentation are the most cited journals, followed by Harold of Library Science.

Ashu Shokeen and Kaushik S.K.(2004)[5] analyzed the references of Indian Journal of plant physiology covering 61 articles. Overall 149 citations featuring 2770 cited authors. The results indicates that 39 % cited articles are three authored. The results reveal that journal articles are predominant sources of information in the field of plant physiology. The results shows that the ratio of author self citation to the total citations is 1:16:65 and the ratio of journal self citation to the total citations is 1:31:91

3. OBJECTIVES OF THE STUDY

- To find and study the year wise distribution of citations
- To study the distribution of citations by volume
- To identify the author wise distribution of citations
- To identify the form wise distribution of citations
- To study the year wise distribution of citations vs proceedings cited

4. METHODOLOGY

Methodology applied in the present study is citation analysis which is used to study in detail analysis of reference appended at the end of each article, published in IEEE Transactions on Pattern Analysis & Machine Intelligencefrom 2007-2016. The data is pertaining to IEEE Transactions on Pattern Analysis & Machine Intelligenceregarding 74084 citations. All the necessary information were compiled, recorded, tabulated and analyzed for making observations.

5. DATA ANALYSIS AND INTERPRETATION

5.1 Year-wise Distribution of Citations

Table 5.1 indicates the year wise distribution of citations published in the Journal of IEEE Transactions on Pattern Analysis & Machine Intelligence. It is observed that the highest number of citation 9831 (13.3%) in 2013, followed by8789 (11.9%) references in 2016. The less number of citations 5391 (7.3%) have been published in 2007.

Table 5.1 Year-wise Distribution of Citations

Year	No. of Citations	Percentage	Cumulative Percentage
2007	5391	7.3	7.3
2008	5733	7.7	15.0
2009	6000	8.1	23.1
2010	6451	8.7	31.8
2011	7213	9.7	41.6
2012	7536	10.2	51.8
2013	9831	13.3	65.0
2014	8365	11.3	76.3
2015	8775	11.8	88.2
2016	8789	11.9	100.0
Total	74084	100.0	

5.2 Distribution of Citations by Volume

Table 5.2 gives the distribution of references by volume. It shows that the highest number of citation present in the year 2013 and volume number 35.Overall distribution of references in the IEEE pattern Analysis and machine intelligence during the study period 2007-2016 contained 74084 references in 1594 articles and each article has an average of 46 references.

Table 5.2 Distribution of Citations by Volume

Year	Vol. No.	No. of Articles	No. of Citations	Average Citations per Article	%
2007	29	137	5391	39	7.3
2008	30	143	5733	40	7.7
2009	31	134	6000	45	8.1
2010	32	140	6451	46	8.7
2011	33	160	7213	45	9.7
2012	34	165	7536	46	10.2
2013	35	204	9831	48	13.3
2014	36	167	8365	50	11.3
2015	37	176	8775	50	11.8
2016	38	168	8789	52	11.9
Total		1594	74084	46	100.0

5.3 Author-wise Distribution of Citations

Table 5.3 reveals the authorship pattern of citations in IEEE Trans on pattern analysis and Machine intelligence for the year 2007-2016. The table indicates that the out of the total of 74084 citations, 25141 (33.9%) are two – authored, followed by three –authored contributions totalling 20055 (27.1%). The year wise analysis shows that the two authored citations are better in all the years. The single authored citation follows the third in order taking 14.8% of the total citations.

5.3 Author-wise Distribution of Citations

Pattern	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total	%
Single	1102	1120	1050	1112	1102	1039	1383	1025	1120	940	10993	14.8
Two	2148	2219	2301	2351	2582	2565	3176	2662	2659	2478	25141	33.9
Three	1268	1463	1521	1634	1925	2158	2667	2498	2522	2399	20055	27.1
Four	500	556	667	749	901	1018	1490	1365	1429	1623	10298	13.9
Five	169	178	210	295	345	446	601	531	583	696	4054	5.5
Six	52	49	83	109	111	124	212	166	211	273	1390	1.9
Seven	29	27	28	46	44	38	82	40	72	102	508	0.7
Eight	13	24	21	34	34	28	36	23	40	66	319	0.4
Nine	10	6	8	13	17	11	28	10	13	22	138	0.2
10 and above	18	15	8	17	18	19	47	27	69	49	287	0.4
Unknown	82	76	103	91	134	90	109	18	57	141	901	1.2
Total	**5391**	**5733**	**6000**	**6451**	**7213**	**7536**	**9831**	**8365**	**8775**	**8789**	**74084**	100

5.4 Form-wise Distribution of Citations

Table 5.4 shows the analysis of citations according to bibliographic forms. The authors refer to their research through various types of forms like Books, journals, thesis, proceedings, technical reports etc., This above table indicates that the proceedings 33764 (45.58%), followed by journals 31330 (42.29 %) plays the vital role of reference in this journal.

5.4 Form-wise Distribution of Citations

YEAR	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	TOTAL	%
Online	134	121	104	179	115	105	125	233	214	152	**1482**	2.00
Proceedings	2113	2289	2488	2714	3067	3594	4486	4260	4147	4606	**33764**	45.58
Journals	2377	2626	2633	2749	3171	3095	4312	3240	3717	3410	**31330**	42.29
Book	534	518	680	647	817	665	815	425	569	582	**6252**	8.44
Tech. report	92	99	29	80	3	23	31	105	62	3	**527**	1.00
dissertations	94	49	16	38	0	0	19	55	33	8	**312**	0.42
Handbook	21	11	18	18	11	22	21	22	24	18	**186**	0.25
Others	26	20	32	26	29	32	22	25	9	10	**231**	0.31
Total	**5391**	**5733**	**6000**	**6451**	**7213**	**7536**	**9831**	**8365**	**8775**	**8789**	**74084**	**100**

Table 5.5 gives the details of total reference cited and proceedings articles cited. The year wise analysis reveal that the proceedings articles cited is in increasing trends from 2007 to 2016. The overall study period witnesses that the proceedings articles take 33764 (45.6 %) to the total referenced cited.

5.5 Year-wise Distribution of Citations Vs Proceedings Cited

Year	No.of Citations	No. of Proceedings Cited	% of Proceedings Cited to Citations
2007	5391	2113	39.2
2008	5733	2289	39.9
2009	6000	2488	41.5
2010	6451	2714	42.1
2011	7213	3067	42.5
2012	7536	3594	47.7
2013	9831	4486	45.6
2014	8365	4260	50.9
2015	8775	4147	47.3
2016	8789	4606	52.4
Total	74084	33764	45.6

6. FINDINGS

The most number of citations present in the year of 2013. Citation analysis reveals that the number of references is increasing from 5391 to 8779 for the period of ten years, and proves that the references are in increasing trends. The authorship pattern of citations shows very clearly that electrical engineers are moving towards collaborative research, as the majority of citations (33.9%) are two authored. This study proofs that the proceedings 33764 (45.6 %) takes major role of references in IEEE Trans on pattern Analysis and Machine Intelligence journal for the period of 2007-2016.

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Electronic Collection Development of E-Resources : A Case Study of Selected University Libraries in Coimbatore Region: Tamil Nadu

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Abstract

This paper covers developments in the factors and strategies affecting collection management and access. It will also look at the major trends in electronic user services including electronic information delivery and electronic reference. Finally, it addresses the challenges in user and personnel education in response to an increasingly information literate user population.

1. INTRODUCTION

Collection means the properties of materials. In the context of library, collection means several types of documents - Books, Periodicals and Serials, Government Publications, Academic Thesis and Dissertations, Research Reports, Annual Reviews, Conference Proceedings, Pamphlets, Standards and Specifications, Patents, Trade Literature, Maps, Atlases, Globes, Photographs, Illustrations, Painting, Microfilms, Microfiches, Rare Books, Manuscripts, Slides, Audio Cassettes and so on ,with the advent of electronic media like computerized databases, Floppies, CD-ROM, DVD, e-journals, e-books, e-thesis, Internet etc.,in addition to books as principal constituents. The main focus of the present study was to analyze the case of electronic collection management on selected university libraries in Tamil Nadu.

2. LITERATURE REVIEWS

Barstow,Macaulay and Tharp, (2015)[1]describes that **"**In recent decades, the composition of academic library collections hasshifted toward electronic formats, resulting in a more complicated publication landscape to be navigated by selectors. To boot, the workload of public services librarians has become more weighted toward instruction and research funding, placing more pressure on the time of liaison librarians tasked with collection development duties. These shifts have prompted academic institutions, including University of Wyoming Libraries, to consider a restructuring of collection development responsibilities. This article describes the evolution and implementation of a centralized model of selection at UW Libraries".

Asogwa, Ugwaand Ugwuanyi (2015)[2]explains that " Evaluate the quality of online services in academic libraries in Nigeria. It seeks to assess the functionality of electronic infrastructures, to expose areas where the service needs of users are not adequately provided and to recommend solutions. The sample population was 210 staff and students who used electronic resources in Nigerian university libraries during the 2012-2013 academic sessions. The five-point service performance scale that ranged from very poor performance to excellent was used in measuring the views of the respondents. None of the indicators was rated excellent; six were rated good; nine were average; two and five indicators scored poor and very poor, respectively.

Anand and Byers (2015)[3]describes about " Six years ago as a leading research University in the Middle East, Khalifa University has transformed 90% of its library collection from print to electronic, with nearly 75% of its annual library budget going to pay for e-resources. Managing this transition from paper to a vast digital collection in such a short time has proven to be a challenging evolutionary experience.

Fluvog *et al* (2015)[4] explored "How collaboration among libraries, suppliers, and the OCLC Online Computer Library Center, Inc. (OCLC) cooperative can address some of the problems being faced with the management of electronic resources. Examples of specific challenges that impact budgets and services are: libraries' reliance on multiple non-interoperable systems;

the difficulties in getting and maintaining high quality and timely metadata; and the issues with managing workflows that cross system and staff boundaries.

Bulock, Hosburgh and Mann (2015)[5] explains "While librarians, researchers, and the general public have embraced the concept of Open Access (OA), librarians still have a difficult time managing OA resources. At this session, they shared survey results, reflected on OA workflows at their own libraries, and updated audience members on relevant standards and initiatives. Survey respondents reported challenges related to hybrid OA, inaccurate metadata, and inconsistent communication along the serials supply chain. Recommended solutions included the creation of consistent, centralized article-level metadata and the development of OA collection development principles for libraries".

Ramirez and Tabacaru (2015)[6]examines "Usage patterns of psychology e-books and equivalent print titles held in Texas A&M University (TAMU) Libraries collections. The authors sought to determine how well PsycBOOKS, a specialized subject-based collection, serves users' needs. Results support evidence-based collection acquisition and management decisions of books in print and electronic formats. Major findings indicate that PsycBOOKS is a critical and cost-effective resource supporting the TAMU user community and that hybrid print and electronic collections should coexist to support a variety of user information needs".

Coughlin and Jansen (2015)[7]examine "1,510 journals from a major research university library, representing more than 40% of the university's annual financial cost for electronic resources at the time of the study. In this research, we utilize a web analytics approach for the creation of a linear regression model to predict usage among these journals. These research results establish the value in better informed purchasing decisions by creating local metrics versus relying solely on global metrics for the evaluation of library content collections. The linear regression model has an accuracy of more than 80% in predicting downloads for greater than 80% of the 1,235 journals in our test set".

Hosburgh(2014)[8]describes that "One of the core functions of the electronic resources librarian (ERL) consists of managing various stages of the electronic resource lifecycle. In order to do this effectively, it is extremely helpful to have a detailed guide on hand. An e-resources acquisition checklist can assist the librarian in covering all aspects of evaluation, acquisition, renewal, and cancellation of e-resources such as databases, e-books, e-journals, and more. Such a tool can be indispensable, especially for new ERLs attempting to get a grasp on the logistics of electronic resources management. Using the newly created Techniques for Electronic Resource Management, the author details the process by which librarians navigate the e-resources lifecycle".

Turner (2014)[9]explains **"**Scholarly publishing is the information marketplace in which academic libraries Junction, and major shifts in traditional publishing and pricing models are in process. Library consortia have long been viewed as a means of increasing purchasing power and reducing costs. In late 2010, the Five College Libraries (FCL) hired R2 Consulting, LLC to investigate and make recommendations regarding how the Libraries cooperate more closely on the acquisition, management, and delivery of electronic resources.

Cukadar, Tuglu and Gurdal (2013)[10]describes that "The Anatolian University Libraries Consortium (ANKOS), which was originally established to coordinate university libraries' electronic serials purchases, today plays an active role in selecting, providing access to, managing and evaluating electronic information resources in Turkey. In this study, the authors explain how the new system was developed, its technical features, data entry and collection, the system's contribution to the collection of institution and usage statistics, and its impact on strategic planning. Available statistical facts are also provided to illustrate the development and the impact of the new ERM system".

3. OBJECTIVES

The present study aims to investigate thecase of electronic collection management on selected university libraries inTamil nadu with the following objectives

- To find out the online bibliographical databases subscribed from the university libraries
- To find out the E-Books available in the library and the access mode used in the library
- To compare the electronic resources and the traditional documents used and the satisfaction among the users in university libraries

- To out the web based library services and the institutional repositories Practicedin the libraries
- To find out the usage of open source resources used in the university libraries

4. METHODOLOGY

The present study is on "A case of electronic collection management on selected university libraries inTamilnadu". The researcher has selected 6 university Libraries of TamilNadu.For this purpose, review of literature has been collected to find out the contribution in these subjects. The data and information collected were examined with special reference to the impact of collection management and Electronic information resources in university libraries. Survey method was adopted to collect the data. The collection of data is a first-hand study made by the investigator.

5. DATA ANALYSIS

The data were collected from the following 6 universities and the analyses were given below.

- Amirta Viswa Vidyapeetham
- Avinashilingam Institute for Home Science & Higher education for women
- Anna University Regional centre
- Karpagam Academy of Higher Education
- Karunya Institute of Technology and Sciences
- Tamil Nadu Agricultural University

The table 1 describes 'nature of the library committee'. The 'advisory' categories are followed by 3 libraries and the percentage is 50.00 and it is the highest among all the categories in the study. The 'recommendatory' are following by 2 libraries and the percentage is 33.33 and the 'executive committee' for libraries are only 1 and the percentage is 16.66. From this it is clear that the nature of library committee is giving advice to the library.

Table 1 Nature of Library Committee

Sl.No.	Description	Total No.	Percentage	Cumulative Percentage
1	Executive	1	16.66	16.66
2	Recommendatory	2	33.33	49.99
3	Advisory	3	50.00	100
4	Any other	0	00.00	
	Total	6	100	

Table 2 describes 'Man power, strength'. The 'Semi-professionals are total 18 in all the libraries in the study and the percentage is 33.33 and it is the highest among all the categories. The 'professional' are 14 and the percentage is 25.92 and it is the second highest. The 'working staff' category are 12 and the percentage is 22.22 and administrative staff are 10 and the percentage is 18.51and it is the lowest in the categories.

Table 2 Man Power Strength

Sl.No.	Description	Total No.	Percentage	Cumulative Percentage
1	Professionals	14	25.92	25.92
2	Semi professionals	18	33.33	59.25
3	Administrative Staff	10	18.51	77.76
4	Working Staff	12	22.22	100
	Total	54	100	

Table 3 Describes 'Professional staff' in the library. The deputy librarians are followed by 30 libraries and the percentage is 46.87 and it is the highest among all the categories. The library assistants and technical assistants are 12 and the percentages are 18.72 and it is the second highest among all the categories. The assistant librarians are 10 and the percentage is 15.62 and it is the lowest among all the categories. From this it is clear that the professional staff available in libraries are deputy librarians.

Table 3 Professional Staff

Sl.No.	Description	Total No.	Percentage	Cumulative Percentage
1	Deputy Librarians	30	46.87	46.87
2	Assistant Librarians	10	15.62	62.49
3	Library Assistants	12	18.72	81.21
4	Technical Assistants	12	18.72	100
	Total	64	100	

Table 4 Describes 'collection development policy' in the library. The 'written collection development policy' methods are used by 6 libraries and the percentage is 37.50 and it is the highest among all the categories in the study. The 'Regularly Implemented' and 'Revised and updated' methods are also used by 5 libraries and the percentages are 31.25 and it's the lowest among all the categories in the study. From this it is clear that the collection development policies are used by written collection devilment policy by all libraries.

Table 4 Collection Development Policy

Sl.No.	Description	Yes	Percentage	No	Percentage
1	Written Collection Development Policy	6	37.50	0	00.00
2	Regularly Implemented	5	31.25	1	50.00
3	Revised and Updated	5	31.25	1	50.00
	Total	16	100	2	100

Table 5 Describes 'collection development policy included in electronic Resources'. The 'yes' category, there are 3 libraries and the percentage is 50.00. In the 'No' category 3 libraries and the percentage is 50.00.

From this it in clearer that 50.00 of the libraries in the study do not have a collection development policy included for Electronic Resources.

Table 5 Collection Development Policy included for Electronic Resources

Sl.No.	Description	Yes	Percentage	No	Percentage
1	Collection Development Policy For Electronic Resources	3	50.00	3	50.00
Total		3	50.00	3	50.00

Table 6 Describes 'Important selection tools for print and Electronic forms' The 'Information sources in print' are followed by 4 libraries in the study and the percentage are 66.66 and it is the highest among the categories. The 'Electronic sources' are followed by 2 libraries and the percentage is 33.33 and it is the second among the categories. From this it is clear that the important selection tools for print and electronic forms are mainly used the information sources in print.

Table 6 Important Selection Tools for Print and Electronic Forms

Sl.No.	Description	Inf.Sources in Print	Percentage	Electronic Sources	Percentage
1	Selection Tools	4	66.66	2	33.33
Total		4		2	

Table 7 Describes 'Details of the collections in the library for the preceding five years'. The year 2011 – 2012 the print categories the books are 18000, foreign journals are 302 and Indian journals are 615, thesis/ Dissertations are 3400 and reference sources are 700.

There is no Electronic publications purchased. In the year 2012 – 2013 the print collections are books- 31,000, Foreign journals – 120, Indian journals 300, Thesis / Dissertations 1200 reference sources are 101. The Electronics collections are books 3160, Foreign Journals 11,000, Indian journals 11,000. In the year 2014 – 15, the printed collection books – 29000, foreign journals 120, Indian journals 300, and Thesis/Dissertation 1200.

The electronic collections,foreign journals 11,000 and Indian journals 11,000 In the year 2015 -16 the print collection books 22,000, foreign journals 120, Indian journals are 300 and thesis/dissertations 1200. The electronics collections books, 1,33,00 foreign journals 11,000 Indian journals 11,000.

Table 7 Details of the Collections in the Library for the Preceding Five Years

Category	Year									
	2011-2012		2012-2013		2013-2014		2014-2015		2015-2016	
	Print	Elect	Print	Elect	Print	Elect	Print	Elect	Print	Elect
Books	18000	0	22000	4192	31000	3160	29000	0	22000	13300
Foreign Journals	302	0	310	10100	120	11000	120	11000	120	11000
Indian Journals	615	0	730	11000	300	11000	300	11000	300	11000
Abstracting/Indexing Journals / Databases	12	0	12	6	12	12	12	12	12	12
Thesis/ Dissertations	3400	0	4700	1700	1200	0	1200	0	1200	0
Reference Sources (Dict,Directory, Yearbooks, Almanacs)	700	0	302	112	101	0	112	0	112	0
Audio/video	92	0	60	52	32	0	32	0	32	0
Standards/Specifications	30	0	0	50	42	0	42	0	42	0
Patents	30	0	0	50	30	0	30	0	41	0

Table 8 Describes subscription to e-resources'. The 'Independently' are followed by 3 libraries and the percentage is 50.00 and it is the highest among all the categories. The 'consortia' are followed by 2 libraries and the percentage is 33.33 and in 'both' categories are followed by 1 library and the percentage is 16.66 and it is the lowest among all the categories. From this it is clear that the subscription to e-resources are independently by 50.00 of the libraries in the study.

Table 8 Subscribe to e-resources

Sl.No.	Description	Total No.	Percentage	Cumulative Percentage
1	Independently	3	50.00	50.00
2	Consortia	2	33.33	83.33
3	Both	1	16.66	100
	Total	6	100	

Table 9 Describes 'If independently how the library subscribes E-resources'. The 'direct from publishers' are followed by 3 libraries and the percentage is 50.00 and it is the highest among all the categories. The 'vendor' category is followed by 2 libraries and the percentage is 33.33 and it is the second among all the categories. The 'aggregator' is followed by 1 library and the percentage is 16.66 and it is the lowest among all the categories. From this it is clear that the 'if independently how library subscribes to E-resources' are directly from publishers.

Table 9 If Independent how library subscribes E-Resources

Sl.No.	Description	Total No.	Percentage	Cumulative Percentage
1	Direct from Publishers	3	50.00	50.00
2	Vendor	2	33.33	83.33
3	Aggregator	1	16.66	100
4	Any other	0	00.00	
	Total	6	100	

Table 10 Describes 'member in Indian consortia Initiatives'. The 'UGC Infonet' is used by 3 libraries and the percentage is 50.00 and it is the highest among all the categories. The Indest are used by 2 libraries and the percentage is 33.33 and it is the second highest among all the categories. The any other category is 1 library is used and it is the lowest among all the categories.

