IJISS

ISSN: 0973-8967
Vol. 8 No. 2
July - December 2014

Indian Journal of
Information Science and Services

A Refereed Research Journal on Library and Information Science

Published by
Learning Centre
BANNARI AMMAN INSTITUTE OF TECHNOLOGY
(Autonomous Institution Affiliated to Anna University, Chennai -
Approved by AICTE & NAAC Accredited with 'A' Grade)
Sathyamangalam - 638 401 Erode District Tamil Nadu India
Ph: 04295-226340 - 44 Fax: 04295-226666
Web: www.lib.bitsathy.ac.in E-mail: ijiss@bitsathy.ac.in

BANNARI AMMAN INSTITUTE OF TECHNOLOGY
Stay Ahead

Indian Journal of Information Science and Service

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

Indian Journal of Information Science and Services

Volume 8 Number 2 **July - December 2014**

CONTENTS

A Scientrometric Analysis of Authorship Trends and Collaborative Research in Horticulture

C. Ranganathan
Assistant Professor, Department of Library and Information Science, Bharathidasan University,
Tiruchirappalli-620 024, TamilNadu
E-mail: cranganathan72@gmail.com

Abstract

The study examines Horticulture Research in India as revealed by the scholarly publication indexed in Scopus database for a period of six years from 2008 to 2013. It was seen that the analyses included research growth and relative growth rate., doubling time, source wise research output, author productivity, authorship pattern, Geographical distribution of the literature, share of international collaborative papers and major collaborative partner countries and patterns of research communication in most productive journals.

Keyword: *Authorship Pattern, Author Productivity, Bradford's law, India, Horticulture, Scientometric, Lotka's Law.*

1. INTRODUCTION

Horticulture is part of the story of humanity's desire to gain control over nature. This story encompasses exploration, conquest, experimentation, innovation and globalization. This is such a huge story that many aspects, such as the fascinating history and development of landscape design, the huge popularity of leisure-time home gardening and of the introduction of various plants -economic and ornamental-into different areas of the world, can only be touched on.

The present study aims at analyzing the **Scientometric Analysis of authorship trends in** Horticulture **research based on Scopus Database**. The major focus of the study is to apply the scientometric analysis with a view to analyze the evaluation and performance of research output in Horticulture. This study related to authors, their productivity; collaborative patterns and other aspects is important and useful to understand the mechanism underlying the growth of knowledge of a discipline. This study also to analyses the performance and evaluation of Horticulture research output in terms of its content and coverage growth rates and relative growth rate., doubling time, source wise research output, authorship pattern , degree of collaboration ,Individual journal wise research output and country wise research output

1.1Definition of Horticulture

Horticulture is defined by Webster's dictionary as "the science and art of growing fruits, vegetables, and flowers." It is the intensive commercial production of high-value and high-yielding plants. But it also includes the cultivation of garden crops and landscape ornamentals and the interaction of science and art.

2. OBJECTIVES OF THE STUDY

The present study was undertaken with the following objectives:

i. To identify the pattern of distribution of Horticulture research output in India.
ii. To examine the effectiveness of various sources of research publications in Horticulture Research
iii. To identify the rate of growth of Horticulture Literature by calculating relative growth rate and doubling time of research articles.
iv. To identify the scientific productivity of authors and authorship Pattern of Horticulture Research output in India.
v. To identify the proportion of single and multi-author papers and degree of collaboration in Horticulture Research
vi. To test the applicability of Lotka's law to the scientific productivity of authors in Horticulture Research Literature
vii. The distribution of Horticulture Research output journals confirms the implication of Bradford's law
viii. To prepare a ranking list of Core Journals in the field of Horticulture Research and
ix. To identify the geographical distribution of Zonal Levels.

3. METHODOLOGY

The Horticulture Research Publications retrieved from the Scopus database from 2008 to 2013, Further, the researcher has downloaded the bibliographical data in the form of notepad files. Then the bibliographical details are converted to the form of MS –EXCEL format using the PHP (hyper text pre processor), Scripting language text extracting based a delimiters Programme. Finally, the unique data are rearranged in MS –EXCEL format to eliminate duplication from the downloaded data. Overall data retrieved by the researcher are **1157** records and the researcher chosen all the 1157 records for analyzing the present study.

The analysis related to the Statistical analysis with respect to growth of literature, absolute growth rate and relative growth rate., doubling time source wise research output, authorship pattern , degree of collaboration ,Individual journal wise research output , country wise research output of Horticulture in scientometric and so on. Further, this study is exploratory in nature by identifying the research performance of Horticulture in Scientometric, and is analyzed in nature in strengthening the empirical validity through application of suitable Bibliometric laws.

4. DATA ANALYSIS AND DISCUSSION

4.1 Source wise Distribution of Horticulture Research Output

Table 1 indicates source wise Horticulture research literature output. The overall 1157 records on Horticulture research in India over a period of six years from 2008 to 2013. Out of them, articles appeared in the journals have shown a predominant contribution (62.84). The year wise analysis indicates that the output of articles in the years 2008 was 202 whereas in the succeeding years contribution has decreased considerably. However the whole study period records 727 journals articles. The Horticulture research output appeared with conference / seminars proceedings rank as second in order (33.27) in an overall output. The output from the reports publications records a third place (2.25%) in an overall Horticulture literature output. The book as the source of output comes fourth in order (1.12%) of the total Horticulture output. The bulletin constitute (0.52%) in overall Horticulture research output. It records the fifth place in the overall publications of Horticulture Literature.

Table 1 Source-wise Distribution of Horticulture Literature

Forms of Publication	2008	2009	2010	2011	2012	2013	Total
Journal Articles	202	150	144	131	81	19	727 (62.84)
Conference/ Seminar Proceedings	173	170	25	7	5	5	385 (33.27)
Reports	3	5	10	3	5	-	26 (2.25)
Books	6	1	4	1	1	-	13 (1.12)
Bulletin	-	2	4	-	-	-	6 (0.52)
Total	**384**	**328**	**187**	**142**	**92**	**24**	**1157**

4.2 Relative Growth rate and Doubling Time of Articles

Table 2 indicates the relative growth rates of numbers of articles appeared in the journals and also the doubling time for publications during the study period. It could be seen clearly that the relative growth rates of number of articles appeared in the journals have decreased from 0.56 in 2009 to 0.02 in 2013. The mean relative growth rates for articles appeared in the journals for the periods of 2009-2011 and 2012-2013 are 0.38 and 0.07 respectively whereas for the whole study period it is 0.26.

As a result of the doubling time for publication of articles in journals has increased from 1.24 in 2009 to 34.65 in 2013. The mean doubling time for number of articles published in the journals for the period of 2009-2011 and 2012-2013 are 2.05 and 20.21 years respectively. For the study of entire period, the mean doubling time for publications is 9.32 years. Based on this observation one can conclude that the relative growth rates of the number of articles appeared in the journals have shown a declining trend. On the other hand, the doubling time for publication of articles has reflected an upward trend.

Table 2 Relative Growth Rates and Doubling Time of Articles

Year	No. of Output	Cumulative No. of Output	W1	W2	R (a)	Mean R (a) 1-2	Doubling Time Dt (a)	Mean Dt (a) 1-2
2008	202 (27.78)	202		5.30				
2009	150 (20.63)	352	5.30	5.86	0.56		1.24	
2010	144 (19.80)	496	5.86	6.20	0.34		2.03	2.05 Yrs
2011	131 (18.01)	627	6.20	6.44	0.24	0.38	2.89	
2012	81 (11.14)	708	6.44	6.56	0.12		5.77	
2013	19 (2.61)	727	6.56	6.58	0.02	0.07	34.65	20.21 Yrs
Mean R (a)				0.26			9.32 Yrs	

4.3Authorship Pattern in Horticulture Research Output

In order to indicate the author productivity and authorship pattern, the analysis of the nature of researcher's participation in research activity is a prime factor. In this context, the research motto is analyzing the degree of collaboration in Horticulture research output. It enables one to examine research trends in terms of author productivity and authorship pattern

Table 3 Authorship pattern in Horticulture Research Output

Year	Single Author	Two Author	Three Author	Four	Five	Six	Seven& above	Total
2008	129	109	89	38	8	2	9	384
2009	72	119	92	29	10	6	-	328
2010	50	63	48	17	1	2	6	187
2011	14	65	38	18	5	2	-	142
2012	12	41	22	8	5	3	1	92
2013	6	9	7	2	-	-	-	24
Total	**283 (24.46)**	**406 (35.09)**	**296 (25.58)**	**112 (9.68)**	**29 (2.51)**	**15 (1.29)**	**16 (1..38)**	**1157 (100)**

Table 3 indicates that the two authors paper rank first in order (35.09%) where as three authors paper obtain the second order of priority (25.58%). The single author paper records the third order or priority (24.46%). The present study brings papers under analysis contributed by one author to seven authors and above. It is noticed that from four author paper to seven authors and above papers, the trend is under of publications has reduced significantly as the number of authors increases.

4.4 Degree of Collaboration

It is inferred from the Table 4 that at the aggregate level, the degree of collaboration is of 0.79. The period wise analysis indicates that its level is somewhat less in the first period (2008-2010; 0.72) and it has shown an increasing trend during the period (2011-2013; 0.89). This brings out clearly the high level of prevalence of collaborative research in Horticulture.

Table 4 Year-wise Distribution of Degree of Collaboration

Year	Single Authors		Multiple Authors		Total	Degree of Collaboration
	No. of Output	%	No. of Output	%		
2008 - 2010	251	27.91	648	72.1	899	0.72
2011 – 2013	32	12.40	226	87.60	258	0.89
Total	**283**	**24.45**	**874**	**75.54**	**1157**	**0.79**

4.5 Author Productivity

The study of the author productivity is an important aspect in analyzing the performance of research output in Horticulture. Table -5 indicates the contribution of research paper based on an author productivity levels. It is observed that 46.71 percent of authors have made single contribution in the field of Horticulture. It ranks first in order (46.71%) with respect to the total number of contributions in the study. It is noticed that two paper contributed by authors record the second in order (21.49%) in respect of an overall number of authors enlisted in the study. Three papers contributed by authors take the third place (10.75%) of priority in their representation of the total output. Four papers contributed by authors stand in the fourth order (6.58%). It is interesting to note that when the number of contributions increases the number of authors decreases. It indicates the fact that a greater level of research performance in noted only among few authors.

Table 5 Distribution of Author Based on Productivity

Number of Contribution	Number of Authors	%	Cumulative Percentage
1	213	46.71	46.71
2	98	21.49	68.20
3	49	10.75	78.95
4	30	6.58	85.53
5	17	3.73	89.26
6	13	2.85	92.11
7	11	2.41	94.52
8	10	2.19	96.71
9	8	1.75	98.46
10	7	1.54	100.00
Total	**456**	**100.00**	

4.6 Lotka's law in relation to Author productivity

Table 6 reveals that, the implication of Lotka's law in relation to author productivity. It explains that a number of authors making 'n' contribution are about $1/n^2$ of those making a single contribution and the proportion of the contribution that make a single contribution is about 60 percent. In the present study Horticulture Scientists author productivity is examined the Lotka's findings that the proportion of all contribution that makes a single contribution is less than 60 percent. Further, Lotka's dx^2 model confirms the same fact. It explains the fact that the calculated dx^2 value of 171.84 is much less than the table value in 9 degree of freedom at 5 percent level of significance. Thus the present analysis clearly invalidates Lotka's findings.

Table 6 Productivity of Author based on Lotka's Law

Number of Contribution	Observed Number of authors with 'n' or (an) or (f)	Observed percentage of authors 100 x an / a1	Expected number of authors ($an=an/n^2$)or (p)	Expected percentage of authors predicted by Lotka (1926) $100/n^2$	(F-P) 2/P
1	213	100	213	100.00	0
2	98	46.00	53	25.00	38.21
3	49	23.00	23	11.11	29.39
4	30	14.08	13	6.25	22.23
5	17	7.98	8	4.00	10.13
6	13	6.10	5	2.77	12.8
7	11	5.16	4	2.04	12.25
8	10	4.69	3	1.56	16.33
9	8	3.75	2	1.23	18.00
10	7	3.29	2	1.00	12.5
	456			X2	171.84

Degrees of freedom = 9 OC = 0.05

4.7 Ranking of Journals

Journal is one of the primary sources of information are the vehicles of current output of knowledge. Table-7 shows that ranking of Top-15 rank journals according to their productivity. The total number of 128 journals published 727 articles. These 128 journals are arranged in the decreasing order of productivity It is evident from the above table to identify the Journal Horticulture Research ranked first in order published 109 articles. Indian journal of Horticulture Research occupied second in order published 88 articles during the period of study. The journals of Indian Horticulture Journal ranked third in order published 69 articles. Rubber India ranked fourth in order published 63 articles during the period of study the remaining journals ranked to their published articles.

Table 7 Ranking of Journals

Sl. No.	Title of the Journals	Country	No. of Articles published	%	Cum. No. of Article	Cum. %	Rank
1	Journal of Horticulture Research	India	109	14.99	109	14.99	1
2	Indian Journal of Horticulture Research	India	88	12.10	197	27.09	2
3	Indian Horticulture Journal	India	69	9.49	266	36.58	3
4	Rubber India	India	63	8.66	329	45.25	4
5	Indian Horticulture Statistics	India	46	6.32	375	51.58	5
6	Inside Horticulture Board	India	30	4.12	40.5	55.71	6
7	Rubber Chemistry& Technology	USA	27	3.71	432	59.42	7
8	RRII Annual Report	India	19	2.61	451	62.04	8
9	Horticulture Statistical Bull	Malaysia	17	2.33	468	64.37	9
10	Environmental Biology	Netherland	11	1.51	479	65.88	10
11	Comp. Physiology Ecol	India	11	1.51	440	67.40	10
12	J. Eco. Boil	UK	11	1.51	561	68.91	10
13	Rubber	India	10	1.37	511	70.28	11
14	Sier. Culture	India	10	1.37	521	71.66	11
15	Rubber Asia	India	7	0.96	528	72.63	12
16	J. Aquacult. Trop	India	6	0.83	534	73.45	13
17	Rubber Industry Report	UK	6	0.83	540	74.27	13
18	Coastal Res.	USA	6	0.83	540	74.27	13
19	Mar. Environ Res.	UK	6	0.83	552	75.93	13
20	RRISL Annual Review	SriLanka	6	0.83	558	76.75	13
21	Rubber Board Annual Report	India	4	0.55	562	77.30	14
22	Envi. Morit. Assess	Netherland	4	0.55	566	77.85	14
23	Rubber Statistical News	India	4	0.55	570	78.40	14
24	Environ. Bullut	UK	4	0.55	574	78.95	14
25	Rubber Statistical Bulletin	UK	4	0.55	578	79.50	14
26	Acta. Hydrobiol	Poland	4	0.55	582	80.05	14
27	J.Plant Physiol	Germany	4	0.55	586	80.61	14
28	Annalsof Plant Protection Sci.	India	4	0.55	590	81.16	14
29	Pestic Biochem. Physiol	USA	4	0.55	594	81.70	14
30	Fish Chimes	Germany	4	0.55	598	82.25	14
31	Rubber World	USA	4	0.55	602	82.81	14
32	Chemosphere	USA	4	0.55	606	83.35	14
33	Agricultural Economics	UK	3	0.41	609	83.76	15
34	Fish Farm Int.	UK	3	0.41	612	84.18	15

4.8 Distribution of Bradford's Law

The Bradford's law was formulated in the year 1948. Table-8 indicates that the first three journals covered more than one third of total articles published. The next six journals covered another one third of the articles. Then remaining 119 journals covered the last one third of the published articles. According to Bradford's distribution the relationship between the zone is $1:a:a^2$ visible the relationship in each zone of the present study is 3:9:119 which does not fit in to Bradford's distribution.

Table 8 Ranking of Journals According to Bradford's Distribution

Sl. No.	No. of Journals	No. of Articles	Total No. of Articles	Cumulative No. of Articles
1	1	109	109	109
2	1	88	88	197
3	1	69	69	266
4	1	63	63	329
5	1	46	46	375
6	1	30	30	405
7	1	27	27	432
8	1	19	19	451
9	1	17	17	468
10	3	11	33	501
11	2	10	20	521
12	1	7	7	528
13	5	6	30	558
14	12	4	48	606
15	2	3	6	612
16	21	2	42	654
17	73	1	73	727

The easy and interesting observation from the above table is the number of journals in each zone. After Bradford's formulation, it should be 3:6:27, where as the observed number of journals in the three zones stands as 3:6:119. This shows that core contributions are given by a very few journals, i.e., less than Brad ford's formulated and the final zone contains a very large number of journals, i.e., much more than the Brad ford's formula.

It is clear indication that core zone is much concentrated and the other zone is much extended and that shows the scattering of information in Horticulture research is more. When this analysis is done for a wider range of periods, the extent of scattering can get increased. Hence the analysis of data clearly discounts Bradford's law of Scattering.

4.9 Geographical Representation of Journals and their Published Articles

The analysis of geographical distributions of number of research output in an essential factor in high lighting the research and development in any discipline of Science.

The table 8 is used to identify the Horticulture Scientist performance in publishing their research articles both in Indian journals as well as foreign journals. It is evident from the table-8 that Indian Horticulture scientist published their articles in journals of 18 countries including India. It is noted that Indian journals rank the second in order (21.09) in publishing research articles. It also comes in the first place (68.23) in terms of the number of articles published in total. It is inferred that most of the Horticulture Scientist research outputs are validated among Indian publishers.

Table 8 Country-wise Distribution of Journals and Articles

Sl. No.	Country of Publication	No. of Journals	No. of Articles
1	India	27 (21.09)	496 (68.23)
2	USA	36 (28.13)	80 (11.01)
3	UK	27 (21.09)	62 (8.53)
4	Nether land	13 (10.16)	45 (6.18)
5	Germany	8 (6.25)	21 (2.88)
6	Poland	2 (1.56)	5 (0.68)
7	Japan	3 (2.34)	3 (0.41)
8	France	2 (1.56)	2 (0.27)
9	Spain	1 (0.78)	2 (0.27)
10	Switzerland	1 (0.78)	2 (0.27)
11	Ireland	1 (0.78)	2 (0.27)
12	Yugoslavia	1 (0.78)	1 (0.14)
13	Pakistan	1 (0.78)	1 (0.14)
14	SriLanka	1 (0.78)	1 (0.14)
15	Italy	1 (0.78)	1 (0.14)
16	Australia	1 (0.78)	1 (0.14)
17	China	1 (0.78)	1 (0.14)
18	Canada	1 (0.78)	1 (0.14)
	Total	**128 (100.00)**	**727 (100.00)**

Figures in parentheses denote percentage

Next to Indian, USA ranks first in order (28.13) in published research articles. It also comes in the second place (11.01) in terms of the number of articles published in total. UK ranks third in order in publishing (21.09) Horticulture Scientist research articles. Netherland ranks fourth in order (10.16) in terms of the number of journals publishing Horticulture Scientists research output and also published articles (6.18) in relation to the total output.