The CeRA/consortium of Electronic resources in Agriculture, ICMR e-consortia, Helnet consortia and IIM consortium are not responded by the libraries in the study. From this it is clear that member in Indian consortia Initiatives are generally used are UGC Infonet.

Table 10 Member in Indian Consortia Initiatives

Sl.No.	Description	Total No.	Percentage	Cumulative Percentage
1	UGC Infonet	3	50.00	50.00
2	Indest	2	33.33	83.33
3	CeRA (Consortium of Electronic Resources in Agriculture	0	00.00	83.33
4	ICMR e-consortia	0	00.00	83.33
5	HELNET Consortium	0	00.00	83.33
6	IIM Consortium	0	00.00	83.33
7	Any other	1	16.66	100
	Total	6	100	

Table 11 Describes 'usage statistics for consortium/ consortia for the past one year'. The students, faculty and research scholars are using the consortium are from all the 6 libraries in the study has responded and the percentage is 33.33 each.

Table 11 Usage Statistics for Consortium/Consortia for the Past One Year

Sl.No.	Description	Total No.	Percentage	Cumulative Percentage
1	Students	6	33.33	33.33
2	Faculty	6	33.33	66.66
3	Research Scholars	6	33.33	100
	Total	18	100	

Table 12 describes 'Methods adapted to training the professional staff'. The 'In house' training categories are followed by 6 libraries and the highest percentage is 37.50. The 'Specialized Refresher/Orientation/ Workshops' are followed by 4 libraries and the percentage is 25.00 and it is the second highest among all the categories. The 'off site' and 'on site' are followed by 3 libraries and the percentage is 18.75. From this it is clear that all libraries in the study follow the method adopted to train the professional staff are in the house.

Table 12 Method Adapted to Training the Professional Staff

Sl.No.	Description	Total No.	Percentage	Cumulative Percentage
1	In house	6	37.50	37.50
2	Off Site	3	18.75	56.25
3	On Site	3	18.75	75.00
4	Specialized Refresher/Orientation/Workshops	4	25.00	100
	Total	16	100	

6. CONCLUSION

It is frequently intimated that some or all of these functions of electronic collection development become redundant in an era when increasing amounts of information are available directly to users via the Internet. This argument is contradicted by an often-heard complaint that the Internet is completely chaotic, and therefore that people waste much time in fruitless searching for the precise information that they need. The accomplishmentsof a librarian are, in fact, just as relevant to the electronic milieu as they were to that of print. The concept of ownership of items, however, has become more fluid. Electronic Collection development now consists in deciding which items to provide straightforward access to for your users. Librarians are currently playing a pivotal role in this process.

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Research Productivity of Social Scientists in Tamilnadu State Universities: A Bibliometric Study

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Abstract

The results of this study reveal that the research output State Universities in Tamilnadu on the Social Sciences during this period1931-2017. Social Science research publications are indexed in Scopus database and the study is found 2121 (only 3.4%) papers out of 62842 (all disciplines). Anna University occupied first place with 890 publications followed by Annamalai university with 229 Publications, University of Madras with 159 Publications, Bharathiar University with 112 Publications, Bharathidasan University 92 Publications and possessed fifth Place. Overall h-index is 45 in the field of social sciences. Bibliometric study is a great potential to given valuable insights into the evolution of the research on social science research. The present study explores the characteristics of the research output on the Social Sciences carried out by the researchers in Tamilnadu State University and published during the last 4 decades based on the Social Sciences Citation Index (SSCI) together with the underlying incentive structures and its implications using the bibliometric techniques.

Keyword: *Bibliometrics, Social Sciences*

1. INTRODUCTION

Bibliometrics provides powerful tools for the evaluation of research publication of Academic Institutions. The application of bibliometric method to research in disciplinary areas in which consensus is reached has become almost routine. Bibliometric studies are used to identify the pattern of publications, authorship, citations and journal coverage with the hope to give an insight in to the dynamics of the field under consideration (Warraich, 2011). This study utilizes quantitative analysis and statistics to describe year wise distribution of articles, patterns of authors, average number of citations per article and so on. So, since the last 5 decades, globally it is being recognized as the thrust area of research in the field of Library and Information Science. In the year 1969, Allan Pritchard first described the term bibliometrics as the application of mathematics and statistical methods to books and other media.

2. OBJECTIVES OF THE STUDY

The overall objectives of the study are given below.

- To study the university wise distribution of Publications.
- To study the year wise distribution of Publications,
- To study the contribution of authors,
- To study the country wise distribution of collaboration,
- To study the document wise distribution of publications, and
- To study the source title wise distribution of Publications.

3. METHODOLOGY

Bibliographic data for the study has been collected from Scopus online database. A search was conducted with the phrase 'Name of the University' in the address (Affiliation) field and restricted to social sciences. The social science publications were identified, which were published between 1931 and 2017 (date of search: 18 June 2017). The required data of all the articles pertaining to the bibliographic analysis, such as Number of papers, number of authors, address of authors, number of papers published per year, source title wise distribution, geographical wise collaboration of research were recorded for observation and analysis.

4. DATA ANALYSIS AND INTERPRETATIONS

4.1 University-wise Distribution of Publications

Social Science research publications are indexed in Scopus database during the period of 1931 to 2017 and the study is found 2121 (only 3.4%) papers out of 62842 (all disciplines). Anna University occupied first place with 890 publications followed by Annamalai university with 229 Publications, University of Madras with 159 Publications, Bharathiar University with 112 Publications, Bharathidasan University 92 Publications and possessed fifth Place. Overall h-index is 45 in the field of social sciences.

Table 1 University-wise Distribution of Publications of State Universities in Tamilnadu

Affiliation	Records	Rank
Anna University	890	1
Annamalai University	229	2
University of Madras	159	3
Bharathiar University	112	4
Bharathidasan University	92	5
Madurai Kamaraj University	88	6
Alagappa University	76	7
Gandhigram Rural University	68	8
Manonmaniam Sundaranar University	61	9
Periyar University	36	10

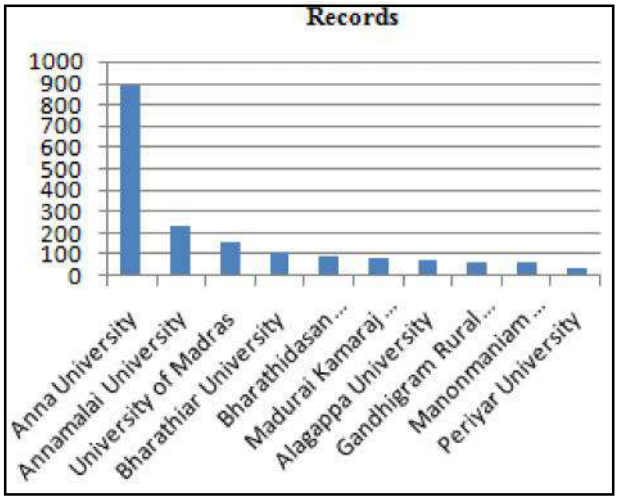

Fig.1 university-wise distribution of Publications in Social Sciences from Tamilnadu

4.2 Year-wise Distribution of Publications

A total of 2121 publications were published by Tamilnadu State Universities in Social Sciences during the study period of 72 years. Year-wise distribution of publications is given in Table 2. The highest numbers of publications 233 were published in 2011 followed by 2013 with 227 publications, 2014 with 207 and 2015 with 204 Publications. The Average publication per year is 29.46.

Table 2 Year-wise Distribution of Publications

Year	Records	%
2017	28	1.32
2016	178	8.39
2015	204	9.62
2014	207	9.76
2013	227	10.70
2012	178	8.39
2011	233	10.99
2010	123	5.80
2009	104	4.90
2008	94	4.43
2007	63	2.97
2006	105	4.95
2005	34	1.60
2004	16	0.75
2003	27	1.27
2002	27	1.27
2001	25	1.18
2000	22	1.04
1999	9	0.42
1998	12	0.57
1997	13	0.61
1996	13	0.61
1995	4	0.19
1994	17	0.80
1993	9	0.42
1992	7	0.33
1991	12	0.57
1990	11	0.52
1989	9	0.42
1988	5	0.24
1987	4	0.19
1986	6	0.28
1985	2	0.09
1984	5	0.24
1983	6	0.28
1982	4	0.19
Total	**2121**	**100.00**

Year	Records	%
1981	7	0.33
1980	7	0.33
1979	1	0.05
1978	2	0.09
1977	1	0.05
1976	1	0.05
1975	1	0.05
1974	1	0.05
1973	3	0.14
1972	3	0.14
1971	4	0.19
1970	3	0.14
1969	5	0.24
1968	4	0.19
1967	4	0.19
1966	1	0.05
1965	1	0.05
1964	1	0.05
1963	1	0.05
1962	4	0.19
1961	2	0.09
1960	1	0.05
1959	1	0.05
1957	1	0.05
1956	3	0.14
1955	2	0.09
1954	3	0.14
1953	2	0.09
1952	1	0.05
1946	1	0.05
1945	1	0.05
1940	1	0.05
1938	1	0.05
1936	1	0.05
1934	1	0.05
1931	1	0.05
Total	**2121**	**100.00**

4.3 Geographical-wise Distribution of Publications

Table 3 highlights the geographical wise distribution of publications. Tamilnadu State Universities are collaborated with 90 countries during the period of 1931–2017. It was observed that USA is the most collaborative Country with 138 publications followed by United Kingdom with 121 publications and Italy with 52 publications. It found that the highest number of publications collaboration with developed countries.

Table 3 Geographical-wise Distribution of Publications

Country	Records
United States	138
United Kingdom	121
Italy	52
Canada	16
France	15
Germany	15
Malaysia	14
China	13
South Korea	13
Austria	12
Brazil	12
Taiwan	10
Australia	9
Japan	9
Spain	9
South Africa	7
Netherlands	6
New Zealand	6
Portugal	6
Russian Federation	6
Saudi Arabia	6
Kuwait	5
Norway	5
Oman	5
Singapore	5
Switzerland	5
Finland	4
Mexico	4
United Arab Emirates	4
Total	**2481**

Country	Records
Belize	3
Denmark	3
Israel	3
Pakistan	3
Sweden	3
Belgium	2
Croatia	2
Ethiopia	2
Ghana	2
Greece	2
Hungary	2
Turkey	2
Argentina	1
Botswana	1
Bulgaria	1
Chile	1
Czech Republic	1

Egypt	1
Hong Kong	1
Ireland	1
Kenya	1
Lebanon	1
Papua New Guinea	1
Philippines	1
Puerto Rico	1
Tanzania	1
Thailand	1
Trinidad and Tobago	1
Other Countries	31
Total	**2481**

4.4 Document Type-wise Distribution of Publications

The table 4 depicts the document-wise distribution of publications. The output spread over in various publications forms. It is clear from table analysis that the share of journal articles is the most prominent bibliographic form of publication and it occupies 1423(67.09%) of total publications followed by Conference papers with 476 (22.44%), Book chapter with 94 and Review with 61. The rest of the publications are published in some other forms.

Table 4 Document type-wise Distribution of Publications

Document Type	Records	%
Article	1423	67.09
Conference Paper	476	22.44
Book Chapter	94	4.43
Review	61	2.88
Article in Press	29	1.37
Letter	10	0.47
Book	9	0.42
Editorial	9	0.42
Note	7	0.33
Short Survey	3	0.14
Total	**2121**	**100**

4.5 Source Title-wise Distribution of Publications

Table 5 shows that ranking of journals according to their productivity. Library Philosophy And Practice ranked first in order with 34 articles and next to Advanced Science Letters (Multidisciplinary approach) ranked second with 33 articles during the period of study. European Journal Of Social Sciences third in order published 30 articles followed by the remaining journals are ranked in the below table according to their publications. Library and information science discipline journal is dominating in social sciences. Scientometrics journal covered 11 publications with impact factor of 2.084. In Management discipline, International Journal Of Information And Management Sciences and International Journal Of Applied Business And Economic Research are the dominant source title with 28 and 24 respectively followed by International Journal Of Economic Research with 23 publications.

Table 5 Source Title-wise Distribution of Publication

Source Title	Records
Library Philosophy And Practice	34
Advanced Science Letters (Multidisciplinary approach)	33
European Journal Of Social Sciences	30
International Journal Of Information And Management Sciences	28
International Journal Of Applied Business And Economic Research	24
International Journal Of Economic Research	23
Man In India	20
European Journal Of Economics Finance And Administrative Sciences	18
Opsearch	18
2006 IFIP International Conference On Wireless And Optical Communications Networks	17
Colourage	17
Journal Of Applied Behavior Analysis	16
Handbook Of Research On Inventive Digital Tools For Collection Management And Development In Modern Libraries	15

International Journal Of Enterprise Network Management	15
Asian Textile Journal	14
Proceedings 2006 14th International Conference On Advanced Computing And Communications Adcom 2006	14
Economic And Political Weekly	13
Environment Development And Sustainability	13
Proceedings Of The 2008 16th International Conference On Advanced Computing And Communications Adcom 2008	13
Indian Journal Of Agricultural Economics	12
2006 Annual India Conference Indicon	11
Indian Journal Of Finance	11
International Journal Of Logistics Systems And Management	11
Journal Of Chemical Education	11
Scientometrics	11
International Journal Of Production Research	10
International Journal Of Quality And Reliability Management	10

4.6 Ranking of Authors based on Publications

Table 6 shows the ranking of the authors according to the number of articles published. V. Vaidehi is the top ranked author in terms of most number of publications with 45 followed by anna University faculty members from Arts and Humanities. S. Thanuskodi with 27 publications from Library and Information Science, Alagappa University, R. Balasubramani with 12 Publications, R. Jeyshankar with 10 Publications, S. Gopalakrishnan with 6 and P. Pichappan with 6 publications. In social science research library and Information Science journals and authors are domination in state Universities in Tamilnadu level.

Table 6 Ranking of Authors based on Publications

Author	University	Records
Vaidehi, V.	Anna university	45
Thanuskodi, S.	Alagappa Univeristy	27
Uthayakumar, R.	Anna University	26
Geetha, T.V.	Anna University	19
Kannan, A.	Anna University	19
Ganesh, K.	-	18
Muralidharan, C.	Annamalai University,	16
Narayanamoorthy, A.	Alagappa Univeristy	16
Pugazhendhi, S.	Annamalai University	16
Chellappan, C.	Anna University	14
Suganthi, L.	Anna University,	13
Balasubraamani R	Bharathidasan University	12
Sanjeevi, S.	Anna University	12
Selvam, M.	Bharathidasan University	12
Jaya, J.	Annamalai University	11
Kumar, D.	-	11
Rajesh, R.	Anna university	11
Shahabudeen, P.	-	11
Srikanth, S.	-	11

Deighton, J.	-	10
Jaishankar, K.	Manonmaniam Sundaranar University	10
Nallaperumal, K.		10
Subha, M.V.	Anna University	10
Varghese, J.	-	10
Vikkraman, P.	-	10

Authors from Library and Information Science

Author Name	Records	Institution
Thanuskodi, S.	27	Alagappa University
Balasubramani R	12	Bharathidasan University
Jeyshankar, R.	7	Alagappa University
Dhanavandan, S.	6	Gandhigram Rural University
Gopalakrishnan, S.	6	Anna University
Pichappan, P.	6	Annamalai University
S. Srinivasaragavan	1	Bharathidasan University
M. Surulinathi	1	Bharathidasan University

5. FINDINGS AND CONCLUSION

- The study found that 5327 journals are index in Scopus database in the field of social sciences and 177 sources from Asian countries and 34 source titles from Indian country.
- The study found that more than 10 authors are with good publications in Library and Information Science compare with other discipline according to the database coverage.
- The study found that the publications behavior indicates that the social science researchers were lowly selective in publishing.
- During the study period, the state university of tamilnadu contributions in terms of number of publications is not significant.
- A Comparison of State University output in relation to the world output may help in understanding the contribution in a better angel.

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Post Graduate Science Students Perception on Facilities and Services of the University Library

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Abstract

This study is on perception of postgraduate students perception about the University Library. The sample population consisted of 150 among which 104(69%) responded to the structured query the identified aspect in the study is that Library needs a separate building and users are satisfied with facilities and services but demanding more resources and updation.

Keywords: *Collection, Digital Library, E-Resources, ICT, Tumkur, University Library.*

1. INTRODUCTION

Libraries is always a silent place where as an individual can reflect their thought, and by consulting different sources available in the system through which enhance their knowledge. Academic Libraries are always place with student activity where theyvisit to the library to borrow books, see the newspaper, magazines, and further develop their reading and writing skills. Infra-structurefacilities and Services are important to attract users to the Library. Library always grows with its collection and expands its service through it , whether its reference, current awareness, customized service depends.. Today Libraries cannot survive only with print, in the initial stage of growth of the Library, print along with CDROMS, Databases, E-Resources and finally Net connectivity goes simultaneous. The Higher Education policy of Govt. of India has provided opportunity for the University Library to get E-Resources through Digital Library Consortium by the agency INFLIBNET which is providing E-Books, E-Journals(Limited extent) to the colleges and E-Resources and Databases to the Universities. The Library role is now is to provide awareness to the users about available E-Resources. It depends on the Organisation to further enhance its e-resources through subscribing additional e-resources or content with what provided by the consortium. Students who are the main focal in the University system to be contended with facilities and services offered in the University. Their opinion or perception regarding existing thing gives further scope for the development of the Library in continuum.

Tumkur University established in the year 2004 by Govt. of Karnataka, It is the only district jurisdiction oriented university in Karnataka. Majority of the students are from backward regions of the District. The University slogan is "Knowledge is Eternal". With this mission it is striving to establish its niche among the University of Karnataka. From 2010 the university started progressing in academic, research and infrastructure facilities. The University has 16 postgraduate departments. The University Library has good collection of Books, Magazines, Journals, Project Reports, Special Collections, Archival Chemical Abstracts, E-Resources(E-Shodhsindhu) and subscribed database, Indiastat.com and a Separate Digital Library section.

2. REVIEW OF LITERATURE

S. Chiemeke(2007) in their study had identified serious implications for libraries in Nigerian higher education institutions. The line between the use of academic libraries and the use of the Internet for research is still very obvious. In more developed countries these lines are virtually non-existent, because most academic libraries enjoy full Internet connectivity[1].N. Nzivo,in his survey on Kenya Public Libraries indicated thatKNLS library services and information resources are very positively perceived by most respondents. KNLS libraries are: comparatively better off than universities and other public libraries [2].Abdul Mannan Khan in his comparative analysis of Central Universities the outcome of the respondents was, that the library collections are adequate. In the case of newly centralized university libraries, users were dissatisfied with library collections, particularly at BBRAU, though they were satisfied with the existing infrastructure. Overall, satisfaction levels of users at old centralized universities are good[3].Agnes Namaganda in their findings found that, the library users are satisfied with a wide range of information services available. However, computer hardware and software,

technical support and training were all identified as significant technological needs. In addition, there is a wide gap in the staffing levels within the library, therefore, there is need to recruit more staff. Greater emphasis should be put on re-skilling librarians and User Education programmes to impart access and retrieval skills among users[4].Prakash.B in their study on the Central Universities of South India got revelation that considerable numbers of respondents are using the library. It is found that less number of users are visiting the library for research purpose which should be encourage by library staff and also by faculty members. The study concluded that, in need and relevant information sources should be procured and skilled manpower and sufficient fund should be made available by which problems facing by users can be solved[5].Sushma N Jogan in her study on post-graduate students of Gulbarga University awareness on E-Resources found the outcome was that the library should provide more internet services and most particularly increase the web resources to support their research activities[6].Pauline Adeniranfindings on User satisfaction of the the Academic Libraries revealed that users satisfaction is a function of the quality of staff and services of a library. This implies that user-satisfaction with services in libraries which are well-stocked and the materials properly arranged and manned by well-qualified experienced staff would be significantly higher than user satisfaction with libraries with less qualified and impolite staff[7].Oluwunmi A. O.in their study on perceived quality of Library facilities by students in Nigeria,recommended that facility providers should ensure that university libraries facilities/services are given greater attention in budgeting, actual provision and quality improvement[8].

3. OBJECTIVE OF THE STUDY

- To study and analyse the usage of Library facilities and services by the Science Students.
- To study the awareness of web resources and digital library in the University
- To assess the collection and their usage by the science students.
- To measure satisfaction level of students by using the Library
- To find suggestion to develop facilities and resources of the Library

4. METHODOLOGY

Post graduate students of science stream of existingfive Dept. covered in this study. The sample size consisted of 150 out of which 104 students responded to the questionnaire distributed the overall response is 69%.

4.1 Methods of Data Collection

Primary and secondary sources were used,structure questionnaire were distributed and percentage tool has been adopted to analysis and interpret data,

4.2 Limitation of the Study

Only Science students of the Tumkur University has been covered in this study , Science courses of other Post-Graduate Centre both Govt. and Private are excluded in this study, this is due to time constraint.

5. SCOPE OF THE STUDY

Pure Science students of PG Dept. of University are covered in this study.

The above table indicates that out 104 students 60 (57.69%)are female and 44(42.30%) male , in the Age range 95(91.34%) students are in between 21-23 and 09 are 24-25 . This indicates that Female students are more responded to the study and in the age range 21-23 58 students are Female while 37 are male students. This shows that more female students are enrolling for Post Graduate Science stream.

Table 1 Demography Data of the Science Students

Gender	Frequency(N)	Percentage	Gender-Age	21-23	24-25
Male	44	42.30%	Male	37	07
Female	60	57.69%	Female	58	02
	104	99.99		95 (91.34%)	09(8.65%)

Table 2 shows that 37(35.57%) students visit two or three time a week both male and female are almost equal in this sense , followed by 22(21.15%) a week in this female out number male where the former is 14. Daily Library visit is 20(19.23%) by students which includes 11 female and 9 male. Once a Month is 13(12.5%). Once a Week and two or three times a week cumulated gives to 59 (56.72%). This shows that more than 50% visit Library in a week.

Table 2 shows that the purpose of Visit to Library interpretation says that 31(29.80%) students visit library to read News- paper, followed by Borrowing Books 30(28.84%) and 25(24.03%) for Reference purpose. The cumulate of Books purpose is 55(52.87%) Newspaper, Journal and Magazine is 46(44.22%). This shows that there is an equal ratio for Books and Periodicals usage purpose visit to the Library.Majority of the Male students prefer Newspaper reading in the Library and Majority of the female visit Library to borrowing books.

Table 2 Frequency of Visit to the Library

Visit to Library	Frequency	Male	Female	%
a.Less than once a month	8	5	3	7.69
b. once a month	13	3	10	12.5
c. once every two weeks	4	1	3	3.84
d. once a week	22	8	14	21.15
e. two or three times a week	37	18	19	35.57
f. daily	20	9	11	19.23
	104	**44**	**60**	**99.98**

Table 3 Purpose of Visit to the Library

Purpose to Visit Library	Frequency	Male	Female	%
a. Reading Journals/Magazines	15	4	11	14.42
b. Reading News Papers	31	17	14	29.80
c. Accessing E-Resources	03	02	01	02.88
d. Borrowing Books	30	12	18	28.84
e. Reference	25	9	16	24.03
	104	**44**	**60**	**99.97**

The table 4 shows the awareness among the students regading Library information in the Website, 61(58.64%) says that they are aware of Library page created in the University Website, 43(41,34) says that they are not aware of Library Page. This shows that 50:50 aware and not aware of Library Page. Females 38(36.53%) are most aware of the Library Page.

Table 4 Awareness of Library Page in the Official University Web Site

Gender	Aware of Library Page in University Web Site			
	Yes	%	No	%
Male	23	22.11	21	20.19
Female	38	36.53	22	21.15
	61	58.64	43	41.34

The table 5 shows the awareness among the students regadingDigital Library Section in the University Library 62(59.62%) says that they are aware of Digital Library 42(40,38) says that they are not aware of Library Page. This shows that 50:50 aware and not aware of Library Page. Females 38(36.53%) are most aware of the Digital Library.

Table 5 Awareness of Digital Library in the University Library

Gender	Aware of Digital Library in University Library			
	Yes	%	No	%
Male	24	23.09	20	19.23
Female	38	36.53	22	21.15
	62	59.62	42	40.38

Table 6 depicits Frequency of visit to Digital Library by the Students, 59(56.73%) say that they visit once in a month, 28(26.92%) students they visit thrice in a month and Twice month is 15(14.42%). Cumulative of Twice and Thrice in amonth is 43(41.34%). This shows that students visit Digital Library only when the need arises and not a regular visit to the Digital Library.

Table 6 Frequency of Visit to Digital Library

Visit to the Digital Library	Frequency	%
Once in a Month	59	56.73
Twice in a Month	15	14.42
Thrice in a Month	28	26.92
Not entered in a Month	02	1.92
Total		99.99

Table 7 is an analysis of collections in the University Library, 5-point Lickert scale has been used to get the response in related to this collections, 48(46.15%) students says that they are satisfied with Books collection 25(24.03%) says that they are not satisfied with the collection and 14(13.46%) are moderately satisfied but only 02(1.92%) says that they are highly satisfied.

Regard to Magazines and Journals 59(56.73%) gave the opinion that they are satisfied with subscribed Magazine(English & Kannada) and also Journals 13(12.5%) they are moderately satisfied and 11(10.57%) provide that they are highly satisfied over all contented with subscribed cumulative comes to (79.8%). Only 08(7.69%) say that they are not satisfied with the collection.

Newspaper reading is a habit for learned one and this analysis shows that 62(59.61%) are satisfied with daily News-paper coming to the Library and 23(22.11) are highly satisfied this shows that 85(81.72%) cumulative are satisfied with the News-paper purchased to the Library only04(3.84%) say they are not satisfied.

Reference books plays vital role at the PG level this analysis says that 37(35.57%) are not satisfied with the Reference Books purchased in the Library and 41(39.42%) they are satisfied with the Library reference section and 13(12.5%) say that neither/nor satisfied and only3(2.88%) say that they are highly satisfied. This analysis indicates that there is a divided opinion on the Satisfaction level related to Reference collection.

University Library receives Govt Publications, reports, statistics frequently at free of cost and are used for project purpose by the students 48(46.15%) say they are satisfied with the maintenance of publications in the Library and 31(29.80%) say they are not satisfied with the number of publications 7(6.73%) say they are moderately satisfied and 9(8.65%) give their response as that they are highly satisfied with publication and reports.

Table 7 Opinion on Collections in the University Library

Collection	Not Satisfied	%	Satisfied	%	Neither /Nor Satisfied	%	Moderately Satisfied	%	Highly Satisfied	%	Total (%)
Books	25	24.03	48	46.15	15	14.42	14	13.46	02	1.92	99.98
Magazines/ Journals	08	7.69	59	56.73	13	12.5	13	12.5	11	10.57	99.99
News Paper	04	3.84	62	59.61	05	4.80	10	9.61	23	22.11	99.97
Reference Books	37	35.57	41	39.42	13	12.5	10	9.61	3	2.88	99.98
Govt.Reports/ Publications	31	29.80	48	46.15	9	8.65	7	6.73	9	8.65	99.98
Non-English Materials	34	32.69	47	45.19	8	7.69	10	9.61	5	4.80	99.98

Majority of the students enrolled to the post graduate courses are from rural back ground and they prefer local language collection also. In this analysis 47(45.19%) say that they are satisfied with Non-English Materials and 34(32.69%) say they are not satisfied with materials 10(9.61%) are moderately satisfied only5(4.80%) they are highly satisfied.

E-Resources are provided by UGC-INFONET Digital Library consortium to the Library.Total of 53(50.96%) students are satisfied with the Springer journal platform and are extensively using it 16(15.38%) say they are not satisfied with the resources and 17(16.34%) are moderately satisfied. Highly satisfied is 8(7.69%) this shows that science students are using springer link which covers more than 1700 journals for their academic purpose.

J-Gate which covers both licensed and open access journal collection of more than 7900, students indication of satisfied is (48.07%) followed by Moderately 9(8.65%) but 35(33.65%) are not satisfied with the journals collection.

American Chemical Society which has pure and applied journals are used by students 56(53.84%) their outcome is they are satisfied with it and 23(22.11%) are not satisfied with the collection neither/nor satisfied is 10(9.61%) not able confine and 6(5.76%) are highly satisfied. This indicates that there is some gap related to what they need and what they are able to get through resources.

Table 9 shows Lighting is most important in the Library where students use for reading and reference purpose , 59(56.73%) are satisfied with Lighting arrangement in the Library and 14(13.46%) say they are not satisfied 10(9.61%) neither/nor satisfied, 13(12.5%) are moderately satisfied and 08(7.69%) are highly satisfied with the arrangement.

Seating arrangement important for comfort reading in the Library 56(53.84%) are satisfied with the seating arrangement and 17(16.34%)are not satisfied with seating arrangement , 9(8.65%) neither/nor satisfied and 13(12.5%) are highly satisfied with the seating arrangement.

Majority of the students are not satisfied with the photocopy facility provided in the Library 48(46.15%) , 39(37.5%) are satisfied with the facility 11(10.57%) moderately satisfied and 3(2.88%) are highly satisfied

Table-8 Opinion on the University LibraryE-Resources

Platform	Not Satisfied	%	Satisfied	%	Neither /Nor Satisfied	%	Moderately Satisfied	%	Highly Satisfied	%	Total(%)
Springer	16	15.38	53	50.96	10	9.61	17	16.34	8	7.69	99.98
J-Gate	35	33.65	50	48.07	6	5.76	9	8.65	4	3.84	99.97
ACS(American Chemical Society	23	22.11	56	53.84	10	9.61	9	8.65	6	5.76	99.97

with the facility. Library provides water to the students 56(53.84%) say they satisfied with drinking water facility 22(21.15%) they are not satisfied with it and 13(12.5%) indicate that they are satisfied. This shows that they need more purifier facility to maintain hygiene.

Table 10 shows Circulation is nerve centre in the Library and user's first visit is always to the counter this gives an edge or mar to the Library. 38(36.53%) are satisfied with Checking out books/issuing books facility in the Library and 36(34.61%) are not satisfied with the existing facility. 11(10.57%) are highly satisfied with the above facility. Related to returning books 55(52.88%) are satisfied with it and 29(27.88%) are not satisfied 8(7.69%) are moderately satisfied and 9(8.65%) are highly satisfied. To better service reservation facility is important for the students, and 45(43.26%) are satisfied with reserve/hold/recall the book and 34(32.69%) are not satisfied with it 10(9.61%) are highly satisfied with the facility and 9(8.65%) are moderately satisfied lastly 6(5.76%) neither/nor satisfied.

Table 11 indicates that 44(42.30%) are having good opinion followed by Very good by 26(25%) and Average is 13(12.5%) Excellent(10.57%) and Poor by 10(9.61%) this shows that total perception is good about services in the Library.

Table 12 suggestion aspect which shows that 39(37.5%) need more books to the Library, the existing collection not sufficient 43(41.34%) they are satisfied with existing facilities and services and 12(11.53%) say that Internet facility to be improved and 9(8.65%) the resources available in the Library to be updated regularly.

6. FINDINGS

- Female students responded more compared to Male students in this study.
- Majority of the students visit Library two or three times a week.
- Majority of the students visit Library to read Newspaper, Magazines , Reference purpose, this shows that students are regularly gaining knowledge by visiting library.
- Students need more orientation about Library webpage/portal, the study shows that half of the students are aware of Library page and others are not aware of it.

Table 9 University Library Facilities

	Not Satisfied	%	Satisfied	%	Neither /Nor Satisfied	%	Moderately Satisfied	%	Highly Satisfied	%	Total (%)
Lighting	14	13.46	59	56.73	10	9.61	13	12.5	08	7.69	99.99
Seating Arrangement	17	16.34	56	53.84	09	8.65	09	8.65	13	12.5	99.98
Photocopy Facility	48	46.15	39	37.5	9	8.65	5	4.80	3	2.88	99.98
Drinking Water	22	21.15	56	53.84	2	1.92	11	10.57	13	12.5	99.98

Table 10Circulation Service in the University Library

	Not Satisfied	%	Satisfied	%	Neither /Nor Satisfied	%	Moderately Satisfied	%	Highly Satisfied	%	Total (%)
Checking out books	36	34.61	38	36.53	06	5.76	13	12.5	11	10.57	99.97
Returning books	29	27.88	55	52.88	3	2.88	8	7.69	9	8.65	99.98
Hold/recall a book	34	32.69	45	43.26	6	5.76	9	8.65	10	9.61	99.97

Table 11 Perception on Services provided by the Library

Services	Frequency(N)	Percentage
Excellent	11	10.57
Very Good	26	25
Good	44	42.30
Average	13	12.5
Poor	10	9.61
	104	**99.98**

Table 12 Suggestion for Improvement in the Library

Suggestions	Frequency(N)	%
Need Books	39	37.5%
Satisfied	43	41.34%
Internet Facility (More Bandwidth)	12	11.53%
Extend Library Hours	01	0.96%
Resource Update	09	8.65%
	104	**99.98%**

- Same is the case with awareness of Digital Library, the Digital Library is not attached to the main Library this is one of the reason that Majority are not aware of Digital Library.
- Major finding is that student visit Digital Library twice or thrice in a month and are not regular to Digital Library.
- Students are satisfied with Newspaper, Magazines, Reference and their satisfaction level almost same for Books and Non-English Materials.
- Pertaining to E-Resources their first preference is American Chemical Society followed by Springer and J-Gate, this shows that students are focused with their course related information than looking information in broader context.
- Students are more satisfied with Lighting, Seating arrangement and Drinking water facilities but are less satisfied with photocopy facility.
- Students are satisfied with Returning books, reservation facility but they are less satisfied with checking out of books.
- Overall opinion of the Science studentsregading University Library facilities and services is good.
- The outcome of the study is majority of the students are satisfied with the Library but their demand is that they need more books and existing internet facility that is its speed has to be increased.

7. CONCLUSION

The Libraries should continuously strive to improve the facilities and services. The trinity concept used in the library(user, staff, resources)exist for ever the technology may change but client is human and interest differs from one other.Library should periodically assess by doing the survey with the clients and the result helps in rectifying its mistakes and to improve further. Today abundant of resources available in the Net and how to tap and use it and make strategic plan to exploit it calls skill for the staff. The tool has to be sharpened otherwise it becomes blunt. The user expects anytime, anywhere, facility to fulfil his need. Library should plan for more budget, a strong collection development policy by framing with stakeholders. skilled human resource and existing Library ambience is not conducive for the users, Digital Library and Main Library should be merged that is a separate building only for the Library is more need of the day and also make it a point to reach resource by providing off-campus facility and conducting periodical training for using the resources and tap social media tools to be in touch with students by brandishing the Library facilities and services.

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Yoga Research Output: A Scientometric Study

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Abstract

This article presents the highly cited papers from yoga research output using different scientometric approach both quantitative and qualitative methods. Scientometric data for the study has been collected from Web of Science online database. A search was conducted with the phrase 'yoga' in the address field. An analysis of 4090 publications published by scientists during 1989 to 2018 and indexed by Web of Science online Database indicates that the publication output. Most of the prolific authors are from the highly productive institutions. This work is to provide a profile of Research Publication at global level. This includes tracking the number of papers, scatter of papers over journals, and its effect on publication output, authors' institutional affiliations and authorship patterns.

Keywords: *Scientometrics, Web of Science, Yoga*

1. INTRODUCTION

Scientometrics is a branch of library and information science. Scientometric tools can be used to measure and compare the scientific activities at various levels of aggregation including institutions, sectors, provinces and countries. They can also be used to measure research collaborations, to map scientific networks and to monitor the evolution of scientific fields. Scientometric indicators give policy-makers objective, reproducible and therefore verifiable information that goes beyond the anecdotal. Scientometrics empirically describe the constantly changing relationship between science, technology and the research productivity. This consequently sheds more light on the structure of subject literature and better organization of information resources which can ultimately be effectively used for various purposes including regeneration of information.

Yoga is recognized as a form of mind-body medicine that integrates an individual's physical, mental and spiritual components to improve aspects of health, particularly stress related illnesses. Evidence shows that stress contributes to the etiology of heart disease, cancer, and stroke as well as other chronic conditions and diseases. Due to the fact that stress is implicated in numerous diseases, it is a priority to include a focus on stress management and reduction of negative emotional states in order to reduce the burden of disease. Viewed as a holistic stress management technique, yoga is a form of CAM that produces a physiological sequence of events in the body reducing the stress response. The scientific study of yoga has increased substantially in recent years and many clinical trials have been designed to assess its therapeutic effects and benefits. Yoga therapy involves instruction in yogic practices and teachings to prevent reduce or alleviate structural, physiological, emotional and spiritual pain, suffering or limitations. Yogic practices enhance muscular strength and body flexibility, promote and improve respiratory and cardiovascular function, promote recovery from and treatment of addiction, reduce stress, anxiety, depression, and chronic pain, improve sleep patterns, and enhance overall well-being and quality of life.

2. OBJECTIVES OF THE STUDY

The main objective of this study was to use Scientometrics to analyze the Yoga Research Output:

- To identify and analyse the growth rate of publications and doubling time;
- To note the Document wise distribution of publications;
- To analyse the authorship pattern and examine the extent of research collaboration
- To identify journal wise distribution of publications;
- To assess the Institution wise research concentration;
- To identify Country – wise Distribution of Publications;
- To identify the Funding Agencies supported for Yoga research;
- To test the Bradford's Law of Scattering in Yoga research output;

3. METHODOLOGY

The study entitled "Yoga Research Output: A Scientometric Study" is a study encompassing records output with 4090 and indexed in Web of Science online database. The present study aims at analyse the research output of Researchers in the field of Yoga Research Output. The growth rates of output in terms of research productivity is analyse the study period. The authorship pattern and author productivity are examined to identify the pattern of research contribution in the field of Yoga Research Output. It is also analytical in nature in strengthening the empirical validity due to application of suitable statistical tools.

4. DATA ANALYSIS AND INTERPRETATIONS

4.1 Relative Growth Rate of Publications and Doubling Time

To analyse the year wise publication of research on yoga research output, the data has been presented in Table-1.From the below table, we could clearly see that during the period 1989 - 2018 a total of 4090 publications were published. In the present study the research output on Yoga Research Output publication is taken as a tool to evaluate the performance at various levels. The highest publication is 603 in 2017 with 458 Global Citation Scores followed by 529 papers in 2016 with 1324 Global Citation Score and 457 papers in 2015 with 1953 Global Citation Scores. It shows that even minimum numbers of records were scored higher global citations. The study also reveals all these 4090 publications have 46383 cited references it shows that there is a healthy trend in citing reference is found in yoga research output.

Table 1 Relative Growth Rate of Publications & Doubling Time

No.	Year	No. of Publications	Cumulative Total	Loge*W*1	Loge*W*2	RGR	DT	TLCS	TGCS
1	1989	10	10			2.3		17	32
2	1990	10	20	2.3	2.99	0.69	1	57	103
3	1991	16	36	2.99	3.58	0.58	1.19	66	286
4	1992	10	46	3.58	3.82	0.24	2.88	53	144
5	1993	18	64	3.82	4.15	0.33	2.1	130	212
6	1994	17	81	4.15	4.39	0.23	2.88	141	348
7	1995	15	96	4.39	4.56	0.17	4.07	9	102
8	1996	10	106	4.56	4.66	0.09	7.7	46	85
9	1997	22	128	4.66	4.85	0.18	3.85	124	256
10	1998	27	155	4.85	5.04	0.19	3.64	197	485
11	1999	36	191	5.04	5.25	0.20	3.46	73	447
12	2000	40	231	5.25	5.44	0.19	3.64	329	805
13	2001	34	265	5.44	5.58	0.13	5.33	158	712
14	2002	48	313	5.58	5.74	0.16	4.33	316	1442
15	2003	56	369	5.74	5.91	0.16	4.33	185	967
16	2004	91	460	5.91	6.13	0.22	3.15	1123	2655
17	2005	87	547	6.13	6.3	0.17	4.07	1430	3303
18	2006	84	631	6.3	6.44	0.14	4.95	420	1740
19	2007	123	754	6.44	6.62	0.17	4.07	1377	4843
20	2008	122	876	6.62	6.77	0.15	4.62	823	2851
21	2009	144	1020	6.77	6.92	0.15	4.62	1301	3065
22	2010	161	1181	6.92	7.07	0.14	4.95	983	2943
23	2011	228	1409	7.07	7.25	0.17	4.07	1042	3763
24	2012	249	1658	7.25	7.41	0.16	4.33	1341	3850
25	2013	332	1990	7.41	7.59	0.18	3.85	1237	4062
26	2014	363	2353	7.59	7.76	0.16	4.33	890	3130
27	2015	457	2810	7.76	7.94	0.17	4.07	558	1953
28	2016	529	3339	7.94	8.11	0.17	4.07	415	1324
29	2017	603	3942	8.11	8.27	0.16	4.33	106	458
30	2018	143	4085	8.27	8.31	0.36	1.92	11	17
	Total	**4085**						**14958**	**46383**

4.2 Document-wise Distribution of Publications

The study reveals that the major source of publications covered by Web of Science on Yoga Research Output in journal articles (58.09%), while meeting abstract comprises (13.6%), review comprises (12.7%), book review comprises (6.6%), editorial material comprises (3.5%), letter comprises (1.9%), article and proceedings paper comprises (1.7%), news item comprises (0.4%), correction comprises (0.1%), and poetry comprises (0.1%), article. The other forms of publications are displayed in the below table.