5. MAJOR FINDINGS

i. The findings of source wise distribution of Horticulture research output bring out the facts that of the various sources of Horticulture literature publications the articles that appeared in journals record to fist order followed by conference proceedings, reports, books and bulletin in their respective order. In general publications of articles in journals take the predominant representation

ii. The analysis of the growth of Horticulture literature at the India reveals that the relative growth rates of Horticulture research output have shown a declined trend, contrastingly doubling the time for publications that have increased remarkably.

iii. The findings of degree of collaboration analysis reveal the following facts that the case of single author contributed papers are less. It brings out clearly the high level prevalence of collaborative research in Horticulture. It indicates that research activity; now-a-days relies mainly on group of researchers.

iv. The findings of author productivity in terms of Lotka's law implications reveal the following facts that the analyzed data invalidate Lotka's finding. The proportion of all contributions that makes a single contribution is less than sixty percent particularly in the case of the number of authors contributed at various level of research output. Further, Lotka's dx^2 confirms the same fact.

v. The findings of author productivity in terms of Lotka's law are positively related with author productivity in Horticulture research output is identified as invalidated. It is evident that the number of single author contributed papers is less than sixty percent

vi. The formulated of the applicability of Bradford's law of scattering in various journals is identified as invalidated. It is evident that from the classification of journals according to Bradford distributions reveal the facts that the first three journals covered more than one third of the total articles published. The next six journals covered another one third of the articles. Then remaining 119 journals covered the last one third of the published articles.

vii. The findings of distribution of Horticulture Scientists published articles in the journals of various countries reveal the fact that Horticulture scientists have contributed their research articles mainly in Indian journals. The countries such as Netherlands, USA, United Kingdom and Germany have considerably recognized the research articles of Horticulture Scientist.

REFERENCES

[1] S.Aswathy and A.Gopikuttan, "Journal of Spacecraft and Rockets: A Scientometric Analysis", SRELS Journal of Information Management, Vol.49, No.6, 2012, pp.671-682.

[2] K. C.Garg., Suresh Kumar and Kashmiri Lal, "Mapping of Indian Neuroscience Research A Scientometric Analysis of Research Output During 1999-2008", Neurology India, Vol.58, No.1, 2013, pp.35-41.

[3] B.M. Gupta, HarKaur and Avinash Kshitig, "Dementia Research In India: A Scientometric

Analysis of Research Output During2002-11", Annals of Library and Information Studies, Vol.59, No.4, 2012, pp.280-288.

[4] C.Ranganathan and R.Balasubramani, "Authorship Pattern of Digital Architecture Research Output: A Scientometric Analysis", International Journal of Engineering Research & Technology Vol.2, No.12, 2011, pp.3615-3623.

[5] C.Ranganathan and R.Balasubramani, "Scientometric Profile of Research Activities on Green Energy: An Indian Perspective", IMPACT: International Journal of Research in Applied, Natural and Social Sciences,Vol. 2,No.1, 2014, pp.23-30.

[6] C.Ranganathan, "Performance of Research Productivity on Digital Architecture based on Web of Science Database: a Scientometric analysis", International Journal of Library and Information Studies,Vol.4, No.2, 2014, pp.140-151.

[7] K. G. Pillai Sudhier and V.Priyalakshmi, "Research Publication Trend among the Scientists of Central Tuber Crops Research Institute (CTCRI), Thiruvananthapuram: A Scientometric Study", Annals of Library and Information Studies , Vol.60, No.1, 2013, pp.7-14.

[9] K.P.S Sengar, "R & D Performance of CSIR-IMTECH (India): A Scientometric Study based on the Papers Published During 1991-1995 and 2005-2009", PEARL:A Journal of Library and Information Science, Vol.6, No.3, 2012, pp.121-129.

A Study on Knowledge and Status of Institutional Repository in South Africa

Dr. S. Dhanavandan
Assistant Librarian, Gandhigram Rural Institute-Deemed University, Gandhigram - 624 302, Dindigul District
E-mail: dhanavandan@gmail.com

Abstract

This paper discusses number of institutional repositories, software used, what are the content available in IR, which language mostly used in South Africa. The relevant data are collected from OpenDOAR directory. As per the sources of information 29 Institutional Repositories are available in South Africa. Among the 29 repositories, 19 (65.52%) repositories are using DSpace software, 2(6.90%) repositories are established by equally using ContentPro, EPrints and ETD-db software Finally 1 (3.45%) repository are not specified their software.

Keywords: *Institutional Repository, South Africa, Software*

1. INTRODUCTION

An institutional repository (IR) is an online archive for collecting, preserving, and disseminating digital copies of the intellectual output of an institution, particularly a research institution. An institutional repository can be viewed as a "...a set of services that a university offers to members of its community for the management and dissemination of digital materials created by the institution and its community members. This includes materials such as monographs, academic journal articles, both preprints and post prints undergoing peer review, as well as electronic theses and dissertations (ETDs).

We may define IR shortly as 'a digital archive of an intellectual product created by the staff and students of an individual institution so as to make it available and accessible by the end users within the institution in e-form'. IR is a very powerful initiative that can serve as an engine of change for any institution and become an indispensable component for information and knowledge sharing in the scholarly world. IR provides a method for capturing and maintaining today's electronic resources, so that tomorrow's scholars can use and understand the thinking behind the published records.

2. WHAT ARE INSTITUTIONAL REPOSITORIES?

Institutional repositories are digital collections of the outputs created within a university or research institution. Whilst the purposes of repositories may vary in most cases they are established to provide Open Access to the institution's research output. Repositories adhere to an internationally-agreed set of technical standards that means that they expose the metadata of each item in their contents on the Web in the same basic way. In other words, they are 'interoperable'. This common protocol to which they all adhere is called the open Archives Initiative Protocol for Metadata Harvesting. The contents of all repositories are then indexed by Web search engines such as Google and Google Scholar, creating online Open Access databases of freely-available global research. As the level of self-archiving grows the Open Access corpus will represent an increasingly large proportion of the scholarly literature.

3. SCOPE AND LIMITATION OF THE STUDY

This study is only limited to open access Institutional Repositories which are listed in the DOAR. This study is adhered to South Africa only other countries are not considered for this study.

4. OBJECTIVES OF THE STUDY

The following objectives are framed

i. To find out the name and strength of IRs
ii. To assess the contents available in the IRs
iii. To identify the various software using in IRs

5. ANALYSIS AND INTERPRETATION

This study is aimed to discuss about the Institutional Repositories available in South Africa. The relevant sources were collected from OpenDOAR directory. The name of the repositories available in South Africa and their strength are shown in Table 1.

Table 1 Name of the Institutional Repositories and their Strength

Sl. No.	Name of the Repository	No. of IRs	No. of Records	%
1	AHERO (African Higher Education Research Online)	1	916	0.48
2	CSIR Research Space	1	6704	3.53
3	Digital Innovation South Africa (DISA)	1	0	0.00
4	Digital Knowledge at Cape Peninsula University of Technology	1	1173	0.62
5	DUT IR	1	1049	0.55
6	North-West University Institutional Repository (Boloka)	1	11949	6.29
7	OpenSALDRU	1	652	0.34
8	ResearchSpace@UKZN	1	10092	5.32
9	Rhodes eResearch Repository (ReRR)	1	4096	2.16
10	Scientific Electronic Library Online - South Africa (SciELO - South Africa)	1	619	0.33
11	SEALS Digital commons	1	5	0.00
12	South Africa Data Archive	1	167	0.09
13	Stellenbosch University SUN Scholar Repository	1	56982	30.01
14	TUT Digital Open Repository	1	846	0.45
15	UCT Computer Science Research Document Archive (UCT CS Archive)	1	680	0.36
16	UCT Lawspace	1	197	0.10
17	UCTLibraries resource discovery	1	19158	10.09
18	UJDigispace	1	12027	6.33
19	UnisaIR (Unisa Institutional Repository)	1	12868	6.78
20	University of Fort Hare Institutional Repository	1	446	0.23
21	University of Limpopo	1	928	0.49
22	University of Pretoria Electronic Theses and Dissertations (UPeTD)	1	8774	4.62
23	University of the Free State ETD	1	1203	0.63
24	University of the Western Cape Research Repository (UWC Research Repository)	1	1026	0.54
25	UZSpace (University of Zululand Repository)	1	1227	0.65
26	UP Space (UPSpace at the University of Pretoria)	1	32597	17.17
27	UWC Theses and Dissertations	1	2384	1.26
28	VUT DigiResearch	1	54	0.03
29	WIReDSpace (Wits Institutional Repository on DSPACE)	1	1055	0.56
	Total	**29**	**189874**	**100.00**

Table 1 shows the name of the Institutional repositories are available in the South Africa. As per the data available in the Open DOAR, 29 repositories are available with consists of total 1,89,874 number of records. Among the 29, Stellenbosch University SUN Scholar Repository has 56982 records and it is in the first position. And UPSpace (UPSpace at the University of Pretoria) repository has 32597 records and it is in the second position among the 29 repositories. . But, it is highlighted that among the 29 repositories, one repository has no single records and one repository has only five records in their repositories.

The table 2 indicates the institutional repositories available in South Africa were classified based on the no. of records available in the repositories. The no. of records were classified under following frequency. It is classified like that upto 2000, 2001-5000, 5001-10000, 10001-15000, 15001-20000 and above 20000 records which are available in the sources. Among the 29 repositories, 17 (58.62%) has below 2000 records,

2(6.90%) has more than 2000 but below 50000 records and 2(13.10%) has more than 5001 but below 10000 records. It is found that 2(6.90%) repositories are having more than 300000 records in the collections and 1 (3.45%) repository are not specified the collection of the Institute.

Table 2 Classification of Records Available in the IRs

Sl. No.	No. of Records	No. of IRs	%
1	1-2000	17	58.62
2	2001-5000	2	6.90
3	5001-10000	2	6.90
4	10001-15000	4	13.79
5	15001-20000	1	3.45
6	Above 20000	2	6.90
7	Not Specified	1	3.45
	Total	**29**	**100.00**

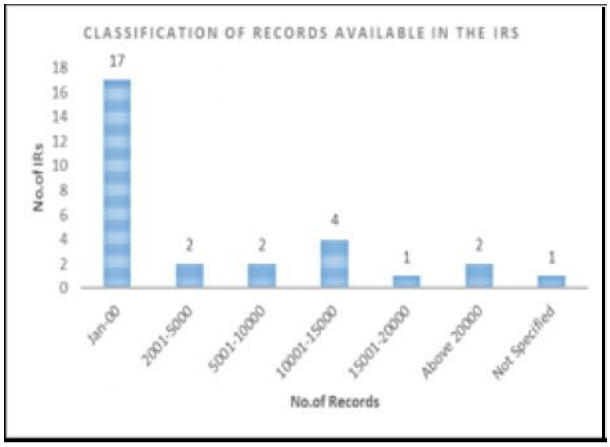


Fig.1 No.of records available in the IRs in South Africa

Table 3 indicates the list of software are using in the institutional repositories available in South Africa. Among the 29 repositories, 19 (65.52%) repositories are using DSpace software, 2(6.90%) repositories are established by equally using ContentPro, EPrints and ETD-db software Finally 1 (3.45%) repository are not specified their software in the DOAR. So, it is evident from the table, DSpace software occupy the first position among the institutional repositories in South Africa.

The table 4 states the subject wise distribution of Institutional repositories available in the South Africa. Among the 29 repositories, 22(75.86%) are in multidisciplinary subject and 1(3.45%) repository available equally for the subject of Agriculture/Food and Veterinary/Biology and Biochemistry/Ecology and Environment/Computers and IT, Computers and IT, Education, Health and Medicine/Business and

Table 3 Distribution of Software Using IRs in South Africa

Sl. No.	Software	No. of IRs	%
1	Not Specified	1	3.45
2	ContentPro	2	6.90
3	DigiTool	1	3.45
4	DSpace	19	65.52
5	EPrints	2	6.90
6	ETD-db	2	6.90
7	ahero.uwc.ac.za/lib/oai/oai2.php	1	3.45
8	SciELO	1	3.45
	Total	**29**	**100.00**

Economics/Education, Law and Politics, Social Sciences General & Technology General.

Table 5 shows the distribution types of contents listed in the institutional repositories available in South Africa. Among the 29 repositories, 4(13.79%) repositories are equally for Articles/References/Conferences/Theses/ Books, Articles/References/Conferences/Theses/ Unpublished/Multimedia/Patents and Articles/Theses. But, 8(27.59%) repositories for only theses and 2(6.90%) repositories for Articles/Theses/Unpublished/Books/ Learning Objects are generated. It is found that most institutional repositories are holding the Articles; Conferences; Theses; Books; Learning Objects; Multimedia is the major contents.

Table 6 stated the distribution languages are used in the institutional repositories in South Africa. Among the 29 repositories, 25(86.21%) repositories are in only English and 3(15.5%) are using English/Africans. But only one is using Afrikaans/English/Sesotho languages. It is concluded that, most of the repositories are also used English language but only one repository is generated by using triple language only.

Table 7 indicates the distributions of software versus languages are used in the institutional repositories in South Africa. Among the 29 repositories, 25(86.21%) repositories are used DSpace software which includes 16(55.17%) English language and 3(10.34%) repositories in Africans/English languages. It is pointed out that 1(3.45%) repository is not specified software but used English language in their respective sources.

Table 4 Distribution of Subjects in IRs

Sl. No.	Subject	No. of IRs	%
1	Agriculture, Food and Veterinary; Biology and Biochemistry; Ecology and Environment; Computers and IT	1	3.45
2	Computers and IT	1	3.45
3	Education	1	3.45
4	Health and Medicine; Business and Economics; Education	1	3.45
5	Law and Politics	1	3.45
6	Multidisciplinary	22	75.86
7	Social Sciences General	1	3.45
8	Technology General	1	3.45
	Total	**29**	**100.00**

Table 5 Distribution of Contents in IRs

Sl. No.	Contents	No. of IRs	%	Cumulative Percentage
1	Articles	1	3.45	3.45
2	Articles; Conferences; Theses	1	3.45	6.90
3	Articles; References; Conferences; Theses; Books	4	13.79	20.69
4	Articles; References; Conferences; Theses; Unpublished; Multimedia; Patents	4	13.79	34.48
5	Articles; Theses	4	13.79	48.28
6	Articles; Theses; Multimedia	2	6.90	55.17
7	Articles; Theses; Unpublished; Books; Learning Objects	2	6.90	62.07
8	Datasets	1	3.45	65.52
9	References; Theses; Multimedia	1	3.45	68.97
10	Theses	8	27.59	96.55
11	Theses; Multimedia	1	3.45	100.00
	Total	**29**	**100.00**	

Table 6 Distribution of Languages Using IRs

Sl.No.	Languages	No. of IRs	%
1	Afrikaans/English/Sesotho	1	3.45
2	English	25	86.21
3	English/Afrikaans	3	10.34
	Total	29	100.00

Table 8 shows the distribution of contents Vs number of records available in Institutional repositories in South Africa. Among the 29, 8(27.60%) repositories is available only for theses which consists of 6(20.68%) repositories has below 2000 records, 1(3.45%) has more than 2000 records but below 5000 records. And 1(3.45%) repository has more than 5000 but below 10000 records.

Table 7 Distribution of Software Vs Languages Using in IRS

Sl. No.	Software	Afrikaans/ English/ Sesotho	English	English/ Afrikaans	Total
1	Not Specified	0	1(3.45)	0	1(3.45)
2	ContentPro	0	2(6.90)	0	2(6.90)
3	DigiTool	0	1(3.45)	0	1(3.45)
4	DSpace	0	16(55.17)	3(10.34)	19(65.52)
5	EPrints	0	2(6.90)	0	2(6.90)
6	ETD-db	1(3.45)	1(3.45)	0	2(6.90)
7	http://ahero.uwc.ac.za/lib/oai/oai2.php	0	1(3.45)	0	1(3.45)
8	SciELO	0	1(3.45)	0	1(3.45)
	Total	**1(3.45)**	**25(86.21)**	**3(10.34)**	**29(100)**

Table 8 Distribution of Contents Vs No.of Records in IRs

Sl. No.	Contents	Not Specified	1-2000	2001-5000	5001-10000	10001-15000	15001-20000	Above 20000	Total
1	Articles	0	1 (3.45)	0	0	0	0	0	1 (3.45)
2	Articles/Conferences/ Theses	0	0	1(3.45)	0	0	0	0	1 (3.45)
3	Articles/References/ Conferences/ Theses/ Books	0	3 (10.34)	0	0	0	0	1(3.45)	4 (13.80)
4	Articles/References/ Conferences/Theses/ Unpublished/ Multimedia/ Patents	1(3.45)	2 (6.90)	0	0	0	0	1 (3.45)	3 (10.34)
5	Articles/Theses	0	2 (6.90)	0	0	2 (6.90)	0	0	4 (13.80)
6	Articles/Theses/Multimedia	0	1 (3.45)	0	0	1 (3.45)	0	0	2 (6.90)
7	Articles/Theses/Unpublished /Books/Learning Objects	0	0	0	1(3.45)	0	1(3.45)	0	2 (6.90)
8	Datasets	0	1 (3.45)	0	0	0	0	0	1(3.45)
9	References; Theses; Multimedia	0	1 (3.45)	0	0	0	0	0	1(3.45)
10	Theses	0	6(20.68)	1(3.45)	1(3.45)	0	0	0	8 (27.60)
11	Theses; Multimedia	0	0	0	0	1(3.45)	0	0	1 (3.45)
	Total	**1(3.45)**	**17 (58.62)**	**2 (6.90)**	**2 (6.90)**	**4 (13.80)**	**1(3.45)**	**2(6.90)**	**29 (100)**

6. FINDINGS

i. The data available in the Open DOAR, 29 repositories are available with consists of total 1, 89,874 number of records.

ii. It is found that 2(6.90%) repositories are having more than 300000 records in the collections and 1 (3.45%) repository are not specified the collection of the Institute.

iii. Among the 29 repositories, 19 (65.52%) repositories are using DSpace software, 2(6.90%) repositories are established by equally using ContentPro, EPrints and ETD-db software Finally 1 (3.45%) repository are not specified their software.

iv. 25(86.21%) repositories are in only English and 3(15.5%) are using English/Africans. But only one is using Afrikaans/English/Sesotho languages

7. CONCLUSION

The Institutional repositories are most useful to satisfy the user community. It helps to make the many initiatives to publish as well as to retrieve the articles, theses,

multimedia and learning objects. But based on the study, the organisations of the institutional repositories should more concentrate to increase the number of records when comparing others countries.