Table 2 Document-wise Distribution of Publications

No.	Document Type	Records	%	TGCS
1	Article	2376	58.09	32172
2	Meeting Abstract	558	13.6	114
3	Review	522	12.7	11486
4	Book Review	268	6.6	10
5	Editorial Material	146	3.5	335
6	Letter	81	1.9	220
7	Article; Proceedings Paper	70	1.7	2003
8	News Item	20	0.4	2
9	Correction	19	0.1	6
10	Poetry	8	0.1	0
11	Article; Book Chapter	4	0.09	14
12	Article; Early Access	4	0.09	0
13	Art Exhibit Review	3	0.07	0
14	Note	3	0.07	19
15	Film Review	2	0.04	0
16	Biographical-Item	1	0.02	1
17	Excerpt	1	0.02	0
18	Fiction, Creative Prose	1	0.02	0
19	Review; Book Chapter	1	0.02	1
20	Review; Early Access	1	0.02	0
21	TV Review, Radio Review	1	0.02	0
	Total	**4090**	**100.00**	

4.3 Ranking of Authors based on Publications

Table 3 indicates ranking of authors by number of publications. Author "Telles" published highest number of articles for the study period with 76 records and received 987 citations, next author "Cramer .H" published with 66 records. "Carlson L.E." having highest Global Citation Scores of 1330 with just 20 publications followed by "Phillips R.S." is having Global Citation Score of 1329 with just 16 publications. Thus the most-cited authors are distinguished from the most-published ones.

4.4 Journal-wise Distribution of Publications

The study found that the total research output of the Yoga Research Output for the study period (1989 – 2018) published in 1394 journals. The journal "JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE" topped with 162 publications with the Global Citation Score of 3203, next "LIBRARY JOURNAL" has 105 publications with the Global Citation Score of 3 and "MEDICINE AND SCIENCE IN SPORTS AND EXERCISE" with 88 publications with the Global Citation Score of 257. "JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE" has scored the highest Global Citation Score of 3203 with 162 publications.

Table 3 Ranking of Authors (Top 30)

No.	Author	Records	Percent	TLCS	TGCS	TLCR
1	Telles S	76	3.4	575	987	337
2	Cramer H	66	2.9	477	926	1293
3	Nagendra HR	52	2.3	904	1261	201
4	Dobos G	51	2.28	443	877	1072
5	Lauche R	46	2.06	409	718	1067
6	Gangadhar BN	38	1.7	428	659	213
7	Nagarathna R	37	1.66	610	898	182
8	Langhorst J	36	1.6	332	629	538
9	Khalsa SBS	28	1.25	273	423	287
10	Varambally S	28	1.25	241	300	170
11	Sherman KJ	27	1.21	312	850	239
12	Michalsen A	26	1.16	306	538	227
13	Cohen L	25	1.1	174	328	121
14	Balkrishna A	23	1.03	78	161	100
15	Carlson LE	20	0.89	190	1330	99
16	Park CL	19	0.85	54	110	237
17	Raghuram N	19	0.85	267	351	113
18	Innes KE	18	0.8	287	460	258
19	Mustian KM	18	0.8	65	156	83
20	McAuley E	17	0.76	126	282	84
21	Peppone LJ	17	0.76	65	156	83
22	Bussing A	16	0.71	96	245	154
23	Phillips RS	16	0.71	419	1329	100
24	Sibbritt D	16	0.71	25	68	101
25	Singh N	16	0.71	50	125	80
26	Thirthalli J	15	0.67	199	279	59
27	Van Puymbroeck M	15	0.67	73	144	58
28	Adams J	14	0.62	19	59	94
29	Mooney K	14	0.62	35	57	50
30	Park J	14	0.62	35	57	71

4.5 Institution-wise Distribution of Publications

The below table analysis indicates Institution-wise research productivity. It is noted that 3305 institutions were contributed 4090 of the total research productivity. It is noted that Harvard University contributed the highest number of research publications with (90) at the same time it ranks first in terms of Global Citation Score 3107 followed by University Duisburg Essen with 71 Publications and received 991 citations.

4.6 Funding Agency-wise Distribution of Publications

Various funding agencies are supported for Yoga research. Below mentioned agencies are supported. "NCCIH NIH HHS" has supported for Forty Two Publications and more articles followed by National Institutes of Health for 28 publications.

Table 4 Distribution of Yoga Research Output in Journal Publications

No.	Journal	Records	Percent	TGCS	TLCR
1	JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE	162	6.85	3203	935
2	LIBRARY JOURNAL	105	4.44	3	0
3	MEDICINE AND SCIENCE IN SPORTS AND EXERCISE	88	3.72	257	28
4	EVIDENCE-BASED COMPLEMENTARY AND ALTERNATIVE MEDICINE	86	3.63	1116	827
5	COMPLEMENTARY THERAPIES IN MEDICINE	75	3.17	988	782
6	ALTERNATIVE THERAPIES IN HEALTH AND MEDICINE	50	2.11	1861	253
7	ANNALS OF BEHAVIORAL MEDICINE	50	2.11	351	30
8	BMC COMPLEMENTARY AND ALTERNATIVE MEDICINE	46	1.94	535	481
9	COCHRANE DATABASE OF SYSTEMATIC REVIEWS	44	1.86	945	409
10	COMPLEMENTARY THERAPIES IN CLINICAL PRACTICE	43	1.81	201	376
11	INDIAN JOURNAL OF PSYCHIATRY	41	1.73	210	135
12	EXPLORE-THE JOURNAL OF SCIENCE AND HEALING	33	1.39	238	166
13	JOURNAL OF CLINICAL ONCOLOGY	31	1.31	518	43
14	PSYCHO-ONCOLOGY	29	1.22	419	56
15	APPLIED PSYCHOPHYSIOLOGY AND BIOFEEDBACK	27	1.14	458	69
16	JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH	26	1.09	39	76
17	MINDFULNESS	26	1.09	104	176
18	PLOS ONE	26	1.09	280	203
19	PERCEPTUAL AND MOTOR SKILLS	25	1.05	418	58
20	JOURNAL OF INDIAN PHILOSOPHY	22	0.93	40	7
21	JOURNAL OF AGING AND PHYSICAL ACTIVITY	21	0.88	75	40
22	INTEGRATIVE CANCER THERAPIES	20	0.84	407	115
23	MEDICAL SCIENCE MONITOR	20	0.84	260	88
24	MENOPAUSE-THE JOURNAL OF THE NORTH AMERICAN MENOPAUSE SOCIETY	20	0.84	484	139
25	PHILOSOPHY EAST & WEST	18	0.76	38	8
26	DANCE MAGAZINE	16	0.67	0	0
27	FRONTIERS IN HUMAN NEUROSCIENCE	16	0.67	144	115
28	EUROPEAN JOURNAL OF INTEGRATIVE MEDICINE	15	0.63	34	88
29	GERONTOLOGIST	15	0.63	4	139
30	INTERNATIONAL JOURNAL OF PSYCHOLOGY	15	0.63	2	8

4.7 Global Citation Scores – Interlinks

The top 30 Global Citation Scores papers the most cited research papers span the period from 1989 to 2018 with one major network. There are only 34 links with GCS ranging between maximum 1134 and minimum 136.

Table 5 Institution-wise Distribution of Publications (Top 30)

No.	Institution	Records	Percent	TLCS	TGCS
1	Harvard University	90	2.86	1008	3107
2	University Duisburg Essen	71	2.26	493	991
3	University Calif Los Angeles	62	1.97	489	1163
4	University Washington	60	1.91	379	1262
5	Natl Inst Mental Hlth & Neurosci	49	1.56	443	683
6	University Penn	48	1.52	505	1098
7	Boston University	47	1.49	616	1178
8	University Calif San Diego	47	1.49	143	615
9	University Calif San Francisco	44	1.4	395	1016
10	University Calgary	40	1.27	211	1440
11	University Connecticut	38	1.21	137	385
12	University Minnesota	38	1.21	76	270
13	University British Columbia	37	1.17	81	1296
14	University Illinois	36	1.14	159	463
15	University Technol Sydney	36	1.14	112	249
16	University Pittsburgh	35	1.11	144	448
17	University Toronto	35	1.11	69	499
18	Duke University	32	1.01	194	748
19	Columbia University	31	0.98	366	1008
20	University Rochester	30	0.95	117	300
21	University Sydney	30	0.95	131	585
22	Harvard Med Sch	29	0.92	26	49
23	University Miami	29	0.92	67	138
24	University N Carolina	29	0.92	152	375
25	All India Inst Med Sci	28	0.89	139	241
26	Indiana University	28	0.89	120	366
27	Swami Vivekananda Yoga Anusandhana Samsthana	28	0.89	157	241
28	University Exeter	28	0.89	112	761
29	Brown University	26	0.82	154	294
30	Massachusetts Gen Hosp	26	0.82	93	489

Table 6 Funding Agency Support for the Researchers

Funding Agencies	Records	% of 4090
NCCIH NIH HHS	42	1.018
NATIONAL INSTITUTES OF HEALTH	28	0.679
NIH	26	0.630
NCRR NIH HHS	23	0.557
NIA NIH HHS	19	0.460
NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE NCCAM	18	0.436
NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE	17	0.412
NIMH NIH HHS	16	0.388
NCI NIH HHS	15	0.364
RUT AND KLAUS BAHLSEN FOUNDATION	13	0.315

NATIONAL CANCER INSTITUTE	11	0.267
NATIONAL INSTITUTE ON AGING	10	0.242
CANADIAN INSTITUTES OF HEALTH RESEARCH	9	0.218
ELI LILLY	8	0.194
NATIONAL CENTER FOR RESEARCH RESOURCES	8	0.194
NCCAM	8	0.194
NCI	8	0.194
PFIZER	8	0.194
KARL AND VERONICA CARSTENS FOUNDATION ESSEN GERMANY	7	0.170
NATIONAL INSTITUTE OF MENTAL HEALTH	7	0.170
NATIONAL SCIENCE COUNCIL TAIWAN	7	0.170
NHLBI NIH HHS	7	0.170
NIA	7	0.170
NIAMS NIH HHS	7	0.170
NICHD NIH HHS	7	0.170
NIMH	7	0.170
NOVARTIS	7	0.170
SWEDISH RESEARCH COUNCIL	7	0.170
WELLCOME TRUST	7	0.170
GLAXOSMITHKLINE	6	0.145
NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE NCCAM AT THE NATIONAL INSTITUTES OF HEALTH	6	0.145
NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES	6	0.145
NCATS NIH HHS	6	0.145
ALBERTA CANCER FOUNDATION	5	0.121
AMERICAN CANCER SOCIETY	5	0.121
BRISTOL MYERS SQUIBB	5	0.121
INDIANA CLINICAL AND TRANSLATIONAL SCIENCES INSTITUTE	5	0.121
INSTITUTE FOR EXTRAORDINARY LIVING OF THE KRIPALU CENTER FOR YOGA HEALTH	5	0.121
NATIONAL CENTER FOR COMPLEMENTARY AND INTEGRATIVE HEALTH	5	0.121
NATIONAL HEART LUNG AND BLOOD INSTITUTE	5	0.121
NATIONAL INSTITUTE ON DRUG ABUSE	5	0.121
NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA	5	0.121
ALZHEIMER S RESEARCH AND PREVENTION FOUNDATION	4	0.097
ARTHRITIS RESEARCH UK	4	0.097
ASTRAZENECA	4	0.097
AUSTRALIAN GOVERNMENT DEPARTMENT OF HEALTH AND AGEING DOHA	4	0.097
BIAL FOUNDATION	4	0.097
CANADA RESEARCH CHAIRS PROGRAM	4	0.097
CLINICAL AND TRANSLATIONAL SCIENCES AWARD	4	0.097
EKHAGA FOUNDATION	4	0.097
EUROPEAN UNION	4	0.097
FACULTY OF HEALTH SCIENCES SEED FUNDING UTAS	4	0.097

Table 7 Global Citation Scores of Top 30

No.	Node	Author / Year / Journal	LCS	GCS
1.	158	Garfinkel MS, 1998, JAMA-J AM MED ASSOC, V280, P1601	87	155
2.	162	Lou HC, 1999, HUM BRAIN MAPP, V7, P98	26	159
3.	201	Janakiramaiah N, 2000, J AFFECT DISORDERS, V57, P255	83	136
4.	270	Bernardi L, 2001, BRIT MED J, V323, P1446	44	163
5.	313	Kronenberg F, 2002, ANN INTERN MED, V137, P805	18	322
6.	317	Raub JA, 2002, J ALTERN COMPLEM MED, V8, P797	132	168
7.	335	Astin JA, 2003, J AM BOARD FAM PRACT, V16, P131	26	220
8.	354	Carlson LE, 2003, PSYCHOSOM MED, V65, P571	49	330
9.	398	Woolery A, 2004, ALTERN THER HEALTH M, V10, P60	126	149
10.	421	Carlson LE, 2004, PSYCHONEUROENDOCRINO, V29, P448	51	300
11.	423	Cohen L, 2004, CANCER, V100, P2253	112	205
12.	427	Oken BS, 2004, NEUROLOGY, V62, P2058	97	292
13.	475	Tindle HA, 2005, ALTERN THER HEALTH M, V11, P42	36	532
14.	479	Brown RP, 2005, J ALTERN COMPLEM MED, V11, P189	89	156
15.	541	Kirkwood G, 2005, BRIT J SPORT MED, V39, P884	125	154
16.	545	Pilkington K, 2005, J AFFECT DISORDERS, V89, P13	122	170
17.	552	Sherman KJ, 2005, ANN INTERN MED, V143, P849	140	225
18.	561	Oken BS, 2006, ALTERN THER HEALTH M, V12, P40	113	198
19.	626	Culos-Reed SN, 2006, PSYCHO-ONCOL, V15, P891	0	144
20.	728	Moadel AB, 2007, J CLIN ONCOL, V25, P4387	107	178
21.	729	Chou R, 2007, ANN INTERN MED, V147, P478	40	1134
22.	730	Chou R, 2007, ANN INTERN MED, V147, P492	29	385
23.	735	Carlson LE, 2007, BRAIN BEHAV IMMUN, V21, P1038	42	259
24.	781	Carmody J, 2008, J BEHAV MED, V31, P23	43	498
25.	1033	O'Donovan G, 2010, J SPORT SCI, V28, P573	0	253
26.	1042	Ross A, 2010, J ALTERN COMPLEM MED, V16, P3	135	168
27.	1353	Diamond A, 2011, SCIENCE, V333, P959	12	656
28.	1843	Brook RD, 2013, HYPERTENSION, V61, P1360	6	171
29.	1892	Bushnell MC, 2013, NAT REV NEUROSCI, V14, P502	4	297
30.	2259	Rosenbaum S, 2014, J CLIN PSYCHIAT, V75, P964	8	140

4.8 Highly Cited Papers

Highly Cited paper is identified through papers are arranged in descending order according to Citations.

Table 8 Highly Cited Papers

No.	Date / Author / Journal	LCS	GCS	LCR	CR
1	729 Chou R, Qaseem A, Snow V, Casey D, Cross JT, et al. Diagnosis and treatment of low back pain: A joint clinical practice guideline from the American college of physicians and the American pain society ANNALS OF INTERNAL MEDICINE. 2007 OCT 2; 147 (7): 478-491	40	1134	2	131
2	1353 Diamond A, Lee K , Interventions Shown to Aid Executive Function Development in Children 4 to 12 Years Old, SCIENCE. 2011 AUG 19; 333 (6045): 959-964	12	656	0	48
3	475 Tindle HA, Davis RB, Phillips RS, Eisenberg DM Trends in use of complementary and alternative medicine by us adults: 1997-2002 ALTERNATIVE THERAPIES IN HEALTH AND MEDICINE. 2005 JAN-FEB; 11 (1): 42-49	36	532	1	27
4	781 Carmody J, Baer RA Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program JOURNAL OF BEHAVIORAL MEDICINE. 2008 FEB; 31 (1): 23-33	43	498	0	44

5	730 Chou R, Huffman LH Nonpharmacologic therapies for acute and chronic low back pain: A review of the evidence for an American pain Society/ American college of physicians clinical practice guideline ANNALS OF INTERNAL MEDICINE. 2007 OCT 2; 147 (7): 492-504	29	385	3	185
6	354 Carlson LE, Speca M, Patel KD, Goodey E Mindfulness-based stress reduction in relation to quality of life, mood, symptoms of stress, and immune parameters in breast and prostate cancer outpatients PSYCHOSOMATIC MEDICINE. 2003 JUL-AUG; 65 (4): 571-581	49	330	0	73
7	313 Kronenberg F, Fugh-Berman A Complementary and alternative medicine for menopausal symptoms: A review of randomized, controlled trials ANNALS OF INTERNAL MEDICINE. 2002 NOV 19; 137 (10): 805-813	18	322	0	58
8	421 Carlson LE, Speca M, Patel KD, Goodey E Mindfulness-based stress reduction in relation to quality of life, mood, symptoms of stress and levels of cortisol, dehydroepiandrosterone sulfate (DHEAS) and melatonin in breast and prostate cancer outpatients PSYCHONEUROENDOCRINOLOGY. 2004 MAY; 29 (4): 448-474	51	300	1	88
9	1892 Bushnell MC, Ceko M, Low LA , Cognitive and emotional control of pain and its disruption in chronic pain, NATURE REVIEWS NEUROSCIENCE. 2013 JUL; 14 (7): 502-511	4	297	0	183
10	427 Oken BS, Kishiyama S, Zajdel D, Bourdette D, Carlsen J, et al. Randomized controlled trial of yoga and exercise in multiple sclerosis NEUROLOGY. 2004 JUN 8; 62 (11): 2058-2064	97	292	2	56

5. FINDINGS AND CONCLUSION

A major work of the Scientometrician is to continue to develop the techniques which will be more reliable and useful for evaluation and prediction, because Scientometric data mirror the actual published results of the work of researchers. Based on the analysis undertaken the present study, the following findings are drawn.

- This study has highlighted quantitatively the contributions made by the researchers during 1989-2018 as reflected
  in Web of Science database.
- The study found that 73 papers are received 100 and above citations. The range of Citation is 1-1134.
- The study found that overall h-index 90 and Citations are 46383.
- The study found that an average citation per paper is 11.32.
- The study found that 1181 papers are published in open access journals.

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Library and Information Services among the Colleges Affiliated to Bharathidasan University: A Study

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Abstract

The purpose of this present study was to identify and examine the library and information services in the colleges affiliated to Bharathidasan University. The scope of the study was limited to identify the manual libraryand information services only. To Identify this Questionnaires were distributed among the colleges affiliated to the Bharathidasn Universitylibrarians. A total 70 questionnaires were received and taken for analysis and interpretation. To ascertain the library services among the libraries, ten variables were taken up for the study. These parameters are evaluated further by means of nominal scale such as yes and no. Since the weight-age was given for the nominal scale is from least to highest and ranks were assigned from least to highest. The library services were further evaluated between autonomous and non- autonomous institutions also the arithmetic mean calculated between autonomous and non- Autonomous institutions further it ranked based on arithmetic mean. The findings of the present study reveals that the lending services, reference services and newspaper-clippings services were given predominance. Least importance has been given to user education / orientation and inter-library loan services by all the categories of libraries.

1. INTRODUCTION

Libraries are the centers of learning and the treasure houses of knowledge. Theseare mainly service-oriented organizations and play a very vital role in the overalldevelopment of a nation. The status of a university could be gauged with the up to datecollections and services of its libraries.Considering the importance of the libraries in higher education, it isnecessary to undertake the study, "Library and Information Services among the colleges". This would highlight the present status of college libraries and servicesprovided to their users. A systemic study is essential to find out ways andmeans to improve services, collections, etc. in the college libraries. To ascertain the library services among the libraries, ten variables were taken up for the study.The library services evaluated between autonomous and non-autonomous institutions. The library services were further evaluated between 'government', 'government aided' and self-financing' institutions.

1.1 Objectives

To assess the library and information services in the colleges affiliated to Bharathidasan University.

1.2 Hypothesis

There is a significant difference among the college libraries in library and information services.

2. LIBRARY SERVICES

To ascertain the library services among the libraries, ten variables were taken up for the study. These parameters are evaluated further by means of nominal scale such as yes and no. The same is shown in Table 1. Since the weight-age was given for the nominal scale is from least to highest and ranks were assigned from least to highest.

From the table 1 it can be seen that all the surveyed college libraries have given predominance for lending service (100%). It is followed by reference service (97.1%) and newspaper clippings service (77.1%). Least importance has been given to inter library loan (48.6%), reprographic service (47.1%) and user education / orientation (42.9%). The standard deviation indicates that there is a least deviation in the opinion among the librarians since the standard deviation lies below 0.503.

3. LIBRARY SERVICES VS STATUS OF INSTITUTIONS

The library services were further evaluated between autonomous and non- autonomous institutions and the same is shown in Table 2 arithmetic mean calculated between autonomous and non- Autonomous institutions is also shown in table 2 and it is ranked based on arithmetic mean.