REFERENCES

[1] Institutional Repositories Retrieved from www.OpenDOAR.org

[2] Arora, Jagdish (2004). Network-enabled digitized collection at the Central library: IIT Delhi. *The International Information & Library Review,36*, 1, 1-11. Retrieved fromhttp://www.sciencedirect.com/science/article/pii/S1057231703000523

[3] Dhanavandan, S.,& Tamizhchelvan, M., (2014). Repositories for library and information science in the world. *Chinese Librarianship: an International Electronic Journal*, 38. URL: http://www.iclc.us/cliej/cl38DT.pdf

[4] Digital Library of India. Retrieved fromhttp://www.dli.ernet.in/

[5] Griffin, Stephen M. (2002). NSF/DARPA/NASA Digital Libraries Initiative: A Program Manager's Perspective: *D-Lib Magazine*. Doi: 10.1045/july98-griffin.

[6] Jain, P.K &Babber, Parveen (2006). Digital Library initiatives in India.*The International Information & Library Review, 38*, 3, 161-169. Doi:10.1016/j.iilr.2006.06.003

[7] Kashmir Knowledge open Repository (Knoor). Retrieved fromhttp://kashmiruniversity.net/download/poli.pdf

[8] Kuny, T. (1998). Digital Library Projects: *European Commission Telematics for Libraries Program*. Retrieved from http://www.nlc-bnc.ca/9/1/pl-2456-e.html

The Impact of Celebrity Advertisement in Erode District: A Study

Dr. M. Jayaprakash[1] and S. Suvitha[2]
[1]Assistant Professor, Department of Library and Information Science, Periyar University, Salem - 636 011, Tamil Nadu, E-mail:lisjayaprakash@gmail.com
[2]Research Scholar, Department of Management Studies, Bharathiyar University, Coimbatore - 641 046, Tamil Nadu, E-mail: suvi86prakash@gmail.com

Abstract

This paper aims at investigating the impact of celebrity endorsements with respect to their physical attractiveness, source credibility and congruence on customers' brand perception and purchase intention. The study covers all the aspects like consumers opinion towards celebrity advertisements, viewers preference in the celebrity advertisements, the impact of celebrity advertisements on buying behaviour and consumers frequency on seeing celebrity advertisements. In this study, descriptive research design adopted for the accomplishment of the objectives of the study, as it describe the predictions and concern of respondents about celebrity advertisement. The sample size of the study covers 500 respondents residing in various places of Erode District.

Keywords: *Advertising,Celebrity advertisement, Erode District, Marketing.*

1. INTRODUCTION

Advertising is paid communication through a non-personal medium in which the sponsor is identified and the message is controlled. Variations includes publicity, public relations, product, placement, sponsorship, underwriting, and sales promotion. In present days the advertising industry is large and growing. In the years of 2005, TNS media intelligence reported that the United States alone spending 144.32 billion dollars on advertising. In the same year, according to a report titled global entertainment and media outlook : 2006-2010 issued by global accounting firm price water house coopers, world wide advertising spended dollars 385 billion. The accounting firm's report projected that world wide advertisement spending would exceed half a trillion dollars by the year 2010.

2. ORIGIN OF THE RESEARCH PROBLEM

The present scenario of the marketing activities are concerned with giving ideas. knowledge and promotion of the product in the place of market. The consumers are deeply intended to know about the product specifications, product price and the place where it is available etc.

This will be achieved by the consumers only with the help of various media of advertisement. All the media of advertisement plays a vital role in stimulating and persuading the buyer to make purchase of the product. In the advertisement research. It is crucial importance to study the impact of various celebrity advertisement. The formulation of research problem in the present study involves impact of celebrity advertisement in Erode District.

3. INTER DISCIPLINARY RELEVANCE

The advertising techniques are used to promote commercial goods and service, which can be used to inform, educate and motivate the public. Advertising in its non- commercial guise, is a powerful educational tool capable of reaching and motivating large audience. Advertising justifies its existence when used in the public interest. It is most powerful tool to use solely for commercial purpose. It is a unique tool in the hands of marketer, which they can use very effectively and intelligently to persuade their present and prospective. Consumers to act in a desired way to purchase a product. Advertising is a part of marketing communication which helps marketers to meet customers. Advertising is a vital marketing as well as powerful communication tool in the present world. The latest development in advertising is to adopt the formula of celebrity advertising.

4. REVIEW OF RESEARCH AND DEVELOPMENT IN THE SUBJECT

4.1 International Status

FISK. JOHN AND JOHN HARTLEY content that television is literally a highly visible medium and it does seem

to influence peoples behavior, if only to the extent that more people watch for more hours then they did a generation ago. It is a short step from this observation to one which proposes that television, unaided, causes people to sit and watch. It comes in some quarters to be regarded as a post.

DAVID J.RACHMAN Suggests in his book that television as an advertising medium is expected to grow in the future and will not become stagnant. Some advertisers sponsor low budget programmers on cable television whose content often fits neatly with a sponsor's products. Even through the audience for these low budgeted programmes are smaller then for network programming, they have the advantage of being highly targeted. It is excellent for product demonstrations because it reproduces both pictures and human voice.

4.2 National Status

SHERLEKHAR avouches that television uses both video and audio signals. Television has all the advantage of radio namely sound and explanation and an additional advantage of sight. It can appeal through age and ear. Product can be demonstrated with explanation. Television reaches the audience almost like personal face to face contact. Full opportunity exists for the amplification of the selling points with audio presentation. It combines all the element of communication viz., illustration music, spoken words, and written words.

ABDUL MANNAN conducted a study on " Humorous advertising and it effectiveness" in Bangladesh. He compared the humorous advertising with serious version of the same advertisement. Humorous appeal appear to be persuasive but the persuasive effect is at best no longer then that of serious appeals.

5. SIGNIFICANCE OF THE STUDY

The term "advertising" has a significant meaning in the world of marketing. As a catalyst for change, advertising, contributes to expand the market, especially for new market segments.

Advertising has become a potential tool for increasing sales revenue and large sums of money are spent on it. So the basic purpose of testing advertisement effectiveness is to avoid costly mistakes, to predict the relative strength of alternative advertising and to increase the advertising.

The present study explains about the effectiveness of the celebrity advertisement in various media and also about various steps for improving its effectiveness.

6. OBJECTIVES

1. To know the impact of celebrity advertisement in Erode district.
2. To know the respondents preference of the media to view advertisement.
3. To study the effectiveness of celebrity advertisement.
4. To study whether present day celebrity advertisements are informative and remember able.
5. To study the level of satisfaction of celebrity advertisement.

7. METHODOLOGY

7.1 Sample Design

In this study, descriptive research design adopted for the accomplishment of the objectives of the study, as it describe the predictions and concern of respondents about celebrity advertisement. The sample size of the study covers 500 respondents residing in various places of Erode District. These targeted group of respondents were identified at random, based on the list of customers obtained from various places.

7.2 Tools Used for Data Analysis

The data collected have been categorized and processed manually and also though computer. The statistical used for the analysis include,

i. Weighted score ranking analysis
ii.Weighted average score analysis

8. CELEBRITY ADVERTISEMENT-AN OVERVIEW

The primary advantage of using celebrities is that they improve product recognition in a promotional environment filled with hundreds of competing commercials. As competition is increasing at greater pace among marketers the need arises for them to attract consumers and they are adopting this technique of using celebrities in advertisement. the use of celebrities makes the viewers move through difference stages of consumer adoption or decision making process very quickly at each and every stage .

The use celebrities in advertisement brings faster" awareness" in the first stage. This is because of the

high recognition for a celebrity. In the second stage ,"Interest/Knowledge" celebrity advertisement kindles interest very quickly as it is endorsed by the celebrity. A celebrity advertisement makes evaluation easy for consumers. So that the trial is automatic, if the product is well designed. Consumers will try to evaluate it and would like to make a trial because of belief in celebrity. If the celebrities do not have a high positive image consumers may not go through this stage. The adoption may be for longer period of time. During post adoption stage the use of celebrity reinforces the confidence of consumers which is often known as" Reinforcement advertising".

9. CORPORATES USE CELEBRITIES IN THEIR ADVERTISING

Increased consumerism is one of the reasons celebrities are increasingly sought after for brand endorsement. This leads to brand visibility.

Film stars and cricketers are considered national icons, so they act as ideal candidates for mass marketing. The main reason is to make the brand stand out and to facilitate instand awareness. For example, in shah Rukhsantro campaign, the organization wanted to overcome the shortcomings of an unknown brand, Korean at that time. The objective was to garner faster brand recognition, association and emotional unity with the target group. The Santro as showed the highest recall amongst auto advertisement, despite average media spends for the category.

Basically ,celebrity endorsement give a brand a touch of glamour ,and the hope that a famous face will provide added appeal and name recognition in a crowded market. In the battle for the mind ,showing him a known face excites he customer, and an effective demand is created. This would normally work best when the concerned brand has close substitutes ,or has a need for differentiation , or requires quick entry in a short lifecycle category.

10. DATA ANALYIS & INTERPRETATION

10.1 Weighted Score Ranking Analysis

10.1.1 Rank the Various Elements of Celebrity Advertising which Helps in Easy Recall

Table 1 it is found that "music & impressive word jargons" is ranked first by the responds costumes and movements is ranked second, situation and presentation style is ranked third and celebrity popularity is ranked fourth, celebrity physical appearance is ranked fifth and sex of the celebrity is ranked sixth.

Table 1 Rank the Various Elements of Celebrity Advertising which Helps in Easy Recall

Sl. No.	Factors	Number of Respondents	Rank
1	Sex of the Celebrity	602	6
2	Costumes and Movements	722	2
3	Situation and Presentation Style	710	3
4	Music and Impressive Word Jargons	758	1
5	Celebrity Physical Appearance	702	5
6	Celebrity Popularity	706	4

Source: primary data

10.1.2 Rank the Various Benefirs of Advertising

Table 2, it is found that "create interest and attachment towards brand":is ranked first by the respondents. faster brand awareness is ranked second easy introduction of new brand is ranked third and increase the sales is ranked fourth easy recall of brand is ranked fifth.

Table 2 Rank the Various Benefirs of Advertising

Sl. No.	Factors	Number of Respondents	Rank
1	Easy recall of brand	518	5
2	Increase the sales	552	4
3	Create interest and attachment towards brand	654	1
4	Faster brand awareness	650	2
5	Easy introduction of new brand	626	3

Source: primary data

10.1.3 Problems Faced by the Responds

Table 3, it is found that "Tempting the purchase of non essential product" is ranked first by the respondents. lack of clarity is ranked second. Advertising focusing on celebrity and not on the brand is ranked third and false information about the product is ranked fourth, celebrity audience mismatch is ranked fifth, loss of the celebrity image after sometime is ranked sixth.

Table 3 Problems Faced by the Responds

Sl. No.	Factors	Number of Respondents	Rank
1	Tempting the purchase of non eventual products	132	1
2	False information about the product	119	4
3	Lack of clarity when one celebrity appear for multiple product	126	2
4	Celebrity audience mismatch	117	5
5	Loss of the celebrity image after some time	100	6
6	Advertising focusing on celebrity and not on the brand	120	3

Source: primary data

10.2 Weighted Average Score Analysis

In the study the weighted average analysis technique was used to determine the level of opinion /satisfaction of the respondents. Before using the technique three point technique was used to convert the qualitative information into quantitative one.

The study factors of the respondents considered is,
a. Educational qualification of the respondents.

The opinion factors for the purpose of analysis refer the following:
1.Word jargons
2.Effective music
3.Situation

Table 4 Weighted Average Score Analysis

Educational Qualification	1	2	3	4	5	6	7	8	9	10
a .Illiterate	50	51.25	52.75	51.25	47	48.5	50	56.75	47	55.5
b.School level	58	55	58	58	56.75	56.5	50	53.25	42.5	48.5
c.Graduate level	53.5	52	56.25	60.5	58.5	50	50.5	47.5	47	47.5
d. Profession level	51.75	39.25	50	52.75	46	38.25	53.75	50	54.75	46

Source: primary data

4.Artist
5.Costumes
6.Presentation style
7.Attractive movement
8.Fascial expression
9.Clarity of the advertisement
10.Media

It is clear from the above table that the word jargons of celebrity advertisement on school level is highest with 58% followed by the graduates with 53.5% and the lowest being illiterate with50%.

The above table shows that the effective music of celebrity advertisement on school level is highest with 55% followed by graduates with 52% and the lowest being profession with 39.25%.

The table shows that the situation of celebrity advertisement on school level is highest with58% followed by graduates with 56.25% and the lowest being profession with50%.

The table shows that the artist of celebrity advertisement on graduates is highest wih60.5% followed by school level 58% and the lowest being illiterate with51.25%.

The table shows that the costumes of celebrity on advertisement on graduates is highest with53% followed by school level with 56.75% and the lowest being profession with 46%.

The table shows that the presentation style of celebrity advertisement on school level with 56.5% followed by graduates with 50% and the lowest being profession with 38.25%.

The table shows that the attractive movement of celebrity advertisement on profession is highest with53.75% followed by graduates with 50.5% and the lowest being both illiterate and school with 50%.

The table shows that the facial expression of celebrity advertisement on illiterate is highest with56.75% followed by school level with 53.25% and the lowest being graduates with 47.5%.

The table shows that the clarity of the advertisement on profession is highest with54.75% followed by illiterate

and graduates with 47% and the lowest being school level with42.5%.

The table shows that the media of celebrity advertisement on illiterate with 55.5% followed by school level with 48.5% and the lowest being profession with 46 %.

11. SUGGESTION

i. Celebrity should not accept the advertisement which is hazardous to social welfare.
ii. Celebrity should avoid to providing false information about the products
iii. Celebrity should appear for single product is more effective than the multiple products.
iv. Advertising company should change the celebrity at the time loss of their image
v. It is also found in the study that considerable percentage of respondents do not prefer costume and material in much more. The advertiser should concentrate to these products, the sales should be increased

12. CONCLUSION

For almost all the business there is a need for advertising in the modern world. Earlier it was used as communication media but today the advertising is used as a source of influencing the consumers and it will create more sales to their product. Now the modern marketing face the high competition in their activities. Competition is the order of the day. Advertising is one of the source to earning the profit. The advertiser should concentrate at the time of selecting the celebrity for their products. The product get a good reputation in the market for a long period.

REFERENCES

[1] J. Agrawal and W.A.Kamakura, "The Economic Worth of Celebrity Endorsers: An Event Study Analysis", Journal of Marketing, Vol.59, No.3, 1995, pp.56-63.
[2] C. Atkin and M.Block, "Effectiveness of Celebrity Endorsers", Journal of Advertising Research, Vol.23, No.2, pp.57-61.
[3] T.E. Barry, "Twenty Years of Comparative Advertising In The United States", International Journal of Advertising, Vol.12, No.4, 1991, pp.325-350.
[4] Y. K.Choi and G. E.Miracle, "The Effectiveness of Comparative Advertising in Korea and The United States", Journal of Advertising, Vol.33, No.4, 2004, pp.75-87.
[5] Chaiken, Shally, "Communication Physical Attraction and Persuasion", Journal of Personality and Social Psychology, Vol.37 (August), 1979, pp.1387-1397.
[6] L. Ang and C.Dubelaar, "Explaining Celebrity Match-up: Co-activation Theory of Dominant Support", Advances in Consumer Research, Asia-Pacific Conference Proceedings, Vol.7, 2006, pp.378-384.
[7] H.H.Friedman and L.Friedman, "Endorser Effectiveness by Product Type", Journal of Advertising Research, Vol.19, No.5, 1979, pp.63-71.
[8] G. McCracken, A.B.Lukas and D. Seno, "The Equity Effect of Product Endorsement by Celebrities: A Conceptual Framework from a Co-Branding Perspective, European Journal of Marketing, Vol.41, 2005, pp.122.
[9] D. Senoand A.B.Lukas, "The Equity Effect of Product Endorsement by Celebrities: A Conceptual Framework from a Co-Branding Perspective", European Journal of Marketing, Vol.41, No.1/2, 2007, p p.121-134.
[10] G.F.Song, S.Chaipoopiratana and H. Combs, " A Study of Chinese Advertising Practitioner's Perspectives on The Selection of Celebrity Endorsers", Journal of Business and Behavioral Sciences, Vol.19, No.1, 2008, pp.17-32.

Literature Output on Rice in India: A Scientometric Study

K. Sivasekaran
Librarian, Paavai Engineering College, Namakkal-637 018, Tamil Nadu
E-Mail: sivasekarank@gmail.com

Abstract

This study analyses the research output in India in Rice during the period 2001-2013 and the analyses included research growth, rank, LCS, GCS. It also analyses the characteristics of most productive institutions, authors and high - cited papers. The study was conducted using data from the Web of Science database over the time period of 2001–2013. India's global publications' share in rice during the study period was 10.6 percent (with 6,447 papers) and it ranked 4th among the top 10 countries in rice. It includes 92.63 percent of articles, 3.55 percent of reviews etc., the growth rate of publications varied from 0.91 percent to 1.35 percent per year. The annual growth rate was highest in the year 2007 at 1.35 percent. The average annual publication growth rate was one percent. India is far behind in terms of publication output, citation quality and share of international collaborative papers in rice when compared to other countries with an emerging economy. There is an urgent need to substantially increase the research activities in the field of rice in India.

Key words: *Cited References, Histcite,Rice, India*

1. INTRODUCTION

The journey of rice around the world has been slow, but once it took root it stayed and became a major agricultural and economic product for the people. Based on production volume, the third most cereal in world is Rice after than corn and wheat. More than 460 million metric tons of husked rice was produced in the past two harvesting years worldwide. Traditionally, countries in Asia have the largest share in world rice production. With over 200 million metric tons, China is the world's leading rice producer, while India is the country with the largest area where rice is harvested. 106.1 million hectares cultivated rice in world and 719.74 million metric tons production of worldwide. In the Indian subcontinent more than a quarter of the cultivated land is given to rice. In 2014 the production of rice is 106.54 metric tons rice from 34.98 million hectares. It is a very essential part of the daily meal in many parts of the country.

2. OBJECTIVES

i. To identify and analyze the exponential growth rate of research literature on Rice in Indian Contributions.
ii. To analyze the authorship pattern and examine the extent of research collaboration.
iii. To analyze the source wise distribution on Rice research output.
iv. To apprehend and test the applicability of Lotka's law of author productivity in the field of Rice research.
v. To assess the Institution wise research concentration in rice literature in India.
vi. To identify the journal's contribution on rice literature with their impact factors.

3. METHODOLOGY

The data has collected from the web of Science database and using Histcite software for making on tables.

4. ANALYSIS AND INTERPRETATIONS

Table 1 shows that the year wise research productivity of rice during the study period from 2001 to 2013 and the exponential growth rate. The year 2013 has the highest number of publications (12.02%) followed by 2012 (11.60%), 2011 (10.94%) and 2010 (9.59%) respectively. The year of 2002 is the lowest publication among the 13 years. The year 2007 has got the highest citation scores (7453) and the year 2013 has got very lowest citation scores (1001). The average of exponential growth rate is 1%.

More than 100 Collaborated countries across the globe produced the rice research during the study period. It is found that China, USA, Japan are three top nations having a collaborations with a outcome of 12474, 11029 and 10047 publications forming 20.51%, 18.14% and 16.52% respectively. India is the fourth position has produced 10.60% of research output. The top 10 countries produced 89.05% of research literature on Rice.

Table 1 Yearly Output and Exponential Growth Rate on Rice Literature

Sl. No.	Year	Records	Percent	GR	TLCS	TGCS	Rank
1	2001	294	4.56	-	665	5239	12
2	2002	269	4.17	0.91	636	4444	13
3	2003	319	4.95	1.18	758	6319	10
4	2004	297	4.61	0.93	584	4954	11
5	2005	355	5.51	1.19	709	7228	9
6	2006	398	6.17	1.12	573	6737	8
7	2007	539	8.36	1.35	736	7453	7
8	2008	578	8.97	1.07	701	6836	5
9	2009	552	8.56	0.95	777	1396	6
10	2010	618	9.59	1.11	601	5501	4
11	2011	705	10.94	1.14	435	3832	3
12	2012	748	11.60	1.06	236	2332	2
13	2013	775	12.02	1.03	58	1001	1
	Total	**6447**	**100.00**	**13.04**	**7469**	**63272**	-

Table 2 Countries Output on Rice literature

Sl. No.	Country	Records	Percent of 60806
1	Peoples R china	12474	20.51
2	USA	11029	18.14
3	Japan	10047	16.52
4	**India**	**6447**	**10.60**
5	S Korea	3472	5.71
6	Brazil	2474	4.07
7	Germany	2385	3.92
8	England	2010	3.31
9	Australia	2007	3.30
10	France	1800	2.96
	Total	**54145**	**89.05**

Table 3 shows that distribution of year wise h-index, cited scores and number of authors contributed the research publications. The year 2007 got highest h-index (41) followed by the year 2001 (39). The years 2003 -2006 has got the equal h-index (38) and got third position during the study period. In 2013, the highest number of authors (3580) contributed 775 publications followed by 2012 (3214 authors contribute 748 publications) and 2011 (3120 authors contribute 705 publications) respectively. It is quite interesting note that the year 2013 has got very low h-index (9) among 13 years. The average cited reference per author is 33.70.

Table 4 shows that the distribution of the publications from India is in 7 formats. Of which the research Articles in journals is the most preferred format of publication in Rice research as it form 92.63% of the total literature output. The other preferred forms by the Indian researcher as Reviews (3.55%), Proceeding Papers (1.91%), Meeting Abstracts (0.59%), Editorial Materials (0.42%), Letters (0.23%) and Others (0.67%).

The table 5 shows that the identifying the research performance in any area of particular science, it is vital to analyze the author's productivity. The author's efficiency is determined by the scientists in a specific field. Here the authors are classified according to their number of research contribution. From this data the three author's productivity is the highest (25.65%) compared to other collaborative authorship. Followed by two authors contribution has 20.75% of articles, four authors contribution has 18.6%, five authors contribution has 12.35% and remaining collaborative authorship pattern productivity having below 10% of articles respectively. It is quite interesting note that single author's contribution has 4.3% only.

Table 3 Distribution of Year-wise H-index, Cited Records and Number of Authors in Rice Research Productivity

Sl. No.	Year	Records	h-index	Average Citation	CR	ACRPA	NA
1	2001	294	39	17.82	8275	28.15	1034
2	2002	269	36	16.47	6962	25.88	1030
3	2003	319	38	19.81	9295	29.14	1278
4	2004	297	38	16.68	8933	30.08	1080
5	2005	355	38	20.36	11291	31.81	1540
6	2006	398	38	16.93	12634	31.74	1539
7	2007	539	41	14.29	11147	31.14	2070
8	2008	578	37	11.83	18500	32.01	2308
9	2009	552	35	11.64	18795	34.05	2292
10	2010	618	29	8.90	23321	37.74	2628
11	2011	705	26	5.44	29267	41.51	3120
12	2012	748	17	3.12	31188	41.70	3214
13	2013	775	9	1.29	33471	43.19	3580
	Total	**6447**	-	-	**2,23,079**	**33.70**	**26713**

average cited reference per author is 33.70.

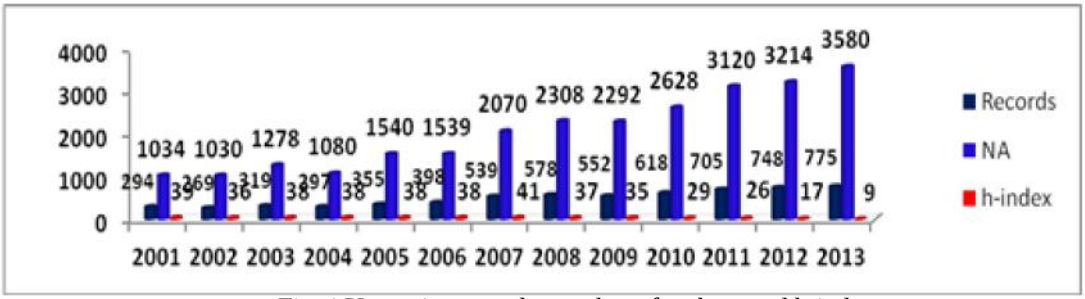


Fig. 1 Year-wise records, number of authors and h-index

Table 4 Source-wise Distribution on Rice Research Output

Year	2001	02	03	04	05	06	07	08	09	10	11	12	13	Total	%
Articles	277	252	298	280	327	374	493	526	507	560	662	694	722	5972	92.63
Reviews	10	10	9	11	10	14	26	5	12	37	26	35	35	229	3.55
Proceeding Papers	3	4	7	3	6	4	15	27	19	8	3	5	8	123	1.91
Meeting Abstracts	1	0	1	0	2	2	2	10	5	4	3	2	6	38	0.59
Editorial Materials	1	1	2	1	2	2	1	2	2	4	4	3	2	27	0.42
Letters	0	2	0	1	2	1	1	1	2	1	2	1	1	15	0.23
Others	2	0	2	1	6	1	1	7	5	4	5	8	1	43	0.67
Total	**294**	**269**	**319**	**297**	**355**	**398**	**539**	**578**	**552**	**618**	**705**	**748**	**775**	**6447**	**100**

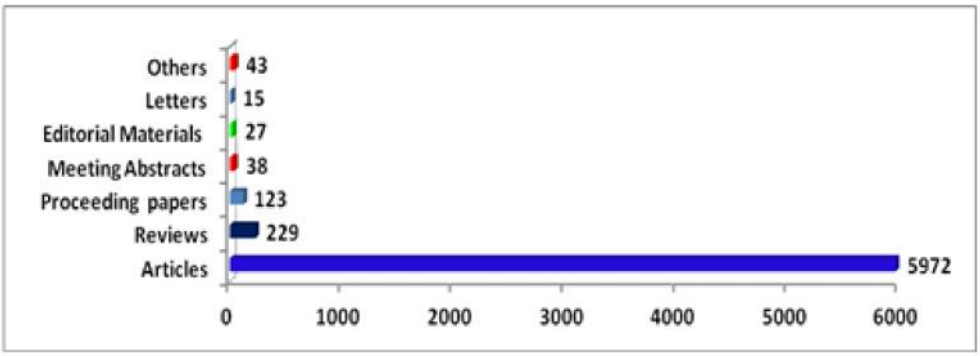


Fig 2. Source-wise output on rice

Table 5 Author's Productivity in the Field of Rice Research

Year	2001	02	03	04	05	06	07	08	09	10	11	12	13	Total	%
Single authors	20	14	19	18	20	18	23	34	25	25	21	26	14	277	4.3
Two authors	69	67	77	74	85	83	127	128	114	115	136	133	130	1338	20.75
Three authors	90	76	71	76	96	98	149	151	148	146	162	193	198	1654	25.65
Four authors	42	51	67	44	69	74	97	109	101	126	137	133	149	1199	18.6
Five authors	33	21	35	28	39	45	61	73	69	82	101	103	106	796	12.35
Six authors	19	15	16	18	18	39	30	31	34	40	59	65	64	448	6.95
Seven authors	8	10	12	18	15	24	22	18	17	24	27	30	43	268	4.16
Eight authors	10	5	2	9	2	7	12	7	15	24	13	26	28	160	2.48
Nine authors	1	2	7	4	2	3	2	9	5	10	18	22	30	115	1.78
Ten & Abvoe	2	8	13	8	9	7	16	18	24	26	31	17	13	192	2.98
Total	**294**	**269**	**319**	**297**	**355**	**398**	**539**	**578**	**552**	**618**	**705**	**748**	**775**	**6447**	**100**

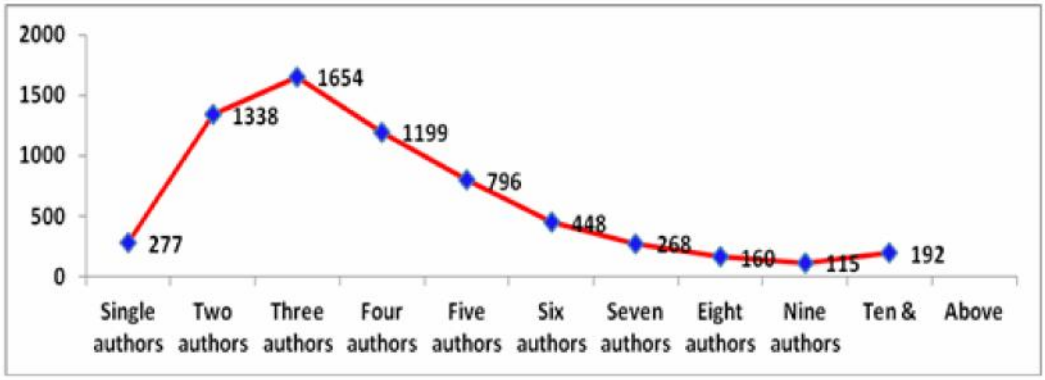


Fig 3. Author's productivity of research output

Table 6 Lotka's Law of Author Productivity in Rice

No. of Contribution X	No. of Contributoires	Y	∑X = log x	∑Y = log y	∑X*Y	∑X*X
1	277	277	0	5.624	0.000	0
2	1338	2676	0.693	7.892	5.469	0.480
3	1654	4962	1.098	8.509	9.343	1.206
4	1198	4792	1.386	8.474	11.745	1.921
5	796	3980	1.609	8.289	13.337	2.589
6	448	2688	1.791	7.896	14.142	3.208
7	268	1876	1.945	7.536	14.658	3.783
8	160	1280	2.079	7.154	14.873	4.322
9	115	1035	2.197	6.942	15.252	4.827
10	54	440	2.302	6.086	14.010	5.299
11	45	385	2.397	5.953	14.269	5.746
12	32	360	2.484	5.886	14.621	6.170
13	22	260	2.564	5.560	14.256	6.574
14	15	210	2.639	5.347	14.111	6.964
15	11	165	2.708	5.105	13.824	7.333
16	13	208	2.772	5.337	14.794	7.684
17	4	68	2.833	4.219	11.952	8.026
18	5	90	2.890	4.499	13.002	8.352
19	2	38	2.944	3.637	10.707	8.667
20	1	20	2.995	2.995	8.970	8.970
21	2	42	3.044	3.737	11.375	9.266
22	1	22	3.091	3.091	9.554	9.554
23	4	92	3.135	4.521	14.173	9.828
25	3	75	3.218	4.317	13.892	10.356
28	1	28	3.332	3.332	11.102	11.102
29	1	29	3.367	3.367	11.337	11.337
31	1	31	3.433	3.433	11.785	11.785
32	1	32	3.465	3.465	12.006	12.006
35	1	35	3.555	3.555	12.638	12.638
37	1	37	3.610	3.610	13.032	13.032
39	1	39	3.663	3.663	13.418	13.418
43	1	43	3.761	3.761	14.145	14.145
45	1	45	3.806	3.806	14.486	14.486
91	1	91	4.510	4.510	20.340	20.340
262	1	262	5.568	5.568	31.003	31.003
Total		**26713**	**96.884**	**180.676**	**457.621**	**306.417**

P = number of X items in table = 36
N =maximum number of contributors = 26713
N: Observed value

Pao (1989) proposed the way to calculate n-value and c- value of Lotka's law as in (1) and (2)

$$n = \frac{N\Sigma XY - \Sigma X \Sigma Y}{N\Sigma X^2 - (\Sigma X)^2} \quad (1)$$

N = 36 (457.621) – (96.884)(180.676)/36 (306.417) – (96.884)(96.884)

N = - 0.626

N is the maximum contribution of an author. X is log(x) and Y is log(y) where y are the authors who have x number of contribution.

$$c = \frac{1}{\sum_{1}^{p-1} \frac{1}{x^n} + \frac{1}{(n-1)(p^{n-1})} + \frac{1}{2p^n} + \frac{1}{24(p-1)^{n+1}}} \quad (2)$$

Where p is the number of publication groups which authors were contributed the same amount of publications. Besides, Pao also used Kolmogorov–Smirnov (K–S) test to verify if Lotka's law is matched or not under the condition that p-value is greater than thirty five.

Square root of 26,713 is 163.441, and verifies K-S statistic value to see if Lotka's law be capable of hold for Renewable Energy related Publications. For N value is greater than 36, therefore, K-S statistics method can be used to verify if Lotka's law could hold for the sample area publications.

K – S = 1.63 / 163.441
K-S = 0.009 for N = 26,713

Totally 26,713 authors were contributed to the area of Rice research productivity. 2226.1 authors were calculating the mean value of every year author's contribution and 2.27 numbers of authors were calculated at individual articles. It emphasizes the fact that the more number of publications by a researcher in any field requires a high degree of inquisitiveness, competency, efficiency, insistence, and exposure to literatures. That is why majority of authors have contributed to more number of papers.

Table 7 shows that the analysis of the author's productivity examines the prevailing trend in understanding the research process in any discipline of science. It is evident from the above table that there are 402 publications from Indian authors affiliated to academic institution and research organization in India. This publications were contributed 26,713 authors both as single and joint authors. There are very few prolific authors, who have published a moderate number of publications. Of which, Kumar A, Singh S and Singh AK are having the highest contributions with 150, 121 and 116 publications respectively for the study period. Only four authors contributed more than 100 records and remaining contributed below 100 records. The analysis also revealed that h-index of the prolific authors, the ranges between 12 and 23.

Table 7 Top 10 Authors Contribution on Rice Literature in India based on Records Output with h-index

Sl. No.	Author	Records	TLCS	TGCS	ACPI	H-Index
1	Kumar A	150	148	657	5.70	17
2	Singh S	121	194	942	10.54	16
3	Singh AK	116	235	780	8.03	16
4	Singh A	107	284	2303	24.55	17
5	Kumar S	99	139	530	7.37	16
6	Singh N	75	147	1355	19.91	22
7	Singh R	66	111	503	9.15	12
8	Singh NK	64	272	2304	40.22	18
9	Kumar V	62	127	349	59.31	23
10	Tyagi AK	62	298	3222	7.24	14
	Total	**922**	**1955**	**12945**	-	-

Table 8 indicates the institution wise research activity in the field of rice research output. Totally 2891 institutions were brought out the research output of the selected field of whole 6447 sample data in India. The first 10 higher publication take by priority of their highest research output institutions only. It could be observed that Indian Agricultural Research Institute have the high (8.221%) productivity of this field during the study period with 961 LCS and 5661 GCS measured. This is followed by 'Punjab Agricultural University' (4.188%) with 435 LCS and 2226 GCS and 'Indian Institute of Technology, Delhi' (4.002%) with 258 LCS and 3698 GCS respectively.

Table 8 Organization's Contribution on Rice Research

Sl. No.	Name of the Organization	Record	%	TLCS	TGCS
1	Indian Agricultural Research Institute	530	8.221	961	5661
2	Punjab Agricultural University	270	4.188	435	2226
3	Indian Institute of Technology, Delhi	258	4.002	258	3698
4	Tamilnadu Agricultural University	244	3.785	294	2231
5	Banaras Hindu University	225	3.490	358	3104
6	University of Delhi	178	2.761	367	4128
7	International Rice Research Institute	170	2.637	695	4671
8	Centre for Food Technology Research Institute	169	2.621	130	1492
9	Central Rice Research Institute, India	156	2.420	187	1043
10	Council of Scientific Industrial Research, India	154	2.389	142	1419

It is found from analysis that the Indian literature output on rice has been proliferated in to 1,105 journals. Among them top 10 journals alone could contribute 18.33 percent of literature output (1182 publications). The top 3 positions in terms of the number of publications for the publishers 'Indian Council of Agricultural Research, India' (6.7%), 'Indian Institute of Science, Bangalore' (2.79 %) and 'Association of Food Scientists and Technologists' (1.68%) respectively. It is also found that the Impact Factor of journals, 'Bioresource Technology' has 5.172, followed by 'Field Crops Research' (2.957) and 'Agricultural Water Management' (2.822) respectively.

Table 9 Top 10 Journals contribution on Rice research in India (1105)

Sl. No.	Journal	Records	%	TLCS	TGCS	IF	Publisher
1	Indian Journal of Agricultural Sciences	336	5.21	146	317	0.17	ICAR, India
2	Current Science	180	2.79	254	1103	0.93	IISc, Bangalore
3	Journal of Food Science And Technology-Mysore	108	1.68	37	197	1.12	Association of Food Scientists and Technologists, India
4	Indian Journal of Agronomy	102	1.58	106	226	0.982	Elsevier
5	Research on Crops	90	1.40	3	4	0.881	Springer
6	Field Crops Research	88	1.36	342	1441	2.957	Elsevier
7	Agricultural Water Management	71	1.10	184	835	2.822	Elsevier
8	Euphytica	71	1.10	170	639	1.692	Springer
9	Bioresource Technology	68	1.05	143	2038	5.172	Elsevier
10	Indian Journal of Genetics And Plant Breeding	68	1.05	22	33	0.198	The Indian Society of Genetics & Plant Breeding
Total		**1182**	**18.33**	**1407**	**6833**	-	

The research publications on rice 2001- 2013 has downloaded from the source database and classified based on the citations. The top10 highest cited papers tabulated, it is found that only one paper got more than 1000 citations, and three papers got more than 500 citations during the study period.

5. FUNDING AGENCIES

Research funding agencies should encourage institutions to develop and implement policies and systems to promote integrity in all aspects of the research enterprise. It will work cooperatively with partners to

support and facilitate research integrity worldwide. The following are the major funding agencies in India contribute to rice research output. Department Of Biotechnology, Government Of India (163 records), Council Of Scientific And Industrial Research (88), Indian Council Of Agricultural Research, New Delhi (74), University Grants Commission New Delhi and Department Of Science And Technology Government Of India (33).