Table 1 Manual Library Services

Sl. No.	Descriptions	Yes	No	Mean	Rank	Std.
1	Lending Services	70 (100.0)	0 (0)	1.0000	1	0.00000
2	Reference Services	68 (97.1)	2 (2.9)	1.0286	2	0.16780
3	Referral Services	48 (68.6)	22 (31.4)	1.3143	5	0.46758
4	Newspaper Clippings	54 (77.1)	16 (22.9)	1.2286	3	0.42294
5	Current Awareness Services	47 (67.1)	23 (32.9)	1.3286	6	0.47309
6	Book Bank Services	53 (75.7)	17 (24.3)	1.2429	4	0.43191
7	Catalogue Services	46 (65.7)	24 (34.3)	1.3429	7	0.47809
8	Reprographic Services	37 (52.9)	33 (47.1)	1.4714	9	0.50279
9	Inter Library Loan	36 (51.4)	34 (48.6)	1.4857	10	0.50340
10	User Education / Orientation	40 (57.1)	30 (42.9)	1.4286	8	0.49844

It is found from the table 2 among the library services, lending services (100%) has given predominance by both autonomous and non-autonomous institutions. It is followed by reference services (93.8%), referral service (87.5%) and newspaper clipping services (77.8%). Least importance has been given to inter library loan (68.8%) by autonomous institutions whereas non- autonomous institutions has been given least preference to user education / orientation services (51.9%).

The chi-square test is also administered to test the hypothesis that there is no significant difference in library services among the surveyed college libraries of 'autonomous', and 'non-autonomous' institutions. The calculative value (4.081) for parameter is less than the table value (5.991). Hence the hypothesis is significant.

Table 2 Manual Library Services Vs Status

Sl. No.	Descriptions	Autonomous (n=16)				Non- Autonomous (n=54)				Chi-Sq.
		Yes	No	Mean	Rank	Yes	No	Mean	Rank	
1	Lending Services	16 (100.0)	0 (0)	1.00	1	54 (100.0)	0 (0)	1.00	1	0.000
2	Reference Services	15 (93.8)	1 (6.3)	1.06	2	53 (98.1)	1 (1.9)	1.01	2	0.860
3	Referral Services	14 (87.5)	2 (12.5)	1.12	3	34 (63.0)	20 (37.0)	1.37	5	3.448
4	Newspaper Clippings	12 (75.0)	4 (25.0)	1.25	7	42 (77.8)	12 (22.2)	1.22	3	0.054
5	Current Awareness Services	13 (81.3)	3 (18.8)	1.18	4	34 (63.0)	20 (37.0)	1.37	7	1.871
6	Book Bank Services	13 (81.3)	3 (18.8)	1.18	4	40 (74.1)	14 (25.9)	1.25	4	0.346
7	Catalogue Services	11 (68.8)	5 (31.3)	1.31	9	35 (64.8)	19 (35.2)	1.35	6	0.085
8	Reprographic Services	12 (75.0)	4 (25.0)	1.25	6	25 (46.3)	29 (53.7)	1.53	8	4.081
9	Inter Library Loan	11 (68.8)	5 (31.3)	1.31	9	25 (46.3)	29 (53.7)	1.53	8	2.491
10	User Education / Orientation	12 (75.0)	4 (25.0)	1.25	7	28 (51.9)	26 (48.1)	1.48	10	2.701

4. LIBRARY SERVICES Vs CATEGORIES OF INSTITUIONS

The library services were further evaluated between 'government', 'government aided' and self-financing ' institutions and the same is shown in Table 3 arithmetic mean calculated between government, government aided and self-fiancé institutions is also shown in Table 3 and it has been ranked based on Arithmetic mean.

From the table 3 it found that all the categories of libraries have given predominance for lending services. It is followed by reference services (90.9%, 100% and 97.7%) respectively by all the categories of colleges. Least importance has been given to user education by government and government aided colleges (27.3% and 81.3%) respectively. (46.5%) self-financing colleges have been given least importance to inter- library lending services.

The chi-square test is also administered to test the hypothesis that there is a significant difference in library services among the libraries of 'government ', 'government aided' and 'self-financing' institutions. The calculative value (13.618) for parameter is above than

Table 3 Manual Library Services Vs Categories

Descriptions	Govt. Colleges (n=11)				Govt. Aided colleges (n=16)				Self Finance Colleges (n=43)				Chi-Sq.
	Yes	No	M	R	Yes	No	Mean	R	Yes	No	M	R	
Lending Services	11 (100.0)	0 (0)	1.00	1	16 (100.0)	0 (0)	1.00	1	43 (100.0)	0 (0)	1.00	1	.000
Reference Services	10 (90.9)	1 (9.1)	1.09	2	16 (100.0)	0 (0)	1.00	1	42 (97.7)	1 (2.3)	1.02	2	2.054
Referral Services	8 (72.7)	3 (27.3)	1.27	3	15 (93.8)	1 (6.3)	1.06	4	25 (58.1)	18 (41.9)	1.41	7	6.966
Newspaper Clippings	6 (54.5)	5 (45.5)	1.45	6	15 (93.8)	1 (6.3)	1.06	4	33 (76.7)	10 (23.3)	1.23	3	5.692
Current Awareness Services	7 (63.6)	4 (36.4)	1.36	4	14 (87.5)	2 (12.5)	1.12	6	26 (60.5)	17 (39.5)	1.39	6	3.936
Book Bank Services	7 (63.6)	4 (36.4)	1.36	4	16 (100.0)	0 (0)	1.00	1	30 (69.8)	13 (30.2)	1.30	4	6.832
Catalogue Services	3 (27.3)	8 (72.7)	1.72	8	13 (81.3)	3 (18.8)	1.18	8	30 (69.8)	13 (30.2)	1.30	4	9.242
Reprographic Services	4 (36.4)	7 (63.6)	1.63	7	13 (81.3)	3 (18.8)	1.18	8	20 (46.5)	23 (53.5)	1.53	9	7.072
Inter Library Loan	2 (18.2)	9 (81.8)	1.81	8	14 (87.5)	2 (12.5)	1.12	6	20 (46.5)	23 (53.5)	1.53	9	13.618
User Education / Orientation	3 (27.3)	8 (72.7)	1.72	10	13 (81.3)	3 (18.8)	1.18	8	24 (55.8)	19 (44.2)	1.44	8	7.835

5. COMPARATIVE STUDY OF MANUAL SERVICES BY RANKWISE ANALYSIS

From the table 4 it can be seen that lending services, reference services and newspaper-clippings services were given predominance. Least importance has been given to user education / orientation and interlibrary loan services by all the categories of libraries.

Table 4 Manual Services Vs Rank-wise Analysis

Descriptions	Overall Ranks	STATUS		CATEGORIES		
		Autonomous	Non-Autonomous	Government	Govt. Aided	Self-Financing
Lending Services	1	1	1	1	1	1
Reference Services	2	2	2	2	1	2
Referral Services	5	3	5	3	4	7
Newspaper Clippings	3	7	3	6	4	3
Current Awareness Services	6	4	7	4	6	6
Book Bank Services	4	4	4	4	1	4
Catalogue Services	7	9	6	8	8	4
Reprographic Services	9	6	8	7	8	9
Inter Library Loan	10	9	8	8	6	9
User Education / Orientation	8	7	10	10	8	8

6. SUMMARY OF FINDINGS AND CONCLUSION

The surveyed college libraries have given predominance for lending service (100%). It is followed by reference service (97.1%) and newspaper clippings service (77.1%). Least importance has been given to inter library loan (48.6%), reprographic service (47.1%) and user education / orientation (42.9%). The standard deviation indicates that there is a least deviation in the opinion among the librarians since the standard deviation lies below 0.503.

It is found that among the library services, lending services (100%) has given predominance by both autonomous and non-autonomous institutions. It is followed by reference services (93.8%), referral service (87.5%) and newspaper clipping services (77.8%). Least importance has been given to inter library loan (68.8%) by autonomous institutions whereas non- autonomous institutions has been given least preference to user education / orientation services (51.9%).

The chi-square test is also administered to test the hypothesis that there is no significant difference in library services among the surveyed college libraries of 'autonomous', and 'non-autonomous' institutions. The calculative value (4.081) for parameter is less than the table value (5.991). Hence the hypothesis is significant.

It is found that all the categories of libraries have given predominance for lending services. It is followed by reference services (90.9%, 100% and 97.7%) respectively by all the categories of colleges. Least importance has been given to user education by government and government aided colleges (27.3% and 81.3%) respectively. (46.5%) self-financing colleges have been given least importance to inter- library lending services.

The chi-square test is also administered to test the hypothesis that there is a significant difference in library services among the libraries of 'government ', 'government aided' and 'self-financing' institutions. The calculative value (13.618) for parameter is above than the table value (5.991). Hence the hypothesis is not significant.

It understood from the study that the lending services, reference services and newspaper-clippings services were given predominance. Least importance has been given to user education / orientation and inter-library loan services by all the categories of libraries.

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Open Access Journals and Articles on Microbiology As Listed in the Directory of Open Access Journals (DOAJ) : A Study

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Abstract

The present study aims at analysing the open access journals and journal articles on Microbiology as listed in the Directory of Open Access Journals (DOAJ) as on 28th June, 2018. The data required for the study was downloaded from DOAJ website. The study reveals that: there are 57 journals and 44597 journal articles on Microbiology; 6 each are published on the subject 'Infectious and parasitic disease' and 'Biology (General)' and 2 each are on 'Zoology', 'Science', 'Medicine' and 'Genetics'; 40 journals charge article processing charges while 16 journals don't demand any payments ; 21 journals have DOAJ seal on them while a majority of 36 journals don't have DOAJ seal on them; a majority of 32 journals have CC BY licence followed by 11 journals with CC BY-NC licence and 7 with CC BY-NC-ND license ; a majority of 5 open access journals on Microbiology is published by Hindwai Limited ; DOAJ consists of 19 open access journals on Microbiology from the publishers of United Kingdom followed by 6 journals from Switzerland ; a majority of 56 journals are in English; 34 journals on Microbiology in DOAJ follow blind peer review system while 13 journals follow peer review system ; 9420 journal articles are on Arctic/tropical medicine, 2550 are on biology, 1991 are on Pathology and 1441 are on infectious and parasitic diseases ; the journal 'Memyrias do Instituto Oswaldo Cruz.' has 9420 articles followed by 'Frontiers in Microbiology' with 8547 \articles ; a majority of 32824 journal articles have CC BY licence followed by 5801 journal articles with CC BY-N licence and 4757 with CC BY-NC-SA license ; a majority of 4725 journal articles of 2017 are listed in DOAJ followed by 4641 journal articles of 2016 and 4009 journal articles of 2015.

Keywords: *DOAJ, Open access journals, License, Review system, Medicine, Microbiology, Productive journals, Productive publishers, Preferred languages.*

1. INTRODUCTION

Open-access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions. OA is entirely compatible with peer review, and all the major OA initiatives for scientific and scholarly literature insist on its importance. Open access journals and open access archives are very important tools to disseminate the scholarly literature among the users. The benefits of open access for authors, organization, users and society are great. Open access promotes wider accessibility of the information produced by the author.

2. DOAJ (Directory of Open Access Journals)

The Directory of Open Access Journals (DOAJ) is a free service, which provides fully Open Access, peer-reviewed scholarly journals. DOAJ is a collection of peer review open access journals covering various disciplines and different languages published from different countries across the world.

DOAJ is a continuously updated, vetted list of fully OA (no embargo or delay), peer-reviewed journals, encompassing all scholarly disciplines. As of November 2016, DOAJ includes 9,201 journals from 128 countries, more than three times as many journals as were included in the 2007 DOAJ review. There is also an article-level search service for over 6,000 DOAJ journals encompassing over 2.3 million articles. Of these, 256,600 articles are identified as published in 2015 (Morrison, 2017).

DOAJ is an online directory that indexes and provides access to quality open access, peer-reviewed journals. The aim of the DOAJ is to increase the visibility and ease of use of open access scientific and scholarly journals, thereby promoting their increased usage and impact. The DOAJ aims to be comprehensive and cover all open access scientific and scholarly journals that use a quality control system to guarantee the content. In short, the DOAJ aims to be the one-stop shop for users of open access journals. (http://doaj.org/).

3. REVIEW OF LITERATURE

Stenson (2012) argued for the value of the directories, mainly focusing on two of them: DOAJ and DOAB. It provides an introduction to the services, containing a brief history and status report, and addresses the differences between OA journal publishing and OA monograph publishing. It also highlights the value of these services and discusses whether the financial models behind them are sustainable.

Koohang (2006) demonstrated that advanced technologies and the increasing acceptance of academic open access e-journals offer an opportunity to reconsider their form and function as a medium to enhance scholarly communication. The academic open access e-journal is envisioned as a platform and a portal within the context of an open source community including a format and functions that enable it to achieve that objective. A working model for academic open access e-journals is presented. This model is intended for open source communities involved in designing, developing, and/or improving open access academic e-journals.

Kumar (2013) stated that there are many online databases available on internet that provides open access journals of various disciplines. The facility to access of these journals that is freely available on internet should be launched in the libraries. The present study deals with open access journals accessible from Directory of Open Access Journals (DOAJ) in the subject of library science. Analyzed based on country, keywords, frequency, etc., the analysis indicates that there was only one open access journal i.e. Bulletin of the Medical Library Association was available before 1990 in the field of library and information science (LIS). Only 19.04% journals have their EISSN. Almost one fourth journals were publishing on half yearly basis.

Walter (2011) examined the characteristics of 663 Open Access (OA) journals in biology, computer science, economics, history, medicine, and psychology, then compare the OA journals with impact factors to comparable subscription journals. There is great variation in the size of OA journals; the largest publishes with more than 2,700 articles per year, but half publish 25 or fewer. While just 29 percent of OA journals charge publication fees, those journals represent 50 percent of the articles in our study. OA journals in the fields of biology and medicine are larger than the others, more likely to charge fees, and more likely to have a high citation impact. Overall, the OA journal landscape is greatly influenced by a few key publishers and journals.

Hulagabali (2012) analysed the Library and Information Science (LIS) journals with the aid of bibliometric methods. The study covers year-wise, country-wise and language-wise distribution of LIS journals archived in Directory of Open Access Journals (DOAJ). The year-wise growth of LIS journals, in DOAJ, started in the year 2003 with 21 journals. Till 2009, it has archived 97 LIS journals in its database. The LIS domain stands third position, under the social science stream, out of 960 journals listed under ten major disciplines in DOAJ database. In a country-wise distribution of LIS journals, developed countries top the share. In view of language wise distribution of LIS journals, 71 journals are monolingual and only 15 journals are bilingual. Out 97 journals 40 journals are being published in English language.

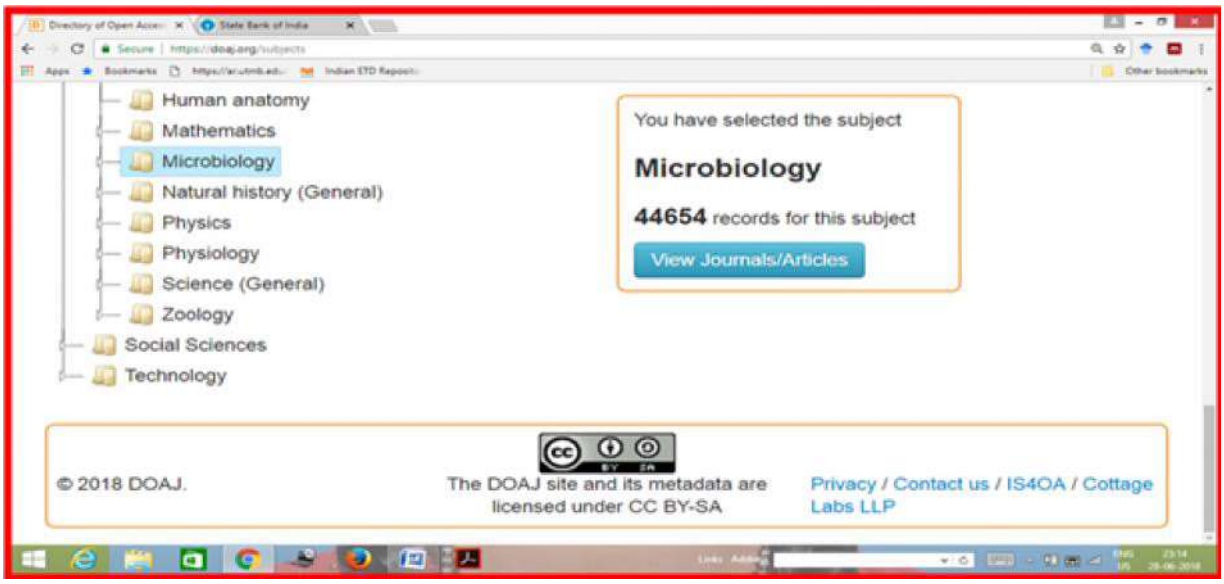
Jamdade (2013) studied the directory of Open Access Journals with a special Reference to Library & Information Science. It is observed that in the world wide United States was in 1st rank with 37 e-journals, Brazil was in 2nd rank with 16 e-journals, and Spain was 3rd rank with 10 e-journals in the field of library and information science. It is also revealed that India was in 5th rank publishing 6 e-journals on library and information science. English is the most common communication language for the scientific communities in the field of Library & Information Science. It is also found that Engineering (General) Computer Science -Library & Information Science e - journals are interdisciplinary in nature.

Ambhore and Khaparde (2014) studied 57 Open Access Online Journal on Genetics as found in DOAJ. It is observed that U.S. was in 1st rank in publishing 15 e-journals followed by U.K. English is the most common communication language for scientific community. Four e-journals on Generics also published simultaneously in English, French, Germany and Turkish languages. Based on results the study suggested that Research scholars, scientists and Professionals should browse the DOAJ site and access the free online journals on their subject areas and also suggested that scientists and Research scholars should publish their research work in online open access journals for wider visibility of their research work and for greater impact factor and citation index.

Ramesh (2014) analyzed the foot Marks of LIS Journals in DOAJ and found that 150 open access e-journals are published in the area of Library and Information Science discipline by various publishers of the world. These 150 Library and Information Science e-journals have been analyzed based on the LIS journals in social science discipline, country of journal published, language of journal published, and year of journal addition to the DOAJ.

4. SCOPE AND METHODOLOGY

This study covers the journals on Microbiology archived in the directory of open access journals (DOAJ). DOAJ website is the source of information.



5. OBJECTIVES

The objective of the present study are :

1.General: To find out the number of journals and journal articles available on Microbiology in DOAJ as on the day.
2.Journals : To find out the language, licence models, publishers, year of addition, article processing charges, DOAJ seal, subjects, productive countries, review system and languages of Microbiology journals as listed in DOAJ.
3.Artilces: To find out the subjects, journal titles, journal license, publishers, languages and year of publication of journal articles.

6. DATA COLLECTION

The data required for the present study was downloaded from DOAJ website using the keyword 'Microbiology'. As on 28th June, 2018, there are 57 journals and 44597 journal articles on Microbiology listed in DOAJ.

Journals Vs Articles	No.
Journals	57
Articles	44597

7. DATA ANALYSIS

PART –A : Journals

Table 1 shows that out of 57 journals on Microbiology, 6 each are published on the subject 'Infectious and parasitic disease' and 'Biology (General)' and 2 each are on 'Zoology', 'Science', 'Medicine' and 'Genetics'. There is just one journal on subjects like therapeutics and public aspects of medicine.

Table 2 reveals that a majority of 40 journals charge article processing charges while 16 journals don't demand any payments. No information about article processing charges is available for 1 journal.

Table 3 shows that 21 journals have DOAJ seal on them while a majority of 36 journals don't have DOAJ seal on them.

Table 1 Subjects

Subject	No.
Infectious and parasitic diseases	6
Biology (General)	6
Zoology	2
Science	2
Medicine (General)	2
Medicine	2
Genetics	2
Therapeutics. Pharmacology	1
Public aspects of medicine	1

Table 2 Article Processing Charges

Article Processing Charges (APCs)	No
No	16
Yes	40
No Information	01

Table 3 DOAJ Seal

DOAJ Seal	No.
No	36
Yes	21

Table 4 reveals that a majority of 32 journals have CC BY licence followed by 11 journals with CC BY-NC licence and 7 with CC BY-NC-ND license. While 4 journals have CC BY-NC-SA license, 2 journals have publisher's own license.

Table 4 Journal Licenses

Journal License	No.
CC BY	32
CC BY-NC	11
CC BY-NC-ND	7
CC BY-NC-SA	4
PUBLISHER'S OWN LICENSE	2

Table 5 shows that a majority of 5 open access journals on Microbiology is published by Hindwai Limited followed by 4 journals each from MDPI AG, Elseveir and Biomed Central. American Society for Microbiology and Wolters Kluwer Medknow Publishes 3 journals each. There are four other publishers who publish 2 open access journals each on microbiology.

Table 5 Top Publishers

Publisher	No.
Hindawi Limited	5
MDPI AG	4
Elsevier	4
BioMed Central	4
Wolters Kluwer Medknow Publications	3
American Society for Microbiology	3
Taylor & Francis Group	2
Sociedade Brasileira de Microbiologia	2
SAGE Publishing	2
Frontiers Media S.A.	2

Table 6 reveals that DOAJ consists of 19 open access journals on Microbiology from the publishers of United Kingdom followed by 6 journals from Switzerland and 5 each from the publishers of Unites States, India and Brazil. While 4 journals are published from Germany, there are 3 countries which publish 2 journals each on microbiology.