Table 10 Top 10 Highly Cited papers on Rice Literature in India

Sl. No.	Paper/Author/Journal	Times Cited
1	The map-based sequence of the rice genome By: Matsumoto, T; Wu, JZ; Kanamori, H; et al. Group Author(s): Int Rice Genome Sequencing Project NATURE Volume: 436 Issue: 7052 Pages: 793-800	1507
2	The Sorghum bicolor genome and the diversification of grasses By: Paterson, Andrew H.; Bowers, John E.; Bruggmann, Remy; et al. NATURE Volume: 457 Issue: 7229 Pages: 551-556	759
3	Kinetics and mechanism of removal of methylene blue by adsorption on various carbons - a comparative study, By: Kannan, N; Sundaram, MM, DYES AND PIGMENTS Volume: 51 Issue: 1 Pages: 25-40	586
4	Reactive oxygen species and antioxidant machinery in abiotic stress tolerance in crop plants, By: Gill, Sarvajeet Singh; Tuteja, Narendra PLANT PHYSIOLOGY AND BIOCHEMISTRY Volume: 48 Issue: 12 Pages: 909-930	564
5	Equilibrium, kinetics, mechanism, and process design for the sorption of methylene blue onto rice husk By: Vadivelan, V; Kumar, KV JOURNAL OF COLLOID AND INTERFACE SCIENCE Volume: 286 Issue: 1 Pages: 90-100 Published: JUN 1 2005	443
6	Use of activated carbons prepared from sawdust and rice-husk for adsorption of acid dyes: a case study of Acid Yellow 36 By: Malik, PK DYES AND PIGMENTS Volume: 56 Issue: 3 Pages: 239-249 Published: MAR 2003	361
7	Greenhouse gas mitigation in agriculture By: Smith, Pete; Martino, Daniel; Cai, Zucong; et al. PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES Volume: 363 Issue: 1492 Pages: 789-813	354
8	Morphological, thermal and rheological properties of starches from different botanical sources By: Singh, N; Singh, J; Kaur, L; et al. FOOD CHEMISTRY Volume: 81 Issue: 2 Pages: 219-231 Article Number: PII S0308-8146(02)00416-8 Published: MAY 2003	324
9	Validation of housekeeping genes as internal control for studying gene expression in rice by quantitative real-time PCR, By: Jain, Mukesh; Nijhawan, Aashima; Tyagi, Akhilesh K.; et al. BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS Volume: 345 Issue: 2 Pages: 646-651	285
10	Bioconversion of lignocellulosic biomass: biochemical and molecular perspectives, By: Kumar, Raj; Singh, Sompal; Singh, Om V. JOURNAL OF INDUSTRIAL MICROBIOLOGY & BIOTECHNOLOGY Volume: 35 Issue: 5 Pages: 377-391	283

6. CONCLUSION

Rice research in India has shown the importance of understanding the Agricultural for the sustainable development. Based from this analysis the research productivity of rice is a regular growth during 2001-2013. 25.65 percent of research publication contributed by three authors. Journal Article has the dominating documentation source than others. The average of exponential growth rate is one percent. The organization of Indian Agricultural Research Institute has contributed 530 records and the journal Indian Journal of Agricultural Sciences 336 records with impact factor 0.17. the The paper 'The map-based sequence of the rice genome' by Matsumoto, T; Wu, JZ et al., in the journal 'Nature' has got highest citations (1507) during the study period.

REFERENCES

[1] K. Sivasekaran and S.Srinivasaragavan, "Mapping of Research Publications on Himalayas : A Scientometrics Exploration", International Journal of Scientific Research. Vol.3, 2013, pp.58-60.

[2] N. Amsaveni, R. Vasanthi and K. Sivasekaran, "Open Access of E-Journals in Technology and Engineering to DOAJ: A Scientometric Study", Global Research Analysis, Vol.3, 2013, pp.87-89.

[3] R.U. Ramasamy, K.Sivasekaran and C. Navasakathi, "Scientometric Analysis of Thorium Research in India: A Case Study", Global Research Analysis, Vol.4, 2013, pp.80-82.

[4] P. Ashok Kumar, Santosh A Navalur and K.Sivasekaran, "A Scientometric Study of Biodiversity Research in India: A Special Reference to Authors Productivity", International Journal of Scientific Research, Vol.3, 2013, pp. 58-60.

[5] International Rice Research Institute. http://irri.org/rice-today.

[6] World rice acreage from 2008/2009 to 2013/2014. http://www.statista.com/statistics/271969/world-rice-acreage-since-2008/

[7] India Government Projects 2013-2014 Rice Production. http://www.oryza.com/tags/India-Rice-Production.

[8] Role of research funding agencies in the enforcement of research integrity. http://www.sciforum.hu/cms/upload/docs/slides2013/14h_00_Paulo_Beir_o_sala_Angra_1__25_11.pdf

A Scientometric Analysis of Optical Computing Literature

K. S. Abu[1] and Dr. R. Balasubramani[2]

[1]Ph.D Scholar, Department of Library and Information Science Bharathidasan University, Trichy - 620 024, Tamil Nadu

[2]Assistant Professor, Department of Library and Information Science, Bharathidasan University, Trichy - 620 024, Tamil Nadu, E-mail: lisbala@gmail.com

Abstract

This study examined the growth of optical computing research in India from the year 1989-2014.A total of 859 records were downloaded from Web of science database. The findings revealed that Indian Institutes of Technology (IITs) and Indian Institute of Science were the major producers of research output in optical computing. The top ten journals produced more than one fourth of the total research output and in the extent of international collaboration India had often collaborated with U.S.A, contributing to 63 records with a global citation score of 6799.Contribution of journals, ranking of authors, preference of publication and frequency of keywords were also analyzed in this paper.

Keywords: *optical computing, citation, scientometrics, web of science*

1. INTRODUCTION

In recent times, Internet has grown rapidly and its usage has been increased significantly. The network speeds for the internet are currently acquired by electronic circuits, contributing to a lower bandwidth. In order to increase the bandwidth, photons must be used for computing process. An optical computer is a computer that performs its computation with photons as opposed to the more traditional electron-based computation. The most significant advantage of optical computers is the potential of higher performance and it can be dynamically reconfigured and scaled into larger or smaller topologies or network. Optical computing multiple of frequencies and information is sent throughout computer as light waves and packets. Quantitative studies measuring and analyzing scientific research is commonly known as scientometrics. It gives emphasis on investigations in which the development and mechanism of science are studied by statistical mathematical methods. This paper analyzes the research activity on optical computing using scientometric tools.

2. OBJECTIVES

The objectives of the present study are:

i. To examine the growth of research productivity in the field of optical computing.
ii. To identify the document wise distribution of publication.
iii. To find out the extent of international collaboration.
iv. To determine the ranking of authors based on publications.
v. To assess the journal wise distribution of publication.
vi. To analyze the top institutions contributed optical computing research.
vii. To identify the top keywords used in optical computing research.

3. METHODOLOGY

This study, encompassing records obtainable from Web of science database which is a scientific and indexing service maintained by Thomson Reuters. Records pertaining to optical computing were gathered from the year 1989-2014.The search string "optical computing" was used to download data from the database and a total of 859 records were downloaded. The data were analyzed using Histcite software which is used for bibliometric analysis and information visualization.

4. ANALYSIS

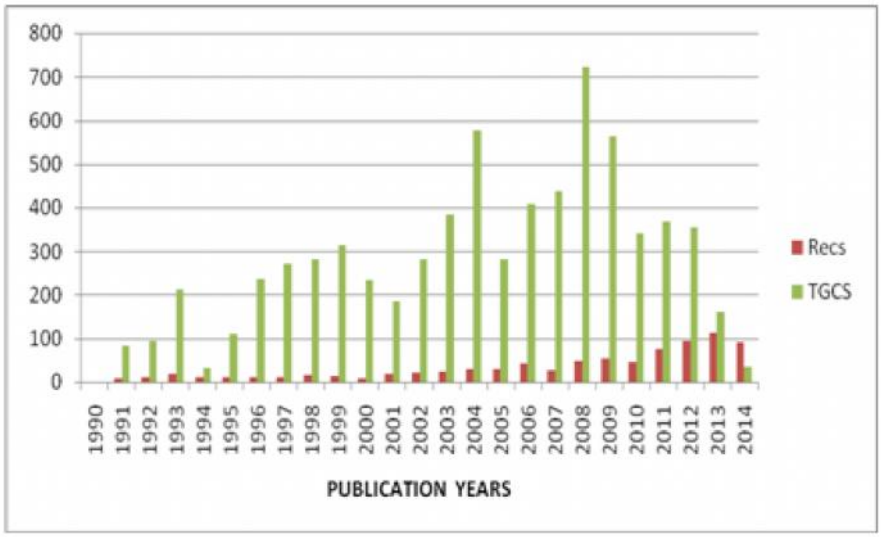
4.1 Year-wise Publications

Table 1 shows the year wise publications in optical computing research in India from the year 1989-2014.The highest number of publications in even the year 2013 with 114 records, having a global citation score of 162. It also shows that even minimum numbers of records have scored higher global citation scores. It is clearly

seen that up to the year 2000 the records were in minimum number but after millennium the publications on optical computing research in India have increased significantly, except for the year 2014 where the publications decreased considerably.

Table 1 Year-wise Distribution of Publication on Optical Computing in India

Sl. No.	Publication Year	Recs.	Percentage of 859	TGCS
1	1990	1	0.116	0
2	1991	10	1.164	83
3	1992	11	1.281	94
4	1993	19	2.212	211
5	1994	11	1.281	33
6	1995	12	1.397	111
7	1996	11	1.281	237
8	1997	13	1.513	272
9	1998	17	1.979	282
10	1999	14	1.63	313
11	2000	10	1.164	234
12	2001	21	2.445	185
13	2002	23	2.678	283
14	2003	25	2.91	385
15	2004	31	3.609	576
16	2005	30	3.492	281
17	2006	43	5.006	407
18	2007	29	3.376	438
19	2008	49	5.704	723
20	2009	54	6.286	565
21	2010	46	5.355	340
22	2011	76	8.847	368
23	2012	96	11.176	355
24	2013	114	13.271	162
25	2014	93	10.827	35
	Total	859	100	6973

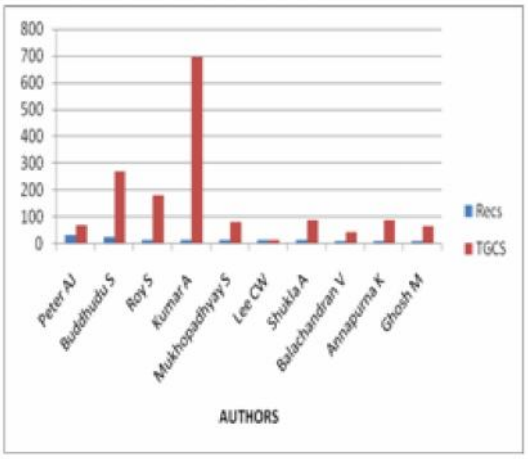


4.2 Ranking of Authors

Table 2 indicates the ranking of top ten authors by the number of publications in optical computing research in India. It is clearly seen from the table that peter AJ has published the highest number of publications with 32 records, having a global citation score of 70, followed by Buddhudu S with 26 records, having a global citation score of 270.It is also noted that Kumar A has scored the highest global citation score of 697 with 8 publications.

Table 2 Ranking of Authors by the Number of Publications in Optical Computing Research in India (Top ten)

Sl. No.	Author	Recs	TGCS
1	Peter AJ	32	70
2	Buddhudu S	26	270
3	Roy S	16	182
4	Kumar A	15	697
5	Mukhopadhyay S	14	82
6	Lee CW	13	16
7	Shukla A	13	90
8	Balachandran V	11	43
9	Annapurna K	10	88
10	Ghosh M	10	67

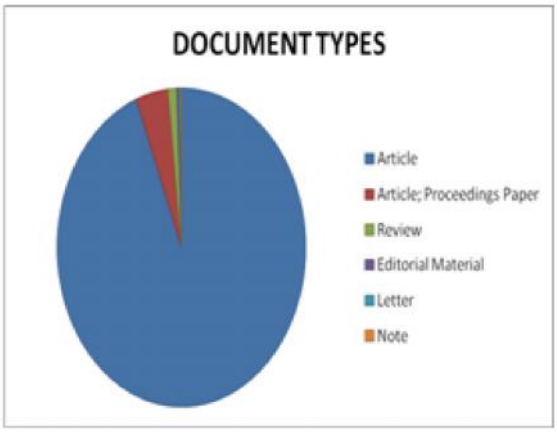


4.3 Document Types

Table 3 provides the Distribution of publication on optical computing research in India by document type. It is interpreted from the table that major source of publication in optical computing research in India is in the form of Articles, contributing to 808 records with a global citation score of 5970.It is also noted that reviews have a global citation score of 745 higher than proceedings paper with only 10 records.

Table 3 Distribution of Publication on Cloud Computing by Document Type

Sl. No.	Document Type	Recs.	TGCS
1	Article	808	5970
2	Article; Proceedings Paper	36	247
3	Review	10	745
4	Editorial Material	2	3
5	Letter	2	5
6	Note	1	4



4.4 Journals Used

Table 4 presents the contribution of top ten institutions in optical computing research in India. It is clearly seen from the table that Indian Institute of Technology has the maximum number of publications with 79 records having a global citation score of 567, followed by Indian Institute of Science with 43 publications, having a global citation score of 618.it is also noted that institutes with minimum publications have scored highest global citation score.

4.5 Distribution by Institution

Table 5 presents the contribution of top ten institutions in optical computing research in India. It is clearly seen from the table that Indian Institute of Technology has the maximum number of publications with 79 records having a global citation score of 567, followed by Indian Institute of Science with 43 publications, having a global citation score of 618.it is also noted that institutes with minimum publications have scored highest global citation score.

4.6 Collaboration

Table 6 depicts the extent of top ten International collaboration of India with other countries in optical computing research. The study found out that India has collaborated in optical computing research with 63 countries. It is inferred from the table that India has often collaborated with U.S.A, contributing to 63 records having a global citation score of 6799, followed by South Korea and France contributing to 35 and 24 records with global citation scores of 437 and 556 respectively.

Table 4 Distribution of Publication on Optical Computing by Journals (Top ten)

Sl. No.	Journal	Recs.	TGCS
1	SPECTROCHIMICA ACTA PART A-MOLECULAR AND BIOMOLECULAR SPECTROSCOPY	66	506
2	OPTIK	26	36
3	OPTICS COMMUNICATIONS	21	173
4	PHYSICAL REVIEW B	21	285
5	OPTICAL ENGINEERING	20	75
6	APPLIED OPTICS	19	92
7	JOURNAL OF MOLECULAR STRUCTURE	17	24
8	INDIAN JOURNAL OF PURE & APPLIED PHYSICS	15	41
9	PHYSICA B-CONDENSED MATTER	13	81
10	JOURNAL OF THE OPTICAL SOCIETY OF AMERICA A-OPTICS IMAGE SCIENCE AND VISION	10	90

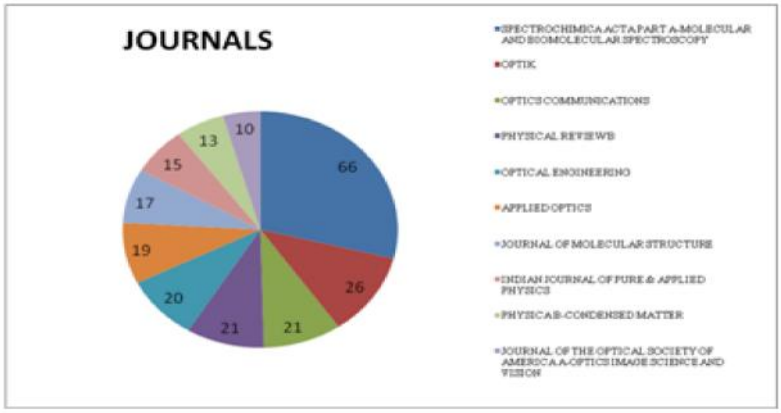


Table 5 Distribution of publication in optical computing by Institution (Top ten)

Sl. No.	Institution	Recs	TLCS	TGCS
1	Indian Institutes of Technology (IITs)	79	29	567
2	Indian Institute of Science	43	32	618
3	Sri Venkateswara University	36	17	301
4	Kyung Hee University	26	2	34
5	University of Calcutta	26	16	139
6	Indian Association of Cultivation Science	23	18	252
7	Government Arts Colleges	21	3	33
8	Banaras Hindu University	20	2	117
9	Bhabha Atomic Research Centre	20	1	468
10	Indian Institute of Astrophysics	20	4	140

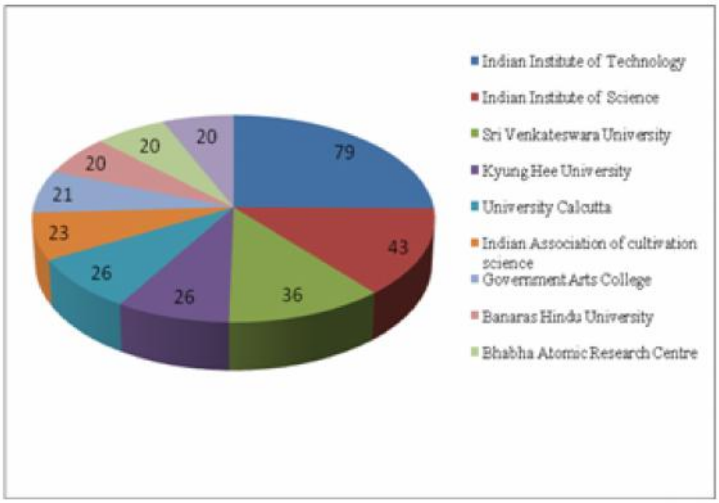
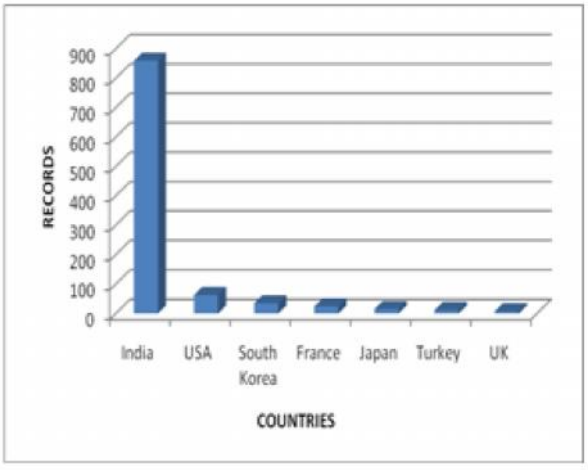


Table 6 Extent of International Collaboration in India (Top ten)

Sl. No.	Country	Recs.	TGCS
1	India	859	6799
2	USA	63	1714
3	South Korea	35	437
4	France	24	556
5	Japan	15	191
7	Turkey	12	377
8	UK	8	438
9	Italy	8	29
10	Canada	7	97

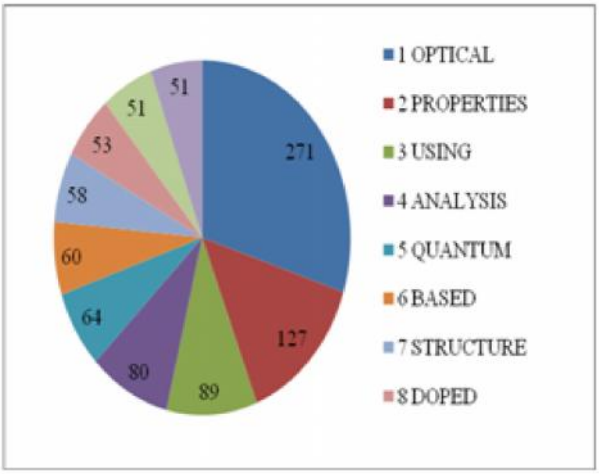


4.7 Word Frequency

Table 7 presents the keywords frequently used by the Indian researchers in their publications. It is revealed from the table without any surprise that the word "Optical" has been used maximum number of times by the researchers in 271 records with a global citation score of 2570, followed by the word "Properties" in 127 records with a global citation score of 838.