Table 6 Productive Countries

Country of publishers	No.
United Kingdom	19
Switzerland	6
United States	5
India	5
Brazil	5
Germany	4
Turkey	2
Netherlands	2
Iran, Islamic Republic of	2
Spain	1

Table 7 shows that out of 57 journals on Microbiology in DOAJ, a majority of 56 journals are in English followed by 2 journals in Persian. The journals in other languages like Turkish, Spanish, Italian, German and French are the least.

Table 8 reveals that 34 journals on Microbiology in DOAJ follow blind peer review system while 13 journals follow peer review system. 9 journals follow double blind peer review system.

Table 7 Languages

Full Text language	No.
English	56
Persian	2
Turkish	1
Spanish; Castilian	1
Italian	1
German	1
French	1

Table 8 Review System

Peer review	No.
Blind peer review	34
Peer review	13
Double Blind Peer Review	9

Table 9 shows that a majority of 10 journals are added to DOAJ in 2016 followed by 6 journals each in 2013 and 2012 and 5 journals in 2018 and 2017. While 4 journals each was added in 2015, 2011, 2010 and 2004.

Table 9 Date of Addition

Date added to DOAJ	No.
2018	5
2017	5
2016	10
2015	4
2014	1
2013	6
2012	6
2011	4
2010	4
2009	2
2008	3
2004	4
2003	3

Table 10 reveals that out of 44654 journal articles on Microbiology listed in DOAJ, 9420 are on Arctic/ tropical medicine, 2550 are on biology, 1991 are on Pathology and 1441 are on infectious and parasitic diseases. While there are 825 journal articles on 'science', 675 articles each are on zoology and physiology.

PART –B Articles

Table 10 Subjects

Subject	No.
Arctic medicine. Tropical medicine	9420
Biology (General)	2550
Pathology	1991
Infectious and parasitic diseases	1441
Science	825
Zoology	675
Physiology	675
Botany	675
Therapeutics. Pharmacology	287

Table 11 shows that the journal 'Memórias do Instituto Oswaldo Cruz.' has 9420 articles followed by 'Frontiers in Microbiology' with 8547 \articles. These two are the most productive journals. They are followed by ' Brazilian Journal of Microbiology' with 2585 articles, 'Viruses' with 2264 articles and 'Indian Journal of Medical Microbiology' with 2049 articles. There are five journals with more than 1000 open access articles on Microbiology in DOAJ.

Table 11 Journal Titles

Journal title	No.
Memórias do Instituto Oswaldo Cruz.	9420
Frontiers in Microbiology	8547
Brazilian Journal of Microbiology	2585
Viruses	2264
Indian Journal of Medical Microbiology	2049
Indian Journal of Pathology and Microbiology	1991
Microbiologia Medica	1975
BMC Microbiology	1896
Frontiers in Cellular and Infection Microbiology	1558
Acta Scientiarum : Biological Sciences	1516

Table 12 reveals that a majority of 32824 journal articles have CC BY licence followed by 5801 journal articles with CC BY-N licence and 4757 with CC BY-NC-SA license. While 1185 journal articles have CC BY-NC-ND license, 30 journal articles have publisher's own license.

Table 13 reveals that Frontiers Media SA has published 10105 journal articles on Microbiology followed by 9420 articles published by Instituto Oswaldo Cruz, Ministério da Saúde and 4742 articles by Wolters Kluwer

Medknow Publications. We could see two publishers having 1200-1900 articles in DOAJ on Microbiology and four publishers with 1500-1975 journal articles.

Table 12 Journal License

Journal license	No.
CC BY	32824
CC BY-NC	5801
CC BY-NC-SA	4757
CC BY-NC-ND	1185
Publisher's own license	30

Table 13 Publishers

Publisher	No.
Frontiers Media S.A.	10105
Instituto Oswaldo Cruz, Ministério da Saúde	9420
Wolters Kluwer Medknow Publications	4742
MDPI AG	3221
BioMed Central	2952
Sociedade Brasileira de Microbiologia	2735
PAGEPress Publications	1975
American Society for Microbiology	1809
Hindawi Limited	1735
Eduem - Editora da Universidade Estadual de Maringá	1516

Table 14 shows that a majority of 44520 articles are in English language followed by 1975 in Italian language, 675 are in French language and 609 are in Spanish language. Thus, English is the most preferred language of publication among the researchers of Microbiology in DOAJ.

Table 14 Languages

Full Text Language	No.
English	44520
Italian	1975
French	675
Spanish; Castilian	609
Persian	318
German	106
Turkish	15

Table 15 reveals that a majority of 4725 journal articles of 2017 are listed in DOAJ followed by 4641 journal articles of 2016 and 4009 journal articles of 2015. We could see journal articles of only 32 years i.e from 1987 to 2018 listed in DOAJ are listed in the above table. While the number of journal articles on Microbiology was less during the initial years, we could realize the increasing interest from the year 2006. Since 2006, more than 1000 open access articles on Microbiology are getting added to DOAJ.

Table 15 Year of Publication of Journal articles (1987-2018 ONLY)

Year of Publication	No.	Year of Publication	No.
2018	2843	2002	704
2017	4725	2001	613
2016	4641	2000	471
2015	4009	1999	533
2014	3020	1998	418
2013	2578	1997	325
2012	2945	1996	148
2011	2286	1995	152
2010	1928	1994	145
2009	1578	1993	112
2008	1233	1992	319
2007	1191	1991	171
2006	1298	1990	98
2005	963	1989	238
2004	921	1988	163
2003	954	1987	234

8. CONCLUSION

The Directory of Open Access Journals (DOAJ) provides open access to scientific and scholarly journals, that meet high quality standard by exercising peer review and is free to all from the time of publication based on the Budapest open access initiative. DOAJ is to increase the visibility and ease of use of open access scientific and scholarly journals there by promoter their increased usage and impact. Research scholars, scientists, Professionals should browse the DOAJ site and access the free online journals on their subject areas It is also suggested that scientists and Research scholars should publish their research work in online open access journals for wider visibility of their research work and for greater impact factor and citation index (Alhamdi, Khaparde and Navghare, 2015).

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Status of Collection Development and Users Satisfaction in the Himachal Pradesh University

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Abstract

This article examines the usage of collection development in Himachal Pradesh university libraries. Since past few years, free online information sources like e-journals, e-books, e-databases have increased considerably. It is appropriate to know whether the existing collection of the library resources are adequate for readers to meet the information requirements in their academic, teaching, research and publication work. Earlier, information and knowledge were passed by word of mouth or through manuscripts, and communication was a slow process. Today, it is passed from one individual to an infinite number of other users through a number of media and formats which makes rapid and widespread dissemination of information possible. This paper discusses utilisation of digital resources by faculty and research scholars of Himachal Pradesh University, . Results show that 67.14 per cent of the faculty is familiar with the use of digital resources, and majority of these members are using digital resources for research purpose. Study also reveals that majority of the faculty members are learning the required skills for the usage of digital resources through self-study.

1. INTRODUCTION

Information behavior can be defined as "the totally of human behavior in relation to resources and channels of information including both active and passive information seeking and use" (Wilson, 2000). It is the main source of planning and decision making to develop work. It also helps in solving problem. The role that information plays in the academic activities of learners in this web based is difficulties to measure. In some instances these are replacing the print based information sources as the primary media for the storage and communication of recorded information. Collection development is the selection, process and acquisition of library materials, considering users' current needs and future requirements. It involves developing the use of the collection, its preservation, its organization and making it accessible to users. Librarians at present are more concerned with collection management than collection development. They are acting increasingly as interpreters of information, rather than as selectors.

2. OBJECTIVES OF THE STUDY

- To assess to what extent users are satisfied with the collection and services of Himachel Pradesh University Libraries.
- To identify the most preferred forma/informal source of the information sought by respondents.
- To identify the appropriate sources of information available in the library.
- To identify the major barriers in receiving information by respondents.
- To identify satisfaction of students from information sources and services.

3. RESEARCH METHODOLOGY

The current study involved the Collection Development and Users Satisfaction in the University Libraries of Himachal Pradesh. The study site was campus of *North India*. Situated in the Western Himalayas. The Himachal Pradesh University was founded on July 22, 1970. It is located at Summer Hill which is at a distance of 5 kms from the main town, Shimla. The University is nestled amidst tall and lush green trees of deodars, oats, pines and rhododendrons. The location of the University presents a panoramic natural view among the woods, settled around Summer Hill. The camps where one half bathes in the fresh sun towards the east and another half in the grandeur of unique sunset on the West. Overlooking snow peaked majestic mountain ranges add to the lofty ideals and vision of the university. The University Library is housed in its won multistoried building specially designed to house various functions of a modern University Library. The Library building has adequate space to accommodate more than 2 lacs of volumes in stake-hall, about 450 readers in reading halls and about 100 Research Scholars in Cubicles on Different floors. The basement on its completion will also provide space for a Museum, and Exhibition Room, bindery, Reprographic Unit and Private Reading Room.

4. ANALYSIS AND DISCUSSION

Analysis of data is the ultimate step in research process. It is the link between raw data and significant results leading to conclusions. This process of analysis has to be result oriented.

Table 1 show that in this study, 144 (65.75 per cent) were male and 75 (34.25 per cent) female respondents. In which, nearly half of 102 (46.58) post graduate were respondents and 59 (26.94) Undergraduate respondents. While 58 (26.48 per cent) were research scholars (M.Phil. & Ph.D.).

Table 1 Status of Respondents with their Gender

Class	Gender		Total (%)
	Male (%)	Female (%)	
Post graduate (PG)	67 (46.53)	35 (46.67)	102 (46.58)
M.Phil.	24 (16.66)	13 (17.33)	37 (16.89)
Ph.D.	15 (10.42)	6 (8)	21 (9.59)
PG Diploma Students (PGD)	38 (26.39)	21 (28)	59 (26.94)
Total	144 (100)	75 (100)	219 (100)

Table 2 Reveals that 18 (30.51 per cent) undergraduate students and 34 (33.33 per cent) post graduate students were spend 11-20 hours in the library. Whereas 23 (39.65 per cent) research scholar were spend 21-40 hours in the library.

Table 2 Time Spent Per Week in the Library

Time	PG Diploma Students (PGD)	Post graduate (%)	Research Scholars (M.Phil. & Ph.D.) (%)
Less than 5 hours	10 (16.95)	9 (8.82)	2 (3.45)
6-10 hours	14 (23.73)	17 (16.67)	4 (6.90)
11-20 hours	18 (30.51)	34 (33.33)	15 (25.86)
21-40	12 (20.34)	31 (30.39)	23 (39.65)
More than 40 hours	5 (8.47)	11 (10.79)	14 (24.14)
Total	59 (100)	102 (100)	58 (100)

Table 3 Show that most of respondents were seeking information to study, preparing notes (to exclusive of research scholars) and updating knowledge. 19 (32.20) Undergraduate students were seeking information for competition exams and 40 (39.22) post graduate. While seeking information for research work all research scholars. 58 (56.86 per cent) post graduates students and 49 (84.48 per cent) research scholars were seeking information for discussion.

Table 3 Purpose of University Collection usage by Respondents

Purpose	PG Diploma Students (PGD)	Postgraduates Students (%)	Research Scholars (M.Phil. & Ph.D.) (%)
To study	48 (81.36)	91 (89.22)	41 (70.69)
Preparing notes	44 (74.58)	84 (82.35)	15 (25.86)
For updating knowledge	36 (61.01)	79 (77.45)	48 (82.76)
Competitive exam	19 (32.20)	40 (39.22)	11 (18.97)
Research work	-	13 (12.75)	58 (100)
Discussions	9 (15.25)	58 (56.86)	49 (84.48)

Table 4 Show that large numbers of respondents were preferred books, newspapers and catalogue (OPAC) for their information needs. The result reveals that 59 % of PG Diploma Students respondents want to access E-Books information whereas only 40.68 % users want to read the printed version of information but 5% respondents want to use both Audio and Video Resources. While E-journals/Journals, Dissertation/ Theses and Conference proceedings were preferred by post graduates and research scholars.

Table 4 Preference of Collection Development of Information by Respondents

Formal Sources	PG Diploma Students (PGD)	Postgraduates Students (%)	Research Scholars (M.Phil. & Ph.D.) (%)
E-Books	59 (100)	83 (81.37)	36 (62.07)
E-journals/Journals	-	37 (36.27)	58 (100)
Reference sources	24 (40.68)	75 (73.53)	53 (91.38)
Conference proceedings	-	31 (30.39)	42 (72.41)
Patents/Reports/Standard/Specifications	7 (11.86)	16 (15. 68)	15 (25.86)
Magazines	34 (57.63)	63 (61.76)	41 (70.69)
Newspapers	56 (94.92)	102 (100)	58 (100)
Audio/Video, CD-ROM/DVD	5 (8.47)	23 (22.55)	18 (18.97)
Library Catalogue (OPAC)	56 (94.92)	81 (79.41)	45 (77.57)
Theses/Dissertation	-	11 (10.78)	55 (94.83)

Table 5 Show that most of respondents were preferred E-mail and discussion with librarian, library staff, teachers & colleagues for information seeking, they thinking these sources may be more use full.

Table 5 Preference of Informal Source of Information by Respondents

Informal Sources	PG Diploma Students (PGD) Students	Postgraduates Students	Research Scholars (M.Phil. & Ph.D.)
Discussion with librarian or reference staff of library	39 (66.10)	76 (74.51)	54 (93.10)
Teacher and colleagues	45 (76.27)	84 (82.35)	47 (81.03)
Email	43 (72.88)	87 (85.29)	58 (100)

Table 6 Show that most of respondents were seeking current information with the help of library staff and Internet. Almost all research scholars seeking information from current issues of journals. While friends/ colleagues were not major role play in seeking information for help of post graduate students and research scholars.

Table 6 Get Assistance for Seeking Current Information by Respondents

Assistance	PG Diploma Students (PGD) Students	Postgraduates Students	Research Scholars (M.Phil. & Ph.D.)
Library staff	51(86.44)	76 (74.51)	32 (55.17)
Friends/colleagues	32 (54.24)	43 (42.16)	21 (36.21)
Internet	39 (66.10)	85 (83.33)	58 (100)
Direct from Current issues of Journals	-	21 (20.59)	55 (94.83)

Table 7 Show that most of respondents were preferred information both print and electronic from. In which, they were mainly preferred print information source form.

Table 7 Preference of information format by respondents

Format	Respondents	Total %
Print	71	32.42
Electronic	53	24.20
Both	95	43.38

Table 8 Show that half of undergraduate (49.15 per cent) and 36 (35.29 per cent) post graduate students were spent 0-2 hours per week for gathering information. Whereas 44 (43.14 per cent) post graduate students spent 3-5 hours for gathering information and 26 (44.83 per cent) research scholars more than 8 hours.

Table 8 Time spent by Respondents per week on Information Gathering

Time	PG Diploma Students (PGD) Students	Postgraduates Students	Research Scholars (M.Phil. & Ph.D.)
0-2 hours	29 (49.15)	36 (35.29)	3 (5.17)
3-5hours	17 (28.81)	44 (43.14)	11 (18.97)
6-8 hours	8 (13.56)	15 (14.71)	18 (31.03)
More than 8 hours	5 (8.47)	7 (6.86)	26 (44.83)

Table 9 Show that most of respondents' satisfaction with text books, reference books, magazines & newspapers subscription and e-resources (to excluding of PG Diploma Students (PGD) students) appropriate sources of information available in the library. While majority of research scholars were satisfied with e-Journals/Journals, Dissertations/Theses and e-resources appropriate information sources available in library; who fulfil their information needs.

Table 9 Satisfaction of Respondent with Appropriate Information Sources Available in Library

Type of Print Material	PG Diploma Students (PGD) Students (%)	Postgraduates Students (%)	Research Scholars (M.Phil. & Ph.D.) (%)
Text books	42 (71.19)	68 (66.67)	29 (50)
Reference books	24 (40.68)	65 (63.73)	49 (84.48)
Subscription of print Journals	-	43 (42.16)	54 (93.10)
Magazines subscription	31 (52.54)	58 (56.86)	40 (68.97)
Newspapers subscription	49 (83.05)	82 (80.39)	45 (77.59)
Dissertations/Theses	-	10 (9.80)	54 (93.10)
Subscription of E-Journals	-	42 (41.18)	46 (79.31)
E-resources	14 (23.72)	59 (57.84)	56 (96.55)

Table 10 Indicates that students were got assistance from library staff to use of library resources. It is found that122 (55.71%) respondents were got help for use of OPAC and 98 (44.75%) for search location of books/ documents. While 89 (40.64%) respondents got help from library staff for use of reference books and 187 (85.39 %) for to seek any information according their information needs.

Table 10 Get Assistance from Library Staff to use of Library Resources

Sl. No.	Sources	Respondents (%)	Rank				
			1	2	3	4	5
1	Manual (OPAC)	122 (55.71)	71	54	23	54	22
3	To search locate books/ documents	98 (44.75)	39	21	23	6	9
4	To search locate Current E-Journals/Journals	78 (35.62)	34	17	15	9	3
5	In the use reference books	89 (40.64)	23	36	12	13	5
6	To seek any information	187 (85.39)	106	34	16	22	11

Table 11 Show that out of 219, majority of 159 (72.60%) respondents were problem faced that over loading of information and 127 (57.99%) feels that they don't know about latest information about library sources. Whereas78 (35.62%) respondents were don't know exact location of information sources in the library.53 (24.20%) respondents were problem faced lack of library working time and 49 (22.37%) lack of time.

Table 11 Barriers Faced by Respondents in Receiving Information

Barriers	Respondents	%
Lack of latest information about library sources	127	57.99
Don't know how to use e-resources	44	20.09
Lack of awareness about exact location of information sources	78	35.62
Lack of time	49	22.37
Library staff behavior	29	13.24
Overload of information	159	72.60
Library working time	53	24.20

Table 12 Show that satisfaction of respondents from library's source and services. It is found that a good number of 81 (36.99%) respondents agreed and 47 (21.46%) fully agree from the statement of appropriate print Sources of information available in Library. Whereas 113 (51.59 %) respondent were both fully agreed & agreed and 42 (19.18%) less agreed that appropriate e-resources of Information like subscription of E-journals and CD, DVD Audio etc… available in Library.84 (38.36%) respondents agreed and 49 (22.37%) fully agreed to the statement of library staff support for information seeking.

Good Computer facility not high in library for information support only 78 (35.62 %) respondents agreed and 42 (19.18%) disagreed. While photocopy facility available in library for information support were not considered to have a major role only 61 (27.85%) respondents agreed and 53 (24.20%) disagreed. Majority of 114 (52.05%) respondents agreed and 72 (32.88%) fully agreed that impact of information communication technology on information seeking behaviour. A good number of 76 (27.85 %) respondents agreed and 55 (25.11%) fully agreed, who have efforts to sort out the information barriers. Large number of 93 (42.47%) respondents agreed and 58 (26.48%) fully agreed to the statement that they received appropriate information from all print, non-print sources and library staff.

Table 12 Satisfaction from Information Sources and Services by Respondents

Sl. No.	Satisfaction from Information Providing Sources	Fully Agree (%)	Agree (%)	Not Agree (%)	Less Agree (%)	Least Agree (%)
1	Appropriate Print Sources Of Information Available In Library	47 (21.46)	81 (36.99)	28 (12.79)	36 (16.44)	27 (12.33)
2	Appropriate E-resources of Information like subscription of E-journals and CD, DVD Audio etc… available in Library	37 (16.89)	76 (34.70)	35 (15.98)	42 (19.18)	29 (13.24)
3	Library Staff Support For Information Seeking	49 (22.37)	84 (38.36)	25 (11.42)	33 (15.07)	19 (8.68)
4	Good Computer Facility Available In Library For Information Support	35 (15.98)	78 (35.62)	42 (19.18)	39 (17.81)	25 (11.42)
5	Good Photocopy Facility Available In Library For Information Support	24 (10.96)	61 (27.85)	53 (24.20)	50 (22.83)	31 (14.16)
6	Impact of Information Communication Technology On Information Seeking Behaviour	72 (32.88)	114 (52.05)	17 (7.76)	9 (4.11)	7 (3.19)
7	Efforts to Sort Out the Information Barriers	55 (25.11)	76 (27.85)	39 (17.81)	27 (12.33)	22 (10.05)
8	Appropriate Information From All Print, Non-Print Sources And Library Staff	58 (26.48)	93 (42.47)	24 (10.96)	25 (11.42)	19 (8.67)

5. CONCLUSION

The fast growth of collection in libraries in printed as well as electronic resources have changed the traditional methods of research, storage, retrieval and communication of scholarly inform action. Now a day's information collection has emerged as most powerful medium for storage and retrieval of information. In order to retrieve relevant information, users have to make use of different electronic and web resources. This study showed that the use of the library collections have created a great impact upon users of Himachal Pradesh University Central Library in their research and development works. The rapid developments in collection have facilitated the convergence of new electronic devices and formats. Information has been embedded in a variety of ways and forms in various kinds of electronic resources. So far the systematic research has not been done in this area particularly in the use of online electronic resources among the users of Himachel Pradesh University Central Library. Many of the respondents are unaware and have not used Online thesis/ dissertations, bstracts/indexes, OPAC, On -line databases, which are very relevant for their study and research. So the library can take initiatives to organize orientation programmes and user awareness programme in this area.

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Functioning of Open Access Disciplinary Repositories: A Case Study of OpenDOAR with a Slant to India

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Abstract

The study reports the functioning of disciplinary repositories as registered in OpenDOAR. Various aspects like nature of Institutional repositories (IR), type of open access IR, content types, content language, repository software used, number of countries and repository organizations, subjects covered, availability of content ,submission, preservation and full text re-use policies and their growth rate were analysed. OpenDOAR website and the websites of selected individual institutional repositories were browsed to collect the required data. The study reveals that : There are 302 open access disciplinary digital repositories (IRs) registered in OpenDOAR as on 28th, June, 2018. Europe tops with 151 IRs (50%) followed by North America with 92 IRs (30%). There are 134 repository organisations in Europe running 151 IRs registered in openDOAR. While Asia has 19 organisations hosting 19 IRs, we could see just 80 repository organisations in North America running 92 IRs. Maximum number of repositories i.e. 79 IRs (26 %) are in United States followed by UK with 44 (15%) repositories. 91 % (274) of the open access IRs registered in openDOAR are operational. 152 (50%) IRs have journal articles, 63 IRs (20 %) contain theses and dissertations and 125 (41%) IRs have books, chapters and Sections. 236 (78%) IRs have contents in English language. 48 IRs (16 %) use Eprints and 47 IRs (16%) use Dspace software. While 68 (22%) IRs have contents on History and Archaeology, 47 (15%) IRs have contents on geography and regional studies. 150 (60 %) of them have not defined their preservation policies explicitly. 170 open access IRs (68 %) have not explicitly defined their full data item re-use policies. 179 IRs (71%) have not defined their content policies. 180 IRs (72 %) have not defined their submission policies. 191 IRs (76%) have not defined their metadata re-use policies. Europe PubMed Central has more than 40 crore items followed by Papers Past with 5 crore items and Research Papers in Economics with 2.6 Crores.

Keywords: *Content types, Disciplinary repositories, Growth rate, OpenDOAR, Operational status, Preservation policy, Repository software, Types of IR*

1. INSTITUTIONAL REPOSITORY

In the simplest sense of the term, an institutional digital repository is an electronic archive of the scholarly output of an institution, stored in a digital format, where search and recovery are allowed for its national or international use. The general idea is to store, manage, and preserve a university's born-digital and digitized assets, making them freely available via the internet.

Crow (2002a) and Ware (2004) characterized an institutional repository as open, interoperable, cumulative, perpetual, contributes to the process of scholarly communication in collecting, storing and disseminating the scholarly content. The Scholarly Publishing and Academic Resources Coalition (SPARC) position paper declared that "Institutional repositories are digital collections capturing and preserving the intellectual output of a single or multi-university community, providing a critical component in reforming the system of scholarly communication a component that expands access to research, reasserts control over scholarship by the academy, increases competition and reduces the monopoly power of journals, and brings economic relief and heightened relevance to the institutions and libraries that support them" (Crow 2002b).

2. OBJECTIVES OF AN IR

Gibbons (2004) presented compelling reasons for why an organization would want to establish an IR including providing an infrastructure for preservation of digital

content, lowering the barrier to document distribution, creating a centralized digital showcase in which research, teaching, and scholarship can be highlighted, and facilitating wider distribution. Yeates (2003) also listed the benefits of IRs, such as: extending the range of knowledge sharing, existing investment in information and content management systems can be leveraged; and more flexible ways of scholarly communication are available. Academic institutions would also reap these benefits. IR proponents argue that they form the infrastructure for a new scholarly publishing paradigm that wrests control away from publishers and puts it back in the hands of the academy, increase visibility, prestige, and public value of contributors, maximize access to the results of publicly funded research, and increase the number and diversity of scholarly materials that are collected and preserved by academic institutions (Crow 2002a, 2002b; Chan 2004).

3. OBJECTIVES OF THE STUDY

The objectives of the present study are to study the open access disciplinary repositories registered in OpenDOAR in terms of

- Operational status
- Country-wise IRs and proportion of repository organisations
- Type of open access repositories
- Repository software used
- Content types
- Subjects
- Most frequently used languages
- Institutional repositories with >1.2 lakh records
- Availability of content, preservation and full-text re-use policy and
- Growth rate

4. METHODOLOGY

The modus operandi of our study underwent the following phases.

- First of all, the OpenDOAR directory was browsed to find out the disciplinary repositories which were registered therein.
- Institutional repository statistics was done to get required data to answer the objectives of the study.
- Then, the URLs of the selected IRs were browsed for cross checking and verification
- Diagrams were used to show the output of the study.

Diagram 1 Search Screen – Microbiology in DOAJ

5. FINDINGS

5.1 Proportion of Repositories by Continent

There are 302 open access disciplinary digital repositories (IRs) which are registered in OpenDOAR as on 28th , June 2018. Europe tops with 151 IRs (50%) followed by North America with 92 IRs (30%). While South America gets third rank with 21 IRs (7%), Asian continent has 19 IRs (6%). Africa, Caribbean and Central America cover just 7% of IRs registered in openDOAR.

5.2 Proportion of Repository Organisations by Continent

Diagram 3 discloses that there are 134 repository organisations in Europe running 151 IRs registered in openDOAR. While Asia has 19 organisations hosting 19 IRs, we could see just 80 repository organisations in North America running 92 IRs. In South America, there are 20 repository organisations which run 21 IRs. In toto, there are 271 organisations running 302 IRs registered in openDOAR.

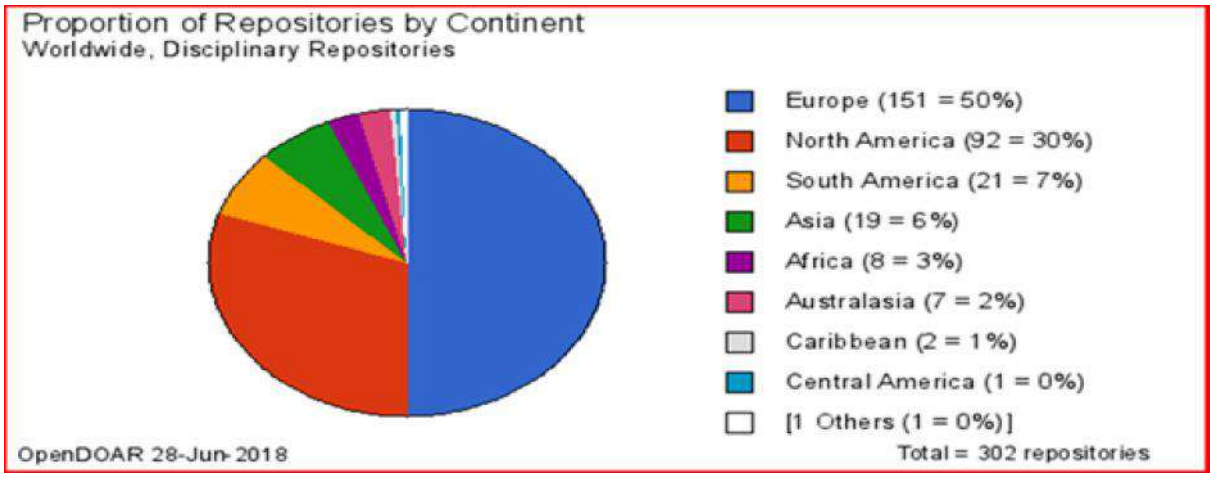

Diagram 2 Proportion of Repositories by Continent

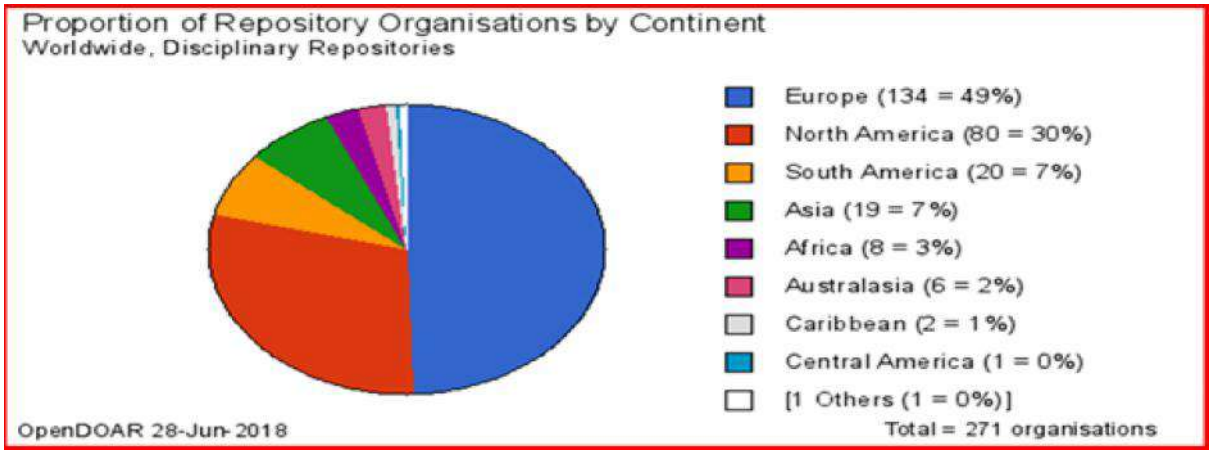

Diagram 3 Proportion of Repository Organisations by Continent

5.3 Proportion of Repositories by Country

Diagram 4 shows that maximum number of repositories i.e. 79 IRs (26 %) are in United States followed by UK with 44 (15%) repositories. While France has 19 IRs (6 %), Spain has 18 and Germany has 14 IRs. While Brazil has 11 IRs (4%), Canada has 10 IRs (35) and Poland has 8 (3%) IRs. 45 other countries have 99 (33%) IRs. Thus 67 % of total IRs registered in openDOAR are hosted in just 8 countries.

5.4 Proportion of Repository Organizations

It is clear from Diagram 5 that there are 69 repository organizations in United States which host 79 open access IRs. While 33 repository organisations in UK run 44 IRs, 19 organisations host 19 IRs in France. 18 IRs are run by 17 repository organisations in Spain and 14 IRs in Germany are run by 13 repository organisations. Thus, just 8 countries have 65 % of total repository organisations which have registered their IRs in OpenDOAR.

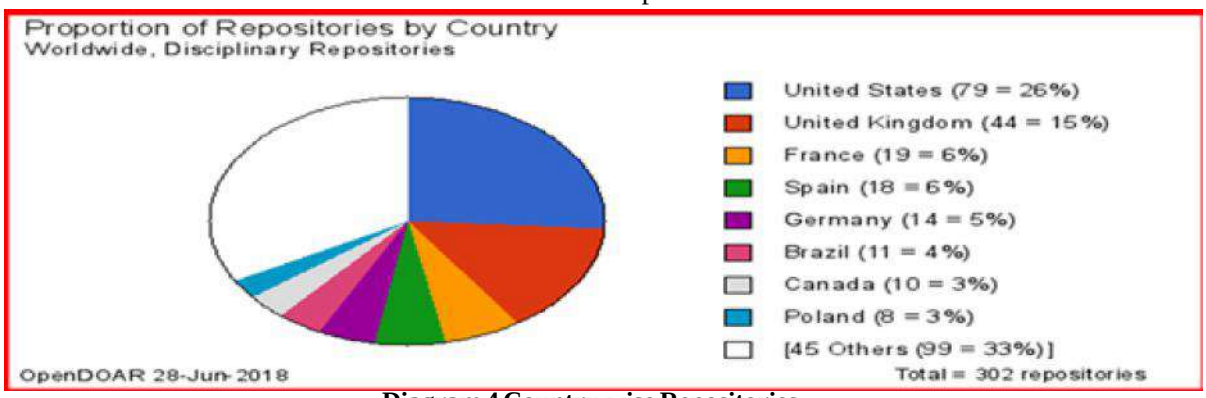

Diagram 4 Country-wise Repositories

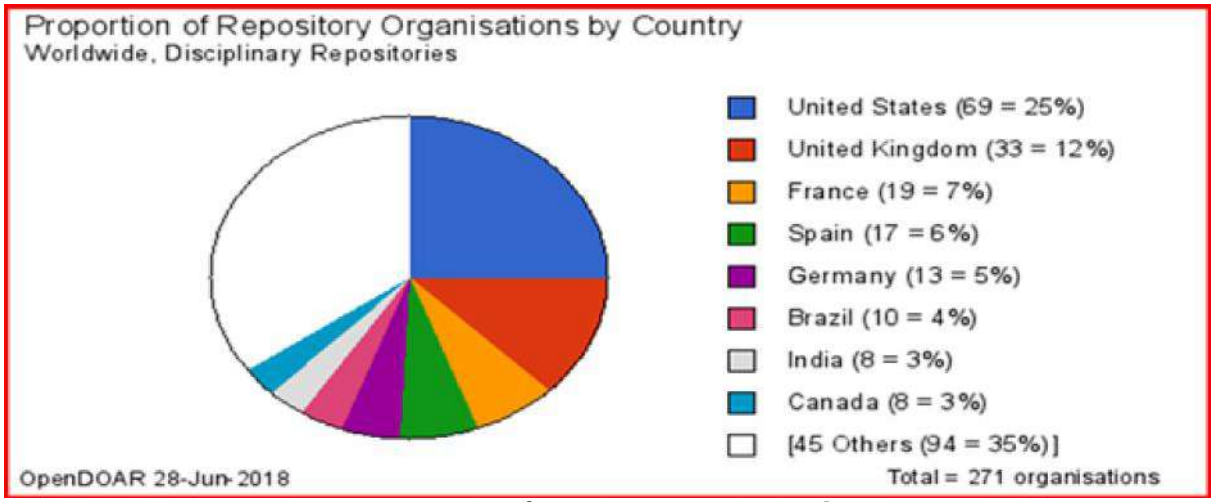

Diagram 5 Proportion of Repository Organizations by Country

5.5 Operational Status of Open Access IRs

Diagram 6 shows that 91 % (274) of the open access IRs registered in openDOAR are operational. While 11 (4%) Open Access IR are technically malfunctioning, 9 of them (3%) are the trial repositories.

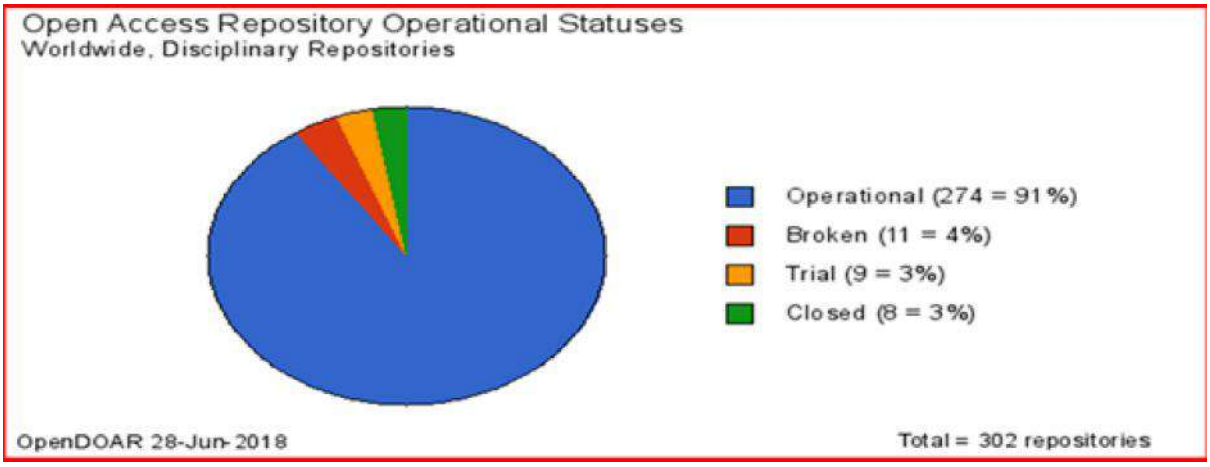

Diagram 6 Operational Status

5.6 Content Types in IRs

The IRs registered in openDOAR possess different kinds of materials namely journal articles, conference and workshop papers, theses and dissertations, book, chapters and section, patents, working papers multi-media and audio-visual materials and some learning objects. 152 (50%) IRs have journal articles, 63 IRs (20 %) contain theses and dissertations and 125 (41%) IRs have books, chapters and Sections. While 104 IRs (34%) possess unpublished reports and working papers, 89 IRs (29%) have conference and workshop papers. While Multimedia and audio-visual materials are found in 105 IRs, learning objects in 41 IRs and data sets in 40 IRs (Diagram 7).

5.7 Language Content

Diagram 8 shows that out of 302 open access IRs, 236 (78%) have contents in English language. While 46 IRs (15%) have contents in Spanish, 35 IRs (11%) have digital contents in French. While 29 IRs have contents in German, 3% of IRs have materials in Italian and Portuguese. The other language materials are bare minimum in OpenDOAR IRs.

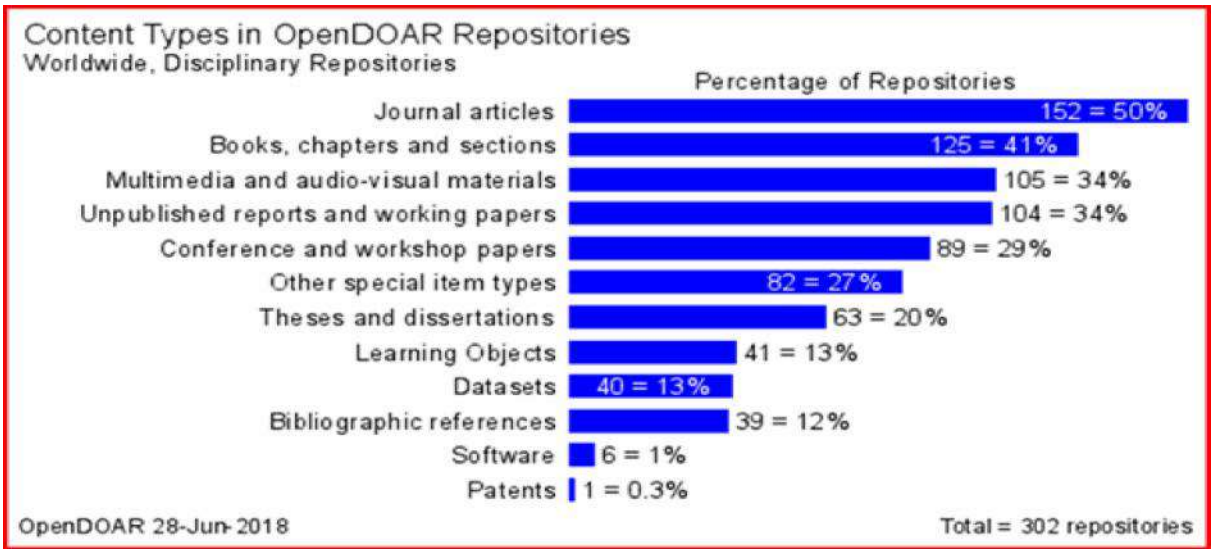

Diagram 7 Content Types

5.8 Repository Software

Diagram 9 depicts that Eprints software has emerged as the most used open access repository software among the IRs registered in openDOAR. 48 IRs (16 %) use Eprints and 47 IRs (16%) use Dspace. 14 (5%) IRs use CONTENTdm. While 12 IRs (4%) each use Greenstone and HTML, 7 (2%) IRs use Digibib. Digital Commons is used by 6 IRs.

5.9 Subjects of Open Access IRs

Diagram 10 shows that 40 IRs (13 %) are multi-disciplinary in nature viz they have contents on many subjects. While 68 (22%) IRs have contents on History and Archaeology, 47 (15%) IRs have contents on geography and regional studies. While 41% of total IRs registered in OpenDOAR have contents on health and medicine, 10% of them have contents on language and literature and Law and Politics. 8% IRs have contents on biology and biochemistry & social sciences general while 7% IRs have contents on science general and ecology and environment. Just 2 IR have materials on civil engineering.

6. AVAILABILITY OF RECORDED POLICIES

6.1 Preservation Policies

Diagram 11 shows that only 22 (9%) institutional repositories have defined their preservation policies and made it available in their IR portal. 150 (60 %) of them have not defined their preservation policies explicitly.

6.2 Data re-use Policies

Diagram 12 shows that a majority of 170 open access IRs (68 %) have not explicitly defined their full data item re-use policies. 39 (16%) IRs have permitted the re-use of full data items for not-for-profit purposes. The right of re-use varies in case of 14 (6 %) IRs.

6.3 Content Policies

Diagram 13 depicts that 179 IRs (71%) have not defined their content policies. 52 (21%) of them have clearly defined their content policies and provided the same in their IR portal.