Table 7 Frequency of Keywords Used in Optical Computing Research (Top ten)

Sl. No.	Word	Recs.	TLCS	TGCS
1	OPTICAL	271	141	2570
2	PROPERTIES	127	24	838
3	USING	89	25	303
4	ANALYSIS	80	26	405
5	QUANTUM	64	21	216
6	BASED	60	33	362
7	STRUCTURE	58	28	343
8	DOPED	53	17	454
9	ELECTRONIC	51	9	263
10	SPECTROSCOPIC	51	49	480



5. CONCLUSION

In This study, a scientometric analysis has been undertaken to show the current state of optical computing research in India. The findings of the study discovered that totally 859 records were published on optical computing in India. Indian Institutes of Technology (IITs) and Indian Institute of Science were the major producers of research output in optical computing. In the contribution of journals, the journal "Spectrochimica Acta Part A-Molecular and Bimolecular Spectroscopy" stands first with 66 records, having a global citation score of 506, followed by the journal "Optik"with 26 records, having a global citation score of 36.In the extent of international collaboration India has often collaborated with U.S.A, contributing to 63 records having a global citation score of 6799.In the ranking of authors, Peter AJ has published the highest number of publications with 32 records, having a global citation score of 70, followed by Buddhudu S with 26 records, having a global citation score of 270 and in the frequency of keywords used, the word "Optical" has been used maximum number of times by the researchers in 271 records with a global citation score of 2570, followed by the word "Properties" in 127 records with a global citation score of 838.the publications has been increasing considerably every year, which shows a healthy trend in optical computing research in India.

REFERENCES

[1] Huang Chih-Ching, "Bibliometric Analysis of Obstructive Sleep Apnea Research Trends", J Chin Med Assoc 2009; Vol.72, No.3, pp.117-123.

[2] V.Chitra, R. Jeyshankar and K. S. Abu, "Lung Cancer Research in G7 and BRIC Countries: A Comparative Analysis by Scientometric Method", International Journal of Advanced Library and Information Science, 2014, pp.72-81

[3] Kumari G. Lalitha, "Synthetic Organic Chemistry Research: Analysis by Scientometric Indicators", Scientometrics, Vol.80, No.3, 2009, pp.559-570.

[4] S. Thanuskodi and V. Venkatalakshmi, "The Growth And Development of Research on Ecology in India: A Bibliometric Study", Library Philosophy and Practice (e-journal), 2010, pp.359.

[5] S. Raja and R. Balasubramani, "Scientometric Study of the Research Publication on Malaria 2003-2007: A Global Perspective", International Research Journal of Library, Information and Archival Studies, Vol.1, No.4, 2011, pp.114-125.

Mapping of Research Productivity among Tamil Nadu State Universities: A Comparative Study

S.Kanagasundari and N.Prasanna Kumari
Research Scholars, Department of Library and Information Science, Bharathidasan University, Trichy-24, Tamil Nadu

Abstract

This paper is discussed about the mapping of research productivity in 5 selectedTamil Nadu University. The data were downloaded from the Web of Science database for the study period of 15 years. The total number of publications contributed by the Research Productivity among Tamil Nadu Universities during the study period 2000-2014. The highest numbers of papers were published during 2007 – 2014; especially in 2013 there were 1999 contributions. The least number of papers was recorded during 2000 – 2006. Overall, 25349 authors contributed 4568 publications in the journal.

Keywords: *Bibliometrics Study, scientometric study, literature productivity, Indian authors,authorship pattern.*

1. INTRODUCTION

The national level few tools/databases are available but coverage of Tamil Nadu state knowledge contents particularly published in local national journals is negligible. Tamil Nadu state is contributing good amount of knowledge but there is no tool for evaluation and measurement of its knowledge. If you can measure that of which you speak, and can express it by a number, you know something of your subject; but if you cannot measure it, your knowledge is meager and unsatisfactory."
William Thomson, Lord Kelvin. India is a huge part of the global society, has long and distinguished history as country, possess capability and vital resource to influence, mark presence on the emerging universe of knowledge. Therefore, these tools/databases are not adequate to evaluate/ analyze India's knowledge contents.

2. WEB OF SCIENCE

Web of Science database is a powerful tool that let you search, track, measure and collaborate in the sciences, social sciences, arts, and humanities to turns raw data/information into the powerful knowledge you need. Web of Science (WOS) database is an abstracts and citation database intended to measure and perform two basic functions, general literature search and evaluation using citations similar to international databases. A database in general is a collection of information that is organized so that it can easily be accessed for various purposes, managed, and updated regularly. Web of Science symbolize the association of R&D ideas. The references that researchers cite in their papers make explicit links between their current research and prior work in the literature archive. Web of Science (WOS) use intellectual links by listing both cited and citing works.

3. REVIEW OF LITERATURE

Quimbo, Maria Ana T.; Sulabo, 2014. Responding to the Commission on Higher Education's development plan of enhancing research culture among higher education institutions, this study was conducted to analyze the research productivity of selected higher education institutions. It covered five state universities in the Philippines where a total of 377 randomly selected faculty members served as research participants. Path analysis shows that educational attainment, research benefits and incentive system are important predictors of both research self-efficacy and research productivity. Self-efficacy has also been found to be a significant determinant of productivity. Findings of this study suggest a number of policy implications for institutions of higher learning including the need to have a strong faculty development program, enhanced research collaboration, improved research productivity, and good incentive system in order to promote and enhance the research culture in higher education institutions.

Colman, am; garner, ab; jolly, 1992. This scientometric investigation of research performance focuses on publications in seven leading European psychology journals. For the period 1980-89 inclusive, articles by members of university departments of psychology in the United Kingdom were counted, and the average number of articles per staff member was

calculated for each department. The resulting research performance figures correlated positively and significantly with recent performance estimates by other researchers using different methods.

4. SCOPE OF THE STUDY

Aim of the study is to analysis the mapping of the research productivity in 6 Tamil Nadu State Universities. These Six universities are started by the Government of Tamil Nadu and it has more no. of faculty members and students when comparing other universities. It is discussed about the research articles produced by the authors and citations.

5. OBJECTIVES

i. To identify the Year wise distributions of the publication.
ii. To identify the Top 10 author wise publication of the articles.
iii. To classify the Journal wise publication of the articles.
iv. To prove the Law's and apply the matrics.

6. METHODOLOGY

Sceintometric and Biobliometrics study is the examination of the frequency, patterns, chart, and graphs of citations in articles and books. This study is aimed to discuss the mapping of the research productivity in 5 Tamil Nadu State Universities. The relevant sources and data are collected from Web of Science. Based on the available sources the following discussions were made.

Table 1 shows that the Anna University has the highest publication of 6454 records with (34.49%), maximum contribution authors are 10352(40.83%) and journal articles with 1574(34.46%). Madurai Kamaraj University has least publications of 2146(12.13%), and journal articles with 612(13.4%).

Table 1 Productivity of Tamil Nadu State Universities

Name of the Universities	Records	Authors	Journals
Bharathidasan University	2468(13.95%)	3838(15.14%)	682(14.92%)
Annamalai University	4361(24.66%)	5143(20.29%)	985(21.56%)
Anna University	6454(34.49%)	10352(40.83%)	1574(34.46%)
Madurai Kamaraj University	2146(12.13%)	3267(12.89%)	612(13.4%)
Bharathiar University	2258(12.76%)	2749(10.84%)	715(15.65%)
Total	**17687(100%)**	**25349(100%)**	**4568(100%)**

Table 2 shows that calculation on standard deviation and chi square with used matrix method (measurement of central tendency and frequency distributions) among the five universities Author's contributions.

Table 3 shows that year-wise contributions among the five universities research productivity. The maximum records in the year of 2013 and 2014 with 1999 (11.3%) and 1927 (10.9%) respectively. Through this study it reveals that minimum records in the year of 2000 and 2001 with 428 (2.42%) and 470 (2.66%).

Table 2 Metrics Applied in Relation to Author Productivity

Sl. No.	Name of the Universities	Observed No. of Authors (an)or F	%	Expected No. of Authors P=(an/n^2)	S.D. (σ)	Chi-square
1	Anna University	10352	100	10352	**3021.29**	0
2	Annamalai University	5143	49.68	1285.75		11571.75
3	Bharathidasan University	3838	37.08	426.4444		27292.44
4	Madurai Kamaraj University	3267	31.56	204.1875		45942.19
5	Bharathiar University	2749	26.56	109.96		63336.96

Table 3 Year- wise Distributions

Years	Records					Total (%)
	Bharathidasan	Annamalai	Anna	MKU	Bharathiar	
2000	55 (0.31%)	57 (0.32%)	180 (1.01%)	72 (0.41%)	64(0.36%)	**428 (2.42%)**
2001	65 (0.37%)	56 (0.32%)	177 (1.00%)	108 (0.61%)	64 (0.36%)	**470 (2.66%)**
2002	89 (0.50%)	97 (0.55%)	206 (1.17%)	117(0.66%)	106 (0.6%)	**615 (3.5%)**
2003	122 (0.69%)	128 (0.72%)	251 (1.42%)	126 (0.71%)	103(0.58%)	**730 (4.12%)**
2004	117 (0.66%)	189 (1.07%)	291 (1.65%)	114 (0.64%)	108 (0.61%)	**819 (4.63%)**
2005	135 (0.76%)	183 (1.03%)	336 (1.9%)	122 (0.69%)	100 (0.57%)	**876 (4.95%)**
2006	143 (0.81%)	227 (1.28%)	387 (2.2%)	121 (0.68%)	104 (0.59%)	**982 (5.55%)**
2007	137 (0.77%)	421 (2.38%)	397 (2.24%)	146 (0.83%)	103 (0.58%)	**1204 (6.81%)**
2008	135 (0.76%)	417 (2.36%)	483 (2.73%)	145 (0.82%)	126 (0.71%)	**1306 (7.38%)**
2009	186 (1.05%)	379 (2.14%)	452 (2.56%)	131 (0.74%)	135 (0.76%)	**1283 (7.25%)**
2010	196 (1.11%)	419 (2.36%)	479 (2.70%)	126 (0.71%)	192 (1.09%)	**1412 (7.98%)**
2011	290 (1.64%)	490 (2.77%)	574 (3.24%)	205 (1.16%)	212 (1.2%)	**1771 (10.01%)**
2012	260 (1.47%)	486 (2.74%)	663 (3.74%)	198 (1.12%)	258 (1.46%)	**1865 (10.54%)**
2013	271 (1.53%)	450 (2.54%)	800 (4.52%)	202 (1.14%)	276 (1.56%)	**1999 (11.3%)**
2014	267 (1.51%)	362 (2.05%)	778 (4.4%)	213 (1.20%)	307 (1.74%)	**1927 (10.9%)**
Totals	**2468 (13.95%)**	**4361 (24.66%)**	**6454 (36.49%)**	**2146 (12.13%)**	**2258 (12.77%)**	**17687 (100%)**

Table 3.1 Shows the H-index among five universities regarding to the research productivity.

Table 3.1 H-Index Universities

Sl. No.	Name of the Universities	H-Index	Cumulative H-Index
1	Anna University	75	75
2	Annamalai University	60	135
3	Bharathidasan University	51	186
4	Madurai Kamaraj University	46	232
5	Bharathiar University	52	284

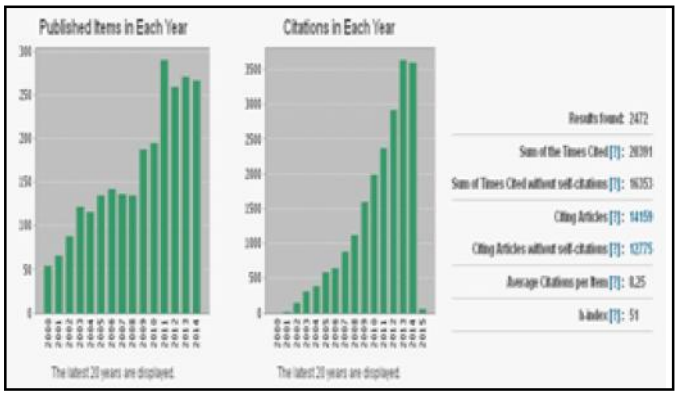


Table 4 shows the top ten author productivity of Bharathidasan University. V.Parthasarathy has the highest publication of 90 records and has the total global citation of 252 but M. Palaniandavar has only 57 records having highest total global citation of 1013.

Table 5 shows that top ten journals wise distribution of Bharathidasan University. Acta crystallographica section e-structure reports online has 218 publication with 37.65% following that Spectrochimica acta part a-molecular and biomolecular spectroscopy has 72 records with 12.44% as follows.

Table 4 Top 10 Author-wise Distribution

Sl. No.	Author	Recs.	TLCS	TGCS
1	Parthasarathi V	90	0	252
2	Ramamurthi K.	89	0	466
3	Lakshmanan M.	88	0	601
4	Balasundaram Chellam	69	0	482
5	Renganathan R.	66	0	861
6	Harikrishnan Ramasamy	62	0	467
7	Heo Moon-Soo	62	0	469
8	Arumugam S.	60	0	241
9	Muthiah PT	57	0	611
10	Palaniandavar Mallayan	57	0	1013

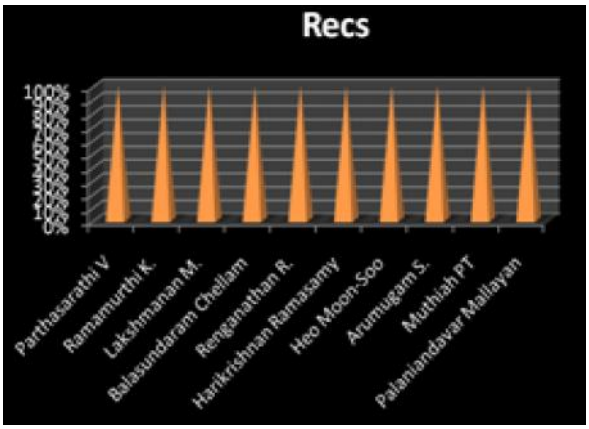


Fig.1 show the Author-wise distribution

Table 5 Top 10 Journal-wise Distributions

Sl. No.	Journal	Recs.	%	Cumulative percentage	TLCS	TGCS
1	Acta crystallographica section e-structure reports online	218	37.65	100	0	903
2	Spectrochimica acta part a-molecular and biomolecular spectroscopy	72	12.44	62.35	0	593
3	Acta crystallographica section c-crystal structure communications	61	10.54	49.91	0	309
4	Current science	55	9.5	39.37	0	201
5	Physical review e	34	5.87	29.87	0	592
6	Physics letters a	29	5.01	24	0	227
7	Dalton transactions	28	4.83	18.99	0	422
8	Tetrahedron letters	28	4.84	14.16	0	193
9	Colloids and surfaces b-biointerfaces	27	4.66	9.32	0	365
10	Fish & shellfish immunology	27	4.66	4.66	0	292

Table 6 shows the top ten author productivity of Annamalai University. Balasubramanian V. has the highest publication of 190 records and has the total global citation of 1644; following that Jayabharathi Jayaraman and Karunakaran C. has 55 records with 404 and 502 total global citations.

Table 7 shows that top ten journals wise distribution of Annamalai University. Spectrochimica acta part a-molecular and biomolecular spectroscopy has 286 publication with total global citation of 2525 following that Acta crystallographica section e-structure reports online has 85 records with total global citation of 187 as follows.

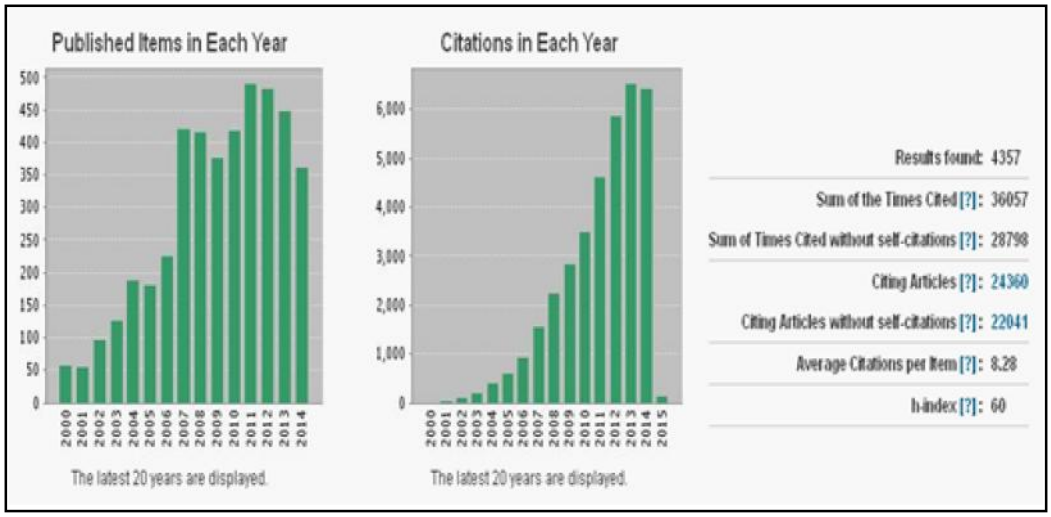
Table 8 shows the top ten author productivity of Anna University. Ramasamy P has the highest publication of 155 records and has the total global citation of 2206; following that Kumar J has 59 records with 429 total global citations.