6.4 Submission Policies

Diagram 14 shows that 180 IRs (72 %) have not defined their submission policies. Only 17 % of them (43 IRs) have clearly defined their submission policies in their IR portal.

6.5 Metadata Re-Use Policies

Diagram 15 shows that a majority of 191 IRs (76%) have not defined their metadata re-use policies. While 9 IRs have permitted the commercial use of metadata, 28 of them have permitted non-profit use of their metadata.

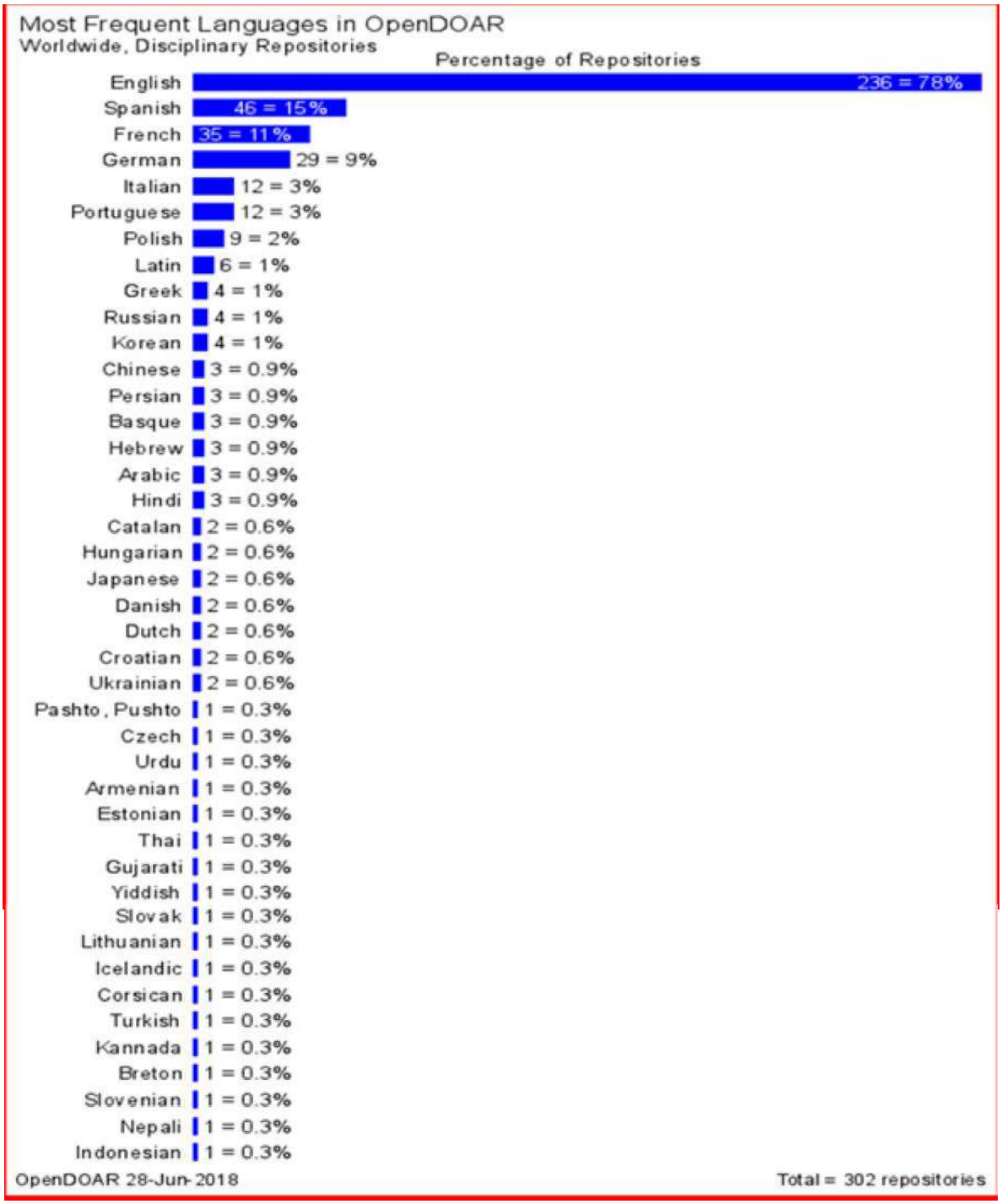

Diagram 8 Language of the Contents

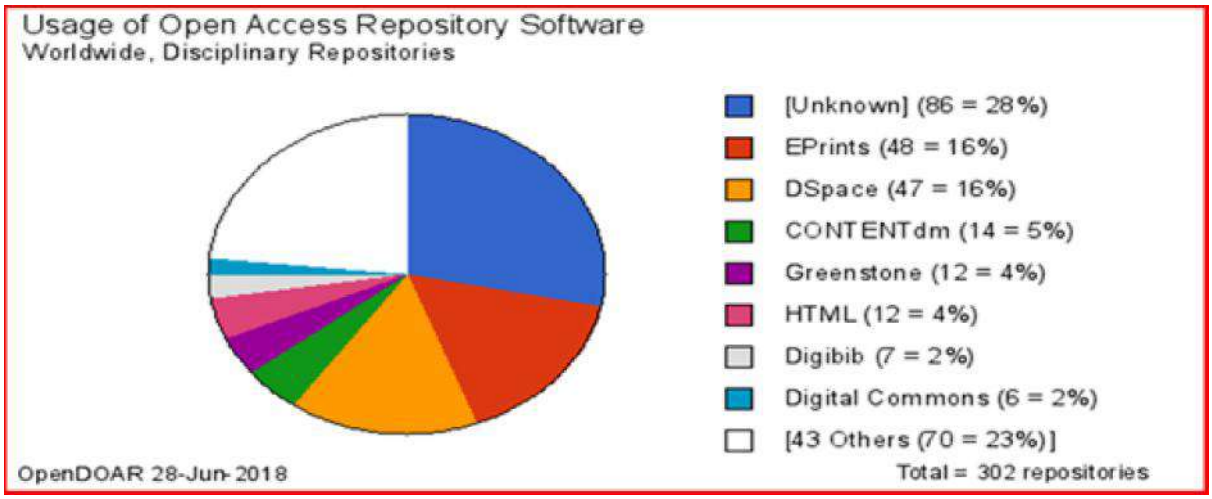

Diagram 9 Use of Repository Software

Diagram 10 Subjects in IRs registered in openDOAR

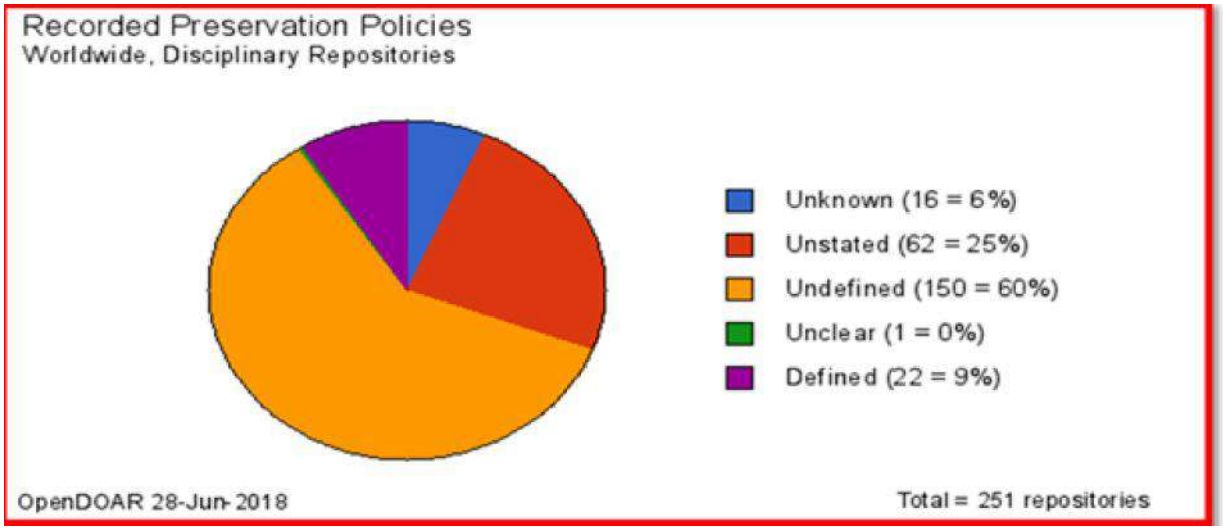

Diagram 11 Availability of Preservation Policies

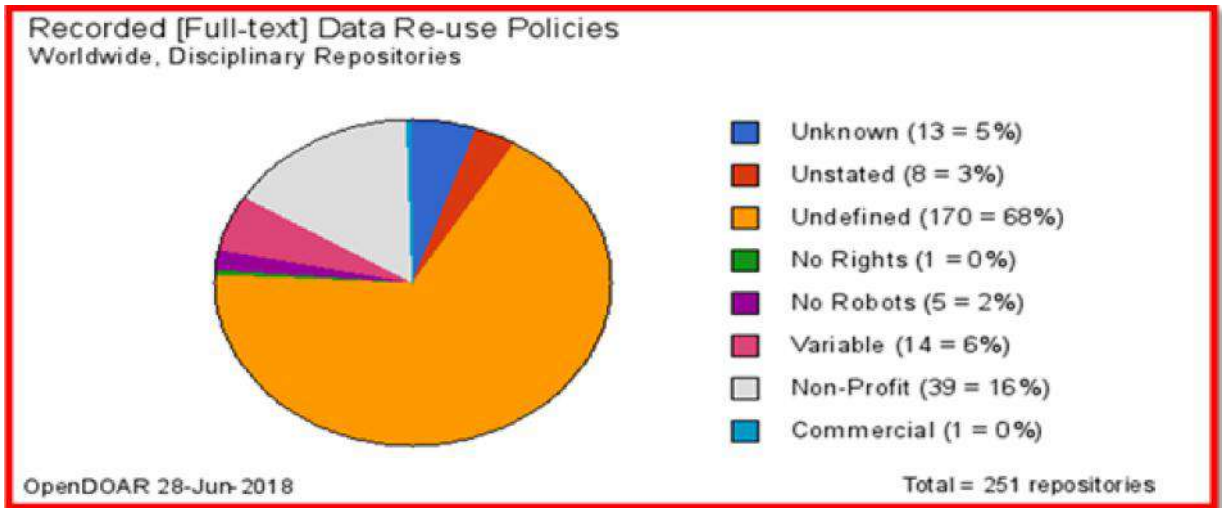

Diagram 12 Definition of Full-text Re-use Policies

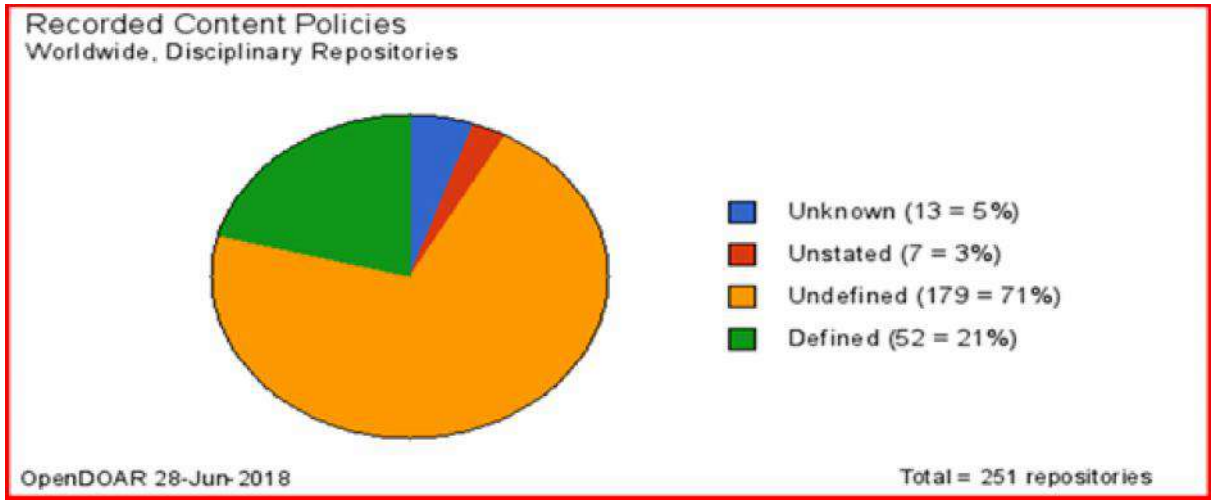

Diagram 13 Recorded Content Policies

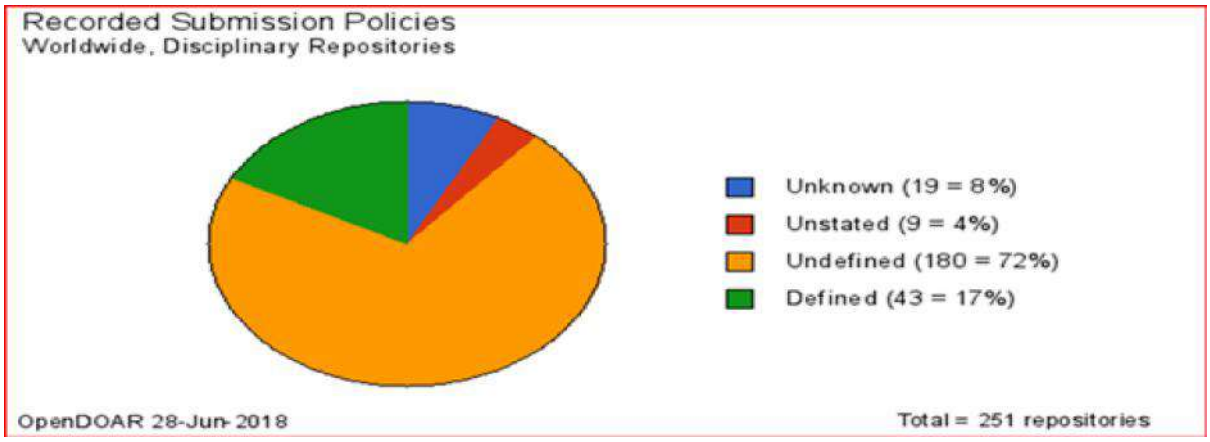

Diagram 14 Recorded Submission Policies

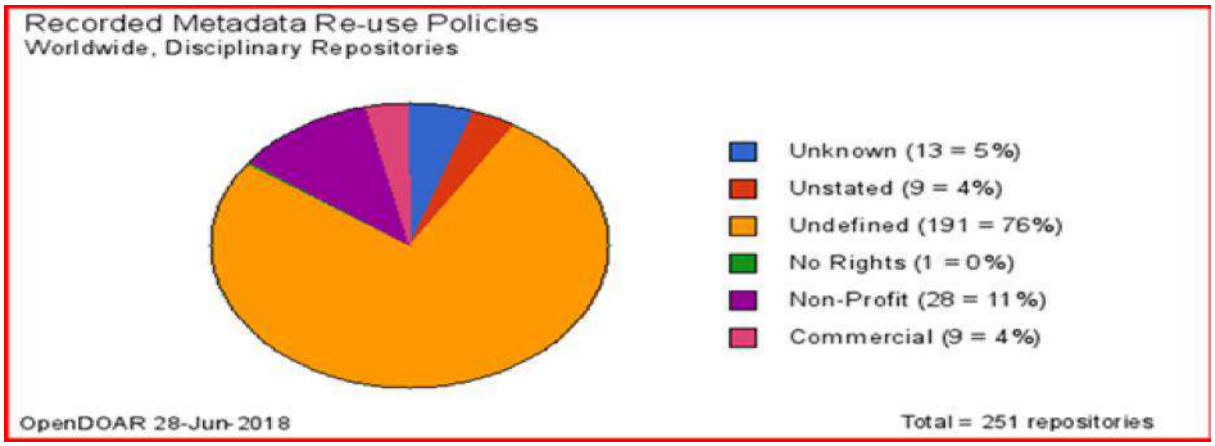

Diagram 15 Recorded Submission Policies

7. GROWTH OF OPEN ACCESS IRS IN OPENDOAR DATABASE

Diagram 16 shows the growth of disciplinary repositories in OpenDOAR database from 2005 to till date. The registration of IRs in OpenDOAR took place just in the first decade of 2000. Only 110 IRs were registered till 2006. By the end of 2010, the number doubled to 210. The numbers reached 300 by 2014. There is a steady growth during 2006-2011. We could see a very slow progress in the growth of disciplinary IRs in OpenDOAR after 2013 may be because of the establishment of multidisciplinary IRs by various institutions.

Diagram 16 Growth of the European OpenDOAR Database

8. IRS WITH > 3.5 LAKH RECORDS

Table 1 lists 20 aggregating IRs which are registered in openDOAR possessing more than 3.5 lakh items in their repository for the online users. Europe PubMed Central has more than 40 crore items followed by Papers Past with 5 crore items and Research Papers in Economics with 2.6 Crores. There are 9 IRs having contents ranging from 10 lakhs to 57 lakhs. The other 8 IRs have 3.5 lakhs to 9.6 lakhs. Out of top 20, 8 IRs each are from US and 4 are from United Kingdom.

Table 1 IRs with > 10 Lakh Records

Sl.No	Repository Name	Country	No. of Records	Position
1	Europe PubMed Central	United Kingdom	420000000	I
2	Papers Past	New Zealand	50474317	II
3	Research Papers in Economics	United States	26000000	III
4	Geograph British Isles	United Kingdom	5795378	IV
5	PubMed Central	United States	4900000	V
6	PhilPapers	United Kingdom	1774419	VI
7	ArtXiker - @HAL	France	1552624	VII
8	arXiv.org e-Print Archive	United States	1410354	VIII
9	Archaeology Data Service	United Kingdom	1351724	IX
10	Social Science Research Network	United States	1351354	X
11	Predicted Crystallography Open Database	Lithuania	1062771	XI
12	OpenGrey Repository	France	1015125	XII
13	kydl OAI Archive	United States	961099	XIII
14	Périodiques Scientifiques en Edition Électronique	France	791008	XIV
15	european film gateway	Netherlands	711894	XV
16	Portal to Texas History	United States	670117	XVI
17	CERN Document Server	Switzerland	660998	XVII
18	Gateway to Oklahoma History	United States	577945	XVIII
19	bepress Legal Repository	United States	442402	XIX
20	Crystallography Open Database	France	357597	XX

9. DISCIPLINARY REPOSITORIES IN INDIA

A total of 8 disciplinary repositories from India are found in OpenDOAR. A description of these eight IRs is give in Table 2.

10. CONCLUSION

Though the growth of IRs is of recent phenomena, the practice of letting their contents open to online users in the open access stream is of very recent phenomena. The study reveals that a good number of IRs joined OA golden path by registering themselves in openDOAR with a broad objective of disseminating their indigenous intellectual output to the outer world. This kind of knowledge sharing is a welcoming sign in this digital era. But what is to be emphasised now is the availability of proper content policies, preservation policies, submission polices and full-data re-use policies and their standardisation. A kind of standardisation, uniformity and consistency may be insisted upon in the creation and maintenance of these IRs. More web 2.0 tools may be added to enable the easy sharing of contents among the users community. An international level policy on IR development may be drafted by EU / ISO / IFLA aiming at standardisation of publication of intellectual output of one's own institution. Sure to iterate that IRs have a long way to go in achieving their dreams, so goes openDOAR in its mission.

Table 2 Indian Disciplinary Repositories

Disciplinary Repository	Organisation	Software	Size	subjects	Contents	Language
Architexturez South Asia	ABA-NET, India	Architexturez	2891	Architecture	Articles; Unpublished; Books; Learning Objects; Multimedia; Special	English
ARIES, Digital Repository	Aryabhatta Research Institute of Observational Sciences Digital Repository	DSpace	807	Physics and Astronomy	Articles; Conferences; Theses; Unpublished	English
IR@NPL	CSIR - National Physical Laboratory, India	EPrints	2425	Many Science Subjects	Articles; Conferences; Unpublished; Books; Multimedia	English
Librarians' Digital Library (LDL)	Documentation Research and Training Centre (DRTC), Indian Statistical Institute, Bangalore Centre (ISI)	DSpace	510	Library and Information Science	Articles; Conferences; Theses; Multimedia	English; Hindi; Kannada
openagri (Open Access Agricultural Research Repository)	Agropedia, IIT Kanpur	-----	904	Agriculture, Food and Veterinary	Articles; Conferences; Books	English
Open Access to Odia Books (OAOB)	National Institute of Technology, Rourkela	EPrints	779	Language and Literature	Books	English
OpenMED@NIC	Bibliographic Informatics Division, National Informatics Centre (NIC)	EPrints	2904	Health and Medicine	Articles	English
Social Science Cyber Library	Department of Library & Information Science, Aligarh Muslim University, India	CALIBRE	14782	Social Sciences General	Articles; Theses; Books	English; Hindi; Gujarati

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Example

[1] K.C.Garg, B.Dutt and Suresh Kumar, "Scientometric Profile of Indian Science as Seen Through Science Citation Index", Annals of Library and Information Studies, Vol. 53 No. 3, 2006, pp.114-125.
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