Table 6 Top 10 Author- wise Distribution

Sl. No.	Author	Recs.	TLCS	TGCS
1	Balasubramanian V.	190	0	1644
2	Sundaraganesan N.	111	0	1472
3	Jayabharathi J.	102	0	404
4	Swaminathan M.	79	0	1428
5	Balasubramanian T.	77	0	313
6	Gopalakrishnan M.	73	0	312
7	Thiruvalluvar A.	59	0	148
8	Thanikachalam V.	58	0	194
9	Jayabharathi Jayaraman	55	0	404
10	Karunakaran C.	55	0	502

Table 7 Top 10 Journal-wise Distributions

Sl. No.	Journal	Recs.	TLCS	TGCS
1	Spectrochimica acta part a-molecular and biomolecular spectroscopy	286	0	2525
2	Acta crystallographica section e-structure reports online	85	0	187
3	Asian journal of chemistry	70	0	30
4	Journal of environmental biology	64	0	371
5	Plant archives	62	0	15
6	Journal of molecular structure	59	0	281
7	Materials & design	58	0	767
8	Indian journal of pure & applied physics	46	0	307
9	European journal of pharmacology	38	0	496
10	Oxidation communications	36	0	33



Anna University

Table 8 Top 10 Author-wise Distribution

Sl. No.	Author	Recs	TLCS	TGCS
1	Ramasamy P	155	0	2206
2	Jayavel R.	127	0	704
3	Nagarajan G.	89	0	893
4	Gopalakrishnan R.	81	0	570
5	Murugesan V	79	0	4056
6	Babu S. Moorthy	76	0	246
7	Nanjundan S	70	0	921
8	Jayavel R	69	0	1067
9	Alagar M.	65	0	489
10	Kumar J.	59	0	429

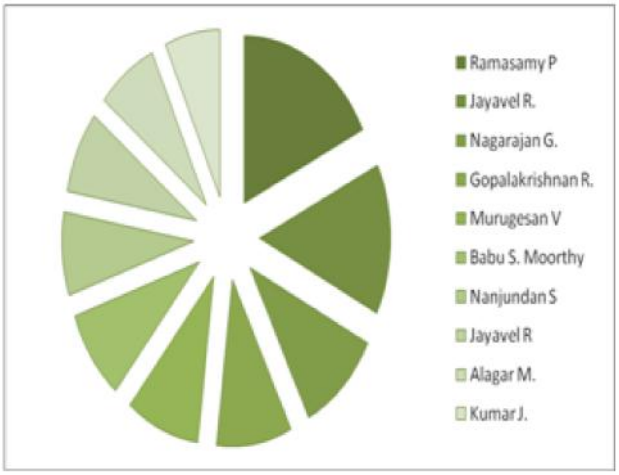


Fig 3 Authorwise distribution

Table 9 shows that top ten journals-wise distribution of Anna University. Journal of crystal growth has 185 publication with total global citation of 2345 following that Acta crystallographica section e-structure reports online has 118 records with total global citation of 335 as follows

Table 9 Top 10 Journal-wise Distributions

Sl. No.	Journal	Recs.	TLCS	TGCS
1	Journal of crystal growth	185	0	2345
2	Acta crystallographica section e-structure reports online	118	0	335
3	Journal of applied polymer science	81	0	874
4	Journal of hazardous materials	64	0	2914
5	Materials letters	59	0	478
6	Crystal research and technology	58	0	629
7	Journal of scientific & industrial research	57	0	147
8	Journal of molecular catalysis a-chemical	56	0	1407
9	Materials chemistry and physics	56	0	617
10	Asian journal of chemistry	49	0	8

Madurai Kamaraj University

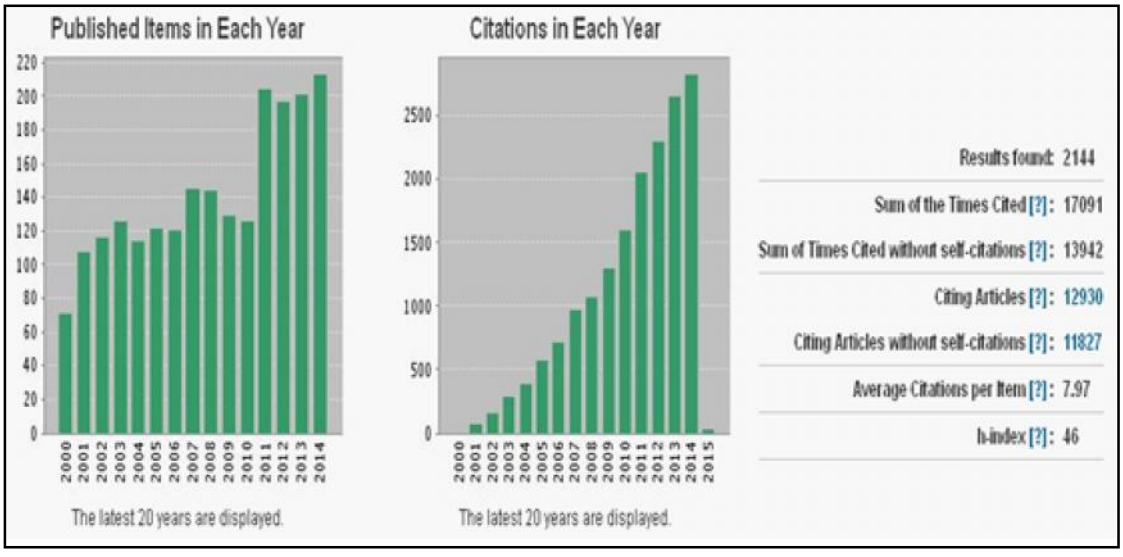


Table 10 shows the top ten author productivity of Madurai Kamaraj University. Perumal Subbu has the highest publication of 91 records and has the total global citation of 1511; following that Nandhini MS has 46 records with 351 total global citations.

Table 11 shows that top ten journals wise distribution of Madurai kamaraj University. Acta crystallographica section e-structure reports online has 231 publication with total global citation of 792 following that Current science has 78 records with total global citation of 350 as follows.

Table 12 shows the top ten author productivity of Bharathiyar University. Mangalaraj D. has the highest publication of 173 records and has the total global citation of 1401; following that Balachandran K, Prasad KJR., and Natarajan K, has the 132, 129, and 115 records with total global citations of 519, 191 and 2011.

Table 13 shows that top ten journals wise distribution of Bharathiyar University. Spectrochimica acta part a-molecular and biomolecular spectroscopy has 68 publication with total global citation of 303 following that Acta crystallographica section e-structure reports online has 55 records with 37 total global citation but Bioresource technology has 25 publication with 1479 has highest total global citation of as follows.

Table10 Top 10 Author- wise Distribution

Sl. No.	Author	Recs.	TLCS	TGCS
1	Perumal Subbu	91	0	1511
2	Natarajan S.	85	0	353
3	Natarajan S	80	0	612
4	Muthusubramanian Shanmugam	74	0	263
5	Rajaram RK	73	0	512
6	Ramakrishnan V.	68	0	361
7	Pitchumani Kasi	65	0	697
8	Krishnakumar RV	62	0	439
9	Ramachandran K.	47	0	194
10	Nandhini MS	46	0	351

Table 11 The top Ten Journal- wise Distributions

Sl.No.	Journal	Records	TLCS	TGCS
1	Acta crystallographica section e-structure reports online	231	0	792
2	Current science	78	0	350
3	Spectrochimica acta part a-molecular and biomolecular spectroscopy	53	0	387
4	Tetrahedron letters	49	0	498
5	Tetrahedron	34	0	572
6	Crystal research and technology	31	0	333
7	Rsc advances	27	0	105
8	Journal of raman spectroscopy	26	0	224
9	Indian journal of chemistry section b-organic chemistry including medicinal chemistry	24	0	40
10	International journal of modern physics b	19	0	30

Bharathiyar University

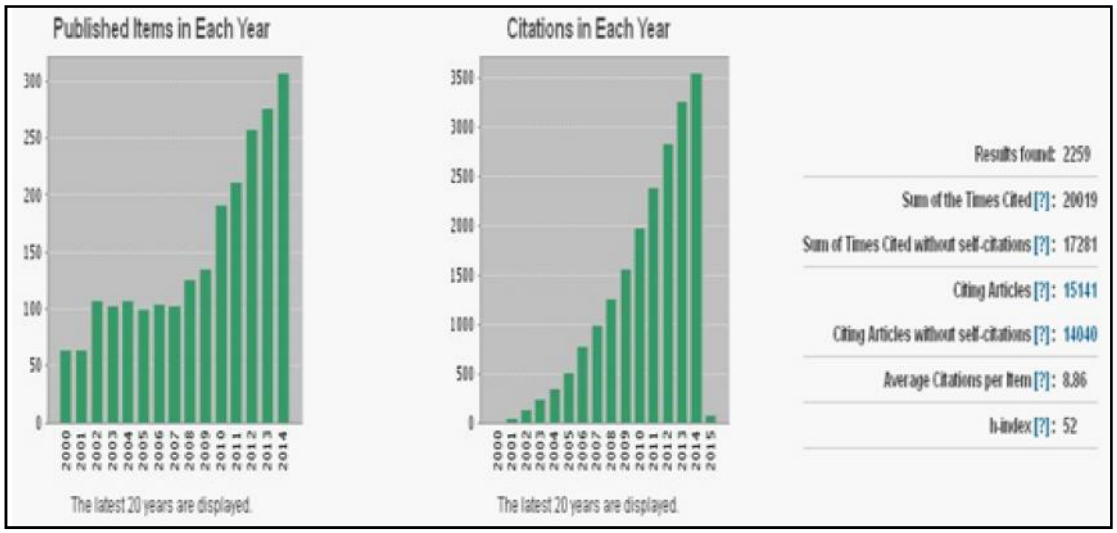


Table 12 Top 10 Author-wise Distribution

Sl. No	Author	Recs	TLCS	TGCS
1	Mangalaraj D	173	136	1401
2	Balachandran K	132	161	519
3	Prasad KJR	129	100	191
4	Natarajan K	115	480	2011
5	Kolandaivel P	114	141	637
6	Selvasekarapandian S	97	78	922
7	Narayandass SK	84	52	1173
8	Murugan K	63	195	518
9	Mohan PS	59	59	421
10	Selvarajan V	54	18	197

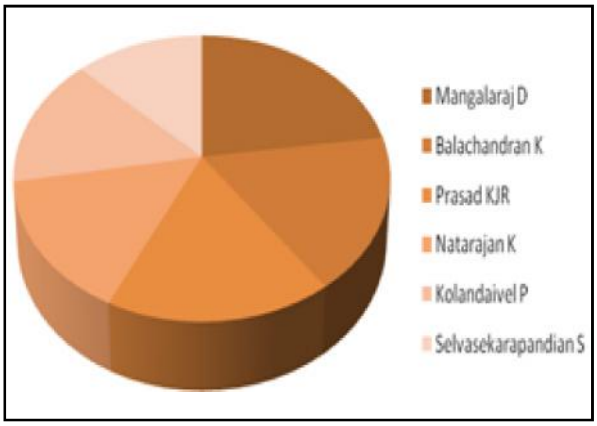


Fig 5 Top 10 Author-wise distribution

Table 13 Top 10 Journal- wise Distributions

Sl.No.	Journal	Recs	Tlcs	Tgcs
1	Spectrochimica acta part a-molecular and biomolecular spectroscopy	68	24	303
2	Acta crystallographica section e-structure reports online	55	26	37
3	Indian journal of chemistry section b-organic chemistry including medicinal chemistry	39	32	121
4	Rsc advances	32	26	104
5	Parasitology research	30	132	240
6	Asian journal of chemistry	28	4	43
7	Bioresource technology	25	40	1479
8	Crystal research and technology	20	7	190
9	Inorganica chimica acta	19	78	186
10	International journal of quantum chemistry	19	29	76

6. FINDING AND CONCLUSION

During the period (2000-2014) 17687(100%) articles were published which are indexed in Web of Science. Overall, 25349 authors contributed 4568 publications in the journal. Top 5 institutions were contributed 17687 articles of the total research productivity. Among the five universities Anna University leads in all aspects. This study has highlighted quantitatively the contributions made by the selected Tamil Nadu State Universities during 2000-2014 as reflected in Web of Science database. During 15 years period (2000-2014) contributions in terms of number of publications is significant. WOS is useful for researchers, administrators, policy makers, editors, librarians and analysts for their respective nature of work.

REFERENCES

[1] Konur, Ozcan, " The Evaluation of the Educational Research: A Scientometric Approach: Energy Education Science And Technology Part B-Social And Educational Studies", Vol.4, No.4, 2012, pp.1893-1908.

[3] Kumar, Suchetan, Tiwari Charu and Deepu Mahija, Contribution to Indian sociology: ABibliometric study, Language in India, Vol.12, No.5, 2012, pp.650-674.

[4] G.Krampen, A.Eye and G.Schui, "Forecasting Trends of Development of Psychology from ABibliometric Perspective", Scientometrics, Vol.87, No.3, 2011, pp.687-694.

[5] A.M.Colman, A.B.Garner and Jolly, "Sresearch Performance of United-Kingdom University Psychology Departments: Studies in Higher Education", Vol.17, No.1, 1992, pp.97-103.

[6] M.Surulinathi, N.Amsaveni, Maheswaran and S.Srinivasaragavan, "Scientometric Dimensions of Knowledge Management Research in India: A Study based on Scopus database", Sri Lankan Journal of Librarianship and Information Management, Vol.2, No.2, 2007, pp.13-24.

A Comparative Study of Usage of E-Publications among Post Graduate Students of Medical and its Allied Disciplines in Puducherry

V. Srinivasan[1] and R. Sevukan[2]

[1]Assistant Librarian, Rajiv Gandhi Institute of Veterinary Education & Research (RIVER), Kurumbapet, Puducherry - 605 009, Email: ssram68@gmail.com

[2]Associate Professor and Head, Department of Library and Information Science, Pondicherry University Puducherry - 605 014, Email: sevukan2002@yahoo.com

Abstract

This paper attempts to highlight the situation of medical institutions of different categories of colleges viz. Medical, Veterinary, Dental, and Paramedical in terms of utilization of e-publications by the PG students. Four colleges considering one from each category were undertaken for the study. The data were collected using questionnaire and informal interviews. The result indicates that majority of PG students have skills to use internet and also are aware of e-publications; usage of e-publications by the respondents is quite high as 81.7%; and most of the PG students (85.7%) revealed "scientific/research journals" as their first choice of preference to access e-publications.

Keywords: *Comparative study, E-publications, Medical and allied disciplines, Postgraduate students, Puducherry,*

1. INTRODUCTION

One of the major developments in library and information systems in the past decades is the advent of web based or IT based information services and networks mainly as a result of developments in the field of information and communication technology. The application of computers in information processing has brought several products and services to the users. The Internet and the Web are constantly influencing the development of new modes of scholarly communication, their potential for delivering the information is very fast, accurate and vast as they overcome successfully the geographical limitations associated with print media. [1] The Internet is considered as an efficient tool for effective retrieval of required information. Internet provides a wide variety of services and also facilitates any time access of information that can help the researchers in their quest for knowledge saving their time and energy. This important fact is convincing many research / professional institutes' libraries to move towards digital e-resources, which are found to be more useful for easy access of information. They also provide access to current information as these are updated frequently.

2. REVIEW OF RELATED LITERATURE

Various studies have been conducted on the use of e-publications / e-resources by students including professional students, research scholars and faculty of higher learning institutions. However, there were only a few studies carried out to find out the usage of e-resources among the post graduate medical students. An attempt has been made in this paper to know the awareness about the e-resources, its usage etc... by students of post graduate medical education and its allied disciplines.

Sujatha and Mudhol [2] analyzed the use of electronic information sources by the teachers, research scholars and post graduate students in the college of Fisheries, Mangalore. It was found that E-mail was the most frequently used electronic information source followed by other web resources. It was also found that most of the respondents use electronic information sources for the purpose of their thesis/project work. Retrieval of irrelevant information, poor connectivity or slow access and poor database searching skills were found as major problems faced by the respondents. Chetan Sharma [3] observed that most of the research scholars preferred to use e-journals. It was observed that the library web site was considered as user-friendly and it was the gateway for accessing electronic resources for majority of the respondents.

Natarajan *et al.*, [4] found that a majority of faculty members and research scholars were aware of e-resources in Annamalai University, Tamilnadu. Amongst various e-resources, e-journals were frequently and widely used resource by most of the faculty members and research scholars. It was also analyzed that 32 percent of faculty members and 27 percent of research scholars were dissatisfied in terms relevance of e-resources to their needs. Shashi Kant Khare et al.,[5] studied the use and impact of internet use by Ph.D., scholars. Out of total no. of research scholars 66 percent were using the internet and 34 percent were not using it. A majority of research scholars use internet for educational, job search, entertainment and communication purposes. They also found that 33 percent of respondents faced difficulties in using the internet.

Dhanavandan et al. [6] argued that all the respondents use at least any one type of ICT tools which influenced them. The use of ICT tools was higher by female participants than male participants. It was analyzed that ICT was very significant in helping to accomplish their professional and research activities. Bhardwaj and Madhusudhan [7] found that the open access legal information resources are useful for lawyers and for the legal community in general. Development of an open access system with advanced search techniques and as per the international standards will help the legal community as well as the common man in a better way. Jotwani Daulat [8] analyzed the usage of electronic resources in Indian Institutes of Technology libraries and found that the IITs spend large proportion of their budgets to procure e-resources to fulfill the increased demands of their academic community. In IITs the e-resources have become a vital part of their core collection. Among the IITs in the country, IIT Madras, IIT Kharagpur and IIT Bombay were found to be the three largest users of e-resources.

3.OBJECTIVES

The study was carried out to find the awareness, use and impact of e-resources among students of Post Graduate medical and its allied health disciplines in Puducherry.

i. To know the awareness of e-publications among the students
ii. To analyze the utilization of e-publications by the students
iii. To find out the differences in the use of e-publications among the students of medical and its allied disciplines in Puducherry
iv. To understand the constraints faced by the students in accessing e-publications.

4. COVERAGE OF THE STUDY

The study was confined to the students studying Post Graduation in Medical college, Veterinary college, Dental college and Paramedical college (Nursing) in Puducherry region. One institute was selected from each category for the study. The colleges undertaken for the study are:

i. Medical College: Aarupadai Veedu Medical College & Hospital (AVMC&H), Kirumambakkam, Puducherry.
ii. Veterinary College: Rajiv Gandhi Institute of Veterinary Education & Research (RIVER), Kurumbapet, Puducherry.
iii. Dental College: Indira Gandhi Dental College & Hospital (IGDC&H), Pillayarkuppam, Puducherry.
iv. Paramedical College: Mother Therasa Post Graduate & Research Institute of Health Sciences (MTIHS), Gorimedu, Puducherry.

5. METHODOLOGY

The study was conducted using questionnaire based survey method and informal interviews with respondents. A total of one hundred twenty (120 nos.) questionnaires were distributed to all the four colleges selected for the study of which thirty respondents (30 nos.) from each institution. The questionnaire was distributed using a simple random sampling technique. All the questionnaires duly filled in by the respondents were received back. Statistical tool of percentage analysis was used to interpret the results.

6. RESULTS AND DISCUSSION

The advent of e-publications/e-resources is a milestone in dissemination of information through internet. The retrieved information is accurate, updated and relevant information available at anytime and anywhere. To optimize the utilization of e-resources, knowledge in computer use skills is a basic requirement. In this survey the respondents were asked to indicate their level of computer skills. Table 1 shows the respondents' acquired computer skills. A majority (60.0%) of respondents stated that they are at comfortable level in

using computers. 25% of respondents opined that they are at very comfortable level and 12.5% of respondents are at average level. Among all the respondents 6.7% from Dental College and 2.5% of Paramedical College respectively felt that their level of computer skills is at uncomfortable level. The level of computer skills was found to be high (73.3%) with the Dental college (IGDC&H) respondents followed by Medical college (AVMC&H) and Veterinary college (RIVER) respondents with 60.0% and 46.7% by Paramedical college (MTIHS) respondents.

Table 1 Level of Computer Skills of the Respondents

Sl. No.	Name of the College	Very Comfort	Comfort	Average	Uncomfor-table	Very uncomfor-table	Total
1	AVMC&H	06 (20)	18 (60)	06 (20.0)	--	--	30 (100)
2	RIVER	10 (33.3)	18 (60)	02 (06.7)	--	--	30 (100)
3	IGDC&H	03 (10)	22 (73.3)	03 (10.0)	02 (06.7)	--	30 (100)
4	MTIHS	11 (36.7)	14 (46.7)	04 (13.3)	01 (03.3)	--	30 (100)
Total		30 (25)	72 (60.0)	15 (12.5)	03 (02.5)	--	120 (100)

*Figures in parentheses denote percentage

Table 2, reveals the quantum of computer usage by the respondents. About 70.83% of the respondents use computers every day. 20.83% of the respondents use computers a few times in a week. Only 08.30% of the respondents in Medical, Veterinary and Dental college are using computers few times in a month. It was also noted that PG students of Dental college (IGDC&H) are top in the list with regard to usage of computers every day (90%) when compared to PG students in other three colleges.

Table 2 Usage of Computers by the Respondents

Sl. No	Name of the Colleges	Almost Every day	A few Times a Week	A few Times a Month	A few Times a Year	Not at All	Total
1	AVMC&H	19 (63.3)	06 (20)	05 (16.7)	--	--	30 (100)
2	RIVER	20 (66.7)	07 (23.3)	03 (10)	--	--	30 (100)
3	IGDC&H	27 (90)	01 (03.3)	02 (06.7)	--	--	30 (100)
4	MTIHS	19 (63.3)	11 (36.7)	--	--	--	30 (100)
Total		85 (70.8)	25 (20.8)	10 (08.3)			120 (100)

*Figures in parentheses denote percentage

The Internet has emerged as an important and favoured source of information for all the students. The PG students covered under this study were asked to rank their usage of internet. Table 3 presents a clear picture of internet use by them. Out of 120 PG students 67.5% of students use internet every day, 15.8% of students use internet a few times in a week and 16.7% of students use internet as and when required. On the whole, the PG students in the Dental college (IGDC&H) comes first with 83.3% of rank in using internet daily followed by Medical college (AVMC&H) with 73.3% of rank and Paramedical college (MTIHS) students with 66.7% of usage and the last in list is the Veterinary college students (RIVER) with 46.7% of usage of internet daily.

Table 4 depicts the awareness/familiar about e-publications among the respondents. A majority of the respondents (81.7%) are very well aware of e-publications available in their subject areas. At the same time 18.3% of respondents are not aware of e-publications and they have not used till now. It was found that among all the PG students, the Veterinary college (RIVER) students are more familiar (93.3%) with e-publications followed by Dental college (IGDC&H) students (83.3%). Familiarity with e-publications by Paramedical college (MTIHS) students is 76.7% and Medical college (AVMC&H) students share 73.3%.

Table 3 Usage of Internet

Sl. No.	Name of the Colleges	Almost Every Day	A few Times in a Week	As and When Required	Not at All	Total
1	AVMC&H	22 (73.3)	04 (13.3)	04 (13.3)	--	30 (100)
2	RIVER	14 (46.7)	07 (23.3)	09 (30)	--	30 (100)
3	IGDC&H	25 (83.3)	02 (06.7)	03 (10)	--	30 (100)
4	MTIHS	20 (66.7)	06 (20)	04 (13.3)	--	30 (100)
Total		81 (67.5)	19 (15.8)	20 (16.7)	--	120 (100)

*Figures in parentheses denote percentage

Table 4 Awareness (familiar) about e –Publications

Sl. No.	Name of the Colleges	YES	No	Total
1	AVMC&H	22 (73.3)	08 (26.7)	30 (100)
2	RIVER	28 (93.3)	02 (06.7)	30 (100)
3	IGDC&H	25 (83.3)	05 (16.7)	30 (100)
4	MTIHS	23 (76.7)	07 (23.3)	30 (100)
Total		98 (81.7)	22 (18.3)	120 (100)

*Figures in parentheses denote percentage

The different places of access for e-publications are shown in Table 5. About 33.7% of the respondents expressed their willingness to access both at home and college. Whereas 31.6% of the respondents want to have their access at their colleges only and 25.6% of the respondents want the facility at their homes only.

There are 9.2% of them want to have access in other places like while travelling, leisure time, etc... It is therefore clear that a majority of the respondents prefer to have access at their colleges only and both at colleges and homes. Preference to access only at homes and other places have gained less importance among the participants.

Table 5 Preferred Place of Using E- publications

Sl. No.	Preferred place of Using E -Publications	No. of Respondents
1	At Home	25 (25.5%)
2	In College	31 (31.6%)
3	Home and College	33 (33.7%)
4	Other places (while travelling, leisure time etc...)	09 (9.2%)
Total		98 (100%)

The respondents were requested to indicate the period of experience they had in using e-publications. Table 6 highlights the situation that 42.9% respondents have been using e-publications for more than 6 months and 20.4% respondents have more than 1 year experience. The table indicates that 23.4% of the respondents have more than 2 years of experience and only 13.3% respondents have more than 3 years of experience. It was also observed that among the participating colleges, the Veterinary college (RIVER) PG students have more experience in using e-publications than the students from other institutions.

To ascertain various types of documents preferred by the respondents in accessing e-publications is shown in Fig. 1. It is clear that most of the respondents (85.7%) selected the journals as their first choice followed by other type of documents, such as books, magazines, newspapers, images / pictures, encyclopedia etc. About 65.3% of the respondents want to have e-publications in the form of books as their first choice followed by other type of documents. About 51.0% indicated images / pictures as their first choice to access e-publications and 36.7% want e-publications in the form of reference sources like online encyclopedia, dictionaries, directories etc..., followed by other types. A majority of respondents (61.2%) want to have in the form of journals and books only. The survey further indicates that 39.8% of respondents to have their information in the abstract form. About 25.5% want in the full text form and 11.2% respondents want their text both in abstract as well as in full text format.

Table 6 Experience in Using E-publications

Sl. No.	Name of the Colleges	6 Months	1 Year	2 Years	More than 3 Years	Total
1	AVMC&H	03	09	09	01	22
2	RIVER	13	03	07	05	28
3	IGDC&H	13	05	03	04	25
4	MTIHS	13	03	04	03	23
Total		42 (42.9%)	20 (20.4%)	23 (23.4%)	13 (13.3%)	98 (100%)

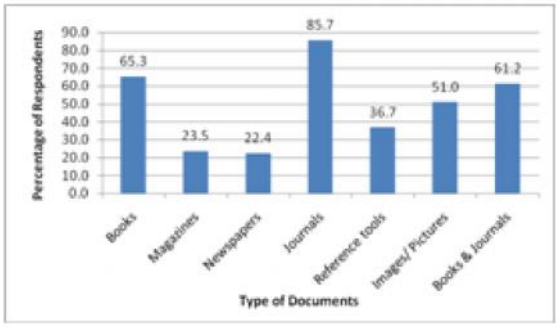


Fig. 1Preferred type of e-documents

As shown in Table 7, the respondents were asked to indicate the format in which they want to access the e-publications. Out of 98 respondents 73 respondents (74.5%) expressed their willingness to view their documents in PDF format. Another 22 respondents (22.4%) ready to accept in any format and only 03 respondents (03.1%) want to have both in PDF and HTML format.

Table 7 Preferred Format of E-publications

Sl. No.	Name of the Colleges	PDF	PDF & HTML	Any Format	Total
1	AVMC&H	18	--	04	22
2	RIVER	17	02	09	28
3	IGDC&H	20	--	05	25
4	MTIHS	18	01	04	23
Total		73	03	22	98
Percentage		74.5	03.1	22.4	100

The respondents have been grouped under six (6) categories for their preference of various devices on which they want to get the e-publications. Table 8 reveals that 60.2% (59/98 respondents) of respondents wish to have e-publications only on laptops, whereas 15.3% (15/98 respondents) expressed their option to have it on PCs. Only 4.0% (04/98 respondents) want on their mobile phones. The analysis also depicts 11.2% of respondents opined to get on both PC and laptops. There are 07.1% to get on laptop and mobile phone and 02.0% want to retrieve on all devices (PC, laptop & mobile phone), other devices like PDA, etc..., are ignored by the respondents. It is clear that maximum number of respondents (60.2%) want to access only on laptops. It is because of the advantages in using laptops, such as easy portability, convenience in handling and viewing in larger monitor etc..., made the respondents to choose the laptop as their most preferred device.

Respondents were asked to express their willingness of the mode or type of access to e-documents. A strong majority of respondents (82.6%) stated that they are willing to access e-documents both by print mode as well as online mode. This statement reveals that online access is a supporting (or) alternative tool to print media but it will not replace the print media.

Table 9, also shows that there are 11.2% of respondents want to access only online mode and another 06.2% of respondents want to access only by print media. The maximum (above 70.0% to 80.0%) respondents in each participating college express that they are willing to access e-documents both by print and online mode.

Table 8 Preferred Device to Access E-publications

Sl. No.	Preferred Devices	AVMC&H	RIVER	IGDC&H	MTIHS	Total	%
1	Personal Computer (PC)	--	05	04	06	15	15.3
2	Laptop	16	16	13	14	59	60.2
3	Mobile Phone	03	01	--	--	04	04.0
4	PC & Laptop	01	05	02	03	11	11.2
5	Laptop & Mobile Phone	02	01	04	--	07	07.1
6	PC, Laptop & Mobile Phone (All)	--	--	02	--	02	02.0
Total		22	28	25	23	98	100

Table 9 Preferred mode to Access E-publications

Sl. No.	Preferred Mode of access to e-Publications	AVMC&H	RIVER	IGDC&H	MTIHS	Total	%
1	Print only	03	--	02	01	06	06.2
2	Online only	03	03	02	03	11	11.2
3	Print & Online only	16	25	21	19	81	82.6
Total		22	28	25	23	98	100

Internet browsing is a fast and easy way of information retrieval and respondents use different web browsers for their information needs. Fig. 2 reveals that 45.9% of the users indicated that Google Chrome is fast and very useful browser than other browsers. Mozilla Firefox is the second preferred browser with 15.3% of users and there is only 06.1% of users use Internet Explorer. However, there is 32.7% of users use more than one browser for their needs. It is evident that Google Chrome is the most favoured and widely used browser than others.

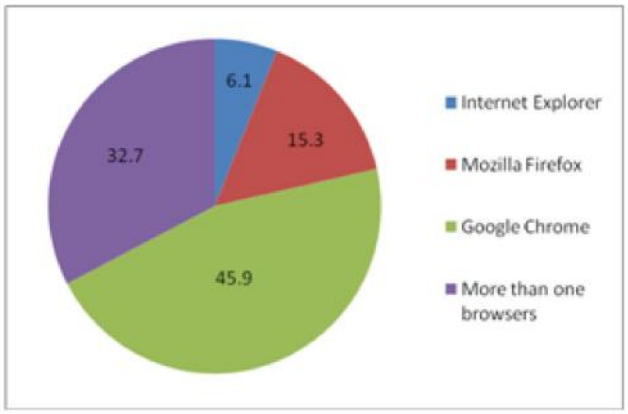


Fig. 2 Preferred browser to access e-publications

The survey listed some constrains faced by the respondents in using e-publications. About 31.6% of respondents indicated that they are facing the following problems such as Retrieval of irrelevant information; Poor connectivity or slow downloading; Lack of training / searching skills; Non-availability of exclusive subject databases in their area of specialization; and Colleges do not have wi-fi facility.

7. FINDINGS OF THE STUDY

Some major findings of the study are derived from the analysis as well as from personal interviews with the respondents that:

i. A majority of PG students have skills to use internet and also aware of e-publications.
ii. Usage of e-publications by the respondents is quite high as 81.7% of them using it.
iii. Among all the PG students, the Veterinary college students rank first in terms of usage of e-publications.
iv. About half of the respondents have more than 6 months experience in using e-publications.
v. Most of the PG students (85.7%) revealed "scientific/ research journals" as their first choice of preference to access e-publications.
vi. It is the general demand by all the PG students that their colleges should strengthen the infrastructure

facilities with latest technologies and make sure the availability of all kinds of e-resources.

8. CONCLUSION

The emergence of electronic information sources has provided to the student community particularly for professional students with wide opportunities to satisfy their information needs. Electronic sources have become an alternative tool to print media. The educational institutions should be equipped with required e-resources so as to enable its students to fulfill their academic endeavours. It is suggested that the opinion of PG students also should be taken into account while selecting e-resources for subscription. This would add the relevance and value of the source, make the users more responsible for the money spent on resources and in turn promote the usage of e-publications to a large extent.

REFERENCES

[1] Parvez Ahmad and Mohd Yaseen, "The Role of the Library and Information Science Professionals as Managers: A Comparative Analysis", Electronic Journal of Academic and Special Librarianship. Vol. 10, No. 3, 2009. Available at: http://southernlibrarianship.icaap.org/content/v10n03/ahmad_p01.html. (accessed on 13.01.2015).

[2] H R Sujatha and V Mudhol Mahesh, "Use of Electronic Information Sources at the College of Fisheries", Annals of Library and Information Studies, Vol. 55, 2008, pp. 234-245.

[3] Chetan Sharma, "Use and Impact of E-resources at Guru Gobind Singh Indraprastha University (India): A Case Study", Electronic Journal of Academic and Special Librarianship, Vol. 10 Issue 1, 2009, pp. 1-9.

[4] K. Natarajan *et al.*, "Use and User Perception of Electronic Resources in Annamalai University: A Case Study", Annals of Library and Information Studies, Vol. 57, 2010, pp. 59-64.

[5] Khare Shashi Kant *et al.*, "Internet as a Source of Information: A Survey of Ph. D., Scholars", Annals of Library and Information Studies, Vol. 54, 2007, pp.201-206.

[6] S Dhanavandan *et al*. (n.d). "Awareness of Information and Communication Technology (ICT) Tools among Library Professionals in Tamilnadu", Retrieved from http://eprints.rclis.org/19025/1/pjlis-9-dhanavandan.pdf on 09.09.2014.

[7] Rajkumar Bhardwaj and M. Madhusudhan. "Open Access Legal Information Sources and Their Use by Students of National Law University", Annals of Library and Information Studies, Vol. 60, 2013, pp.314-319.

[8] Daulat Jotwani. "Trends in Acquisition and Usage of Electronic Resources at Indian Institutes of Technology Libraries", Annals of Library and Information Studies, Vol. 61, 2014, pp.33-40.

Use and Users of Internet Browsing Centers in Salem Taluk, Tamilnadu: A Study

Dr. M. Jayaprakash[1] and S. Nirmala[2]

[1]Assistant Professor, Department of Library and Information Science, Periyar University, Salem-636 011, Tamil Nadu, E-mail:lisjayaprakash@gmail.com

[2]Assistant Librarian, Learning Centre, Bannari Amman Institute of Technology, Sathyamangalam-638401, Erode Distrcit, Tamil Nadu, E-mail: nirmalasdevi2010@gmail.com

Abstract

Internet means connecting a computer to any other computer anywhere in the world via dedicated routers and servers. When two computers are connected over the internet they can send and receive all kinds of information such as text, graphics, voice, video, and computer programs. The present article discusses about the Use and Users of Internet browsing centers in Salem taluk, Tamilnadu: A study. A sample of ten Internet browsing centers has been chosen for the study. About 125 questionnaires were distributed and 80 were received back from the respondents, and used for data analysis. The majorities of the respondents were 45 male and the remaining 35 were female. The required information has been collected from both primary and secondary sources. This structured questionnaire was used for the collection of data. The study reveals that the majority of the respondents use internet browsing center for Academic purpose.

***Keywords**: Browsing centers, Internet, Salem taluk, Users*

1. INTRODUCTION

Today the information explosion and the information revolution have occurred in the last decades. But the advent of information and communication Technologies, the internet and particularly the World Wide Web have revolutionized literally everything in this world. The browsing centers have been the biggest beneficiaries. These technologies have been emerged as boons to us.

2. REVIEW OF LITERATURE

Review of literature is a significant part of every research work because it avoids duplication of work that has already been done. It helps the investigator to go deep into the problem at hand and to study the different sides of the problem.

Deanna B.Marcum[3] and Gerald George revealed in their study on " who uses what? Report on a National survey of information users in college and universities found that:93.9% of the respondents agreed strongly or moderately with comfortable retrieving and using electronic information and a high overall proportion(94.7%) professed strong or moderate comfortable with their institutional web site. Substantial proportions of respondents in all categories have used electronic information all.

Ganesan and murugesapandinan[4] in their study on "Evaluating Web resources, services and user attitude towards web based information services at university of Hyderabad-A study" have found that internet service at library is used more by social science students(40%) and Humanities students got second place (28.57%). Most of the students preferred printed materials rather than electronic materials and in Web based information services; OPAC has got the first preferences, when compared with other kinds of services. Majority of the students mentioned that they were using Google search engine for retrieving any type of information.

3. OBJECTIVES

The main objectives of this study were,

i. To find out the age wise respondents to use the internet browsing centers.
ii. To know the educational qualification of the internet browsing center users.
iii. To determine the frequency of internet browsing centers users.
iv. To evaluate the purpose of using internet browsing centers.
v. Finally user's opinion about the internet browsing centers service.

4. STATEMENT OF THE PROBLEM

The scope of the study is to analyze the use and users of internet browsing centers in Salem taluk, Salem district,

Tamilnadu. The facilities provided by these centers make the users to visit frequently and spend more time in the browsing centers.

5. SCOPE, METHODOLOGY AND LIMITATION OF THE STUDY

The population of internet users is infinitely large. Hence, this study has chosen only 10 browsing centers locating in Salem taluk. From the selected area, about 80 users of internet have been selected as samples on the basis of purposive sampling method. Out of the 80 respondents 45 were males and 35 were females. The required information for the study has been collected both from primary and secondary data.

6. DATA ANALYSIS

Table 1 shows the distribution of internet user's age wise. The table shows that the majority of the users were in the age group of 21-30 (46.25%),in the age group of 31-40 were (23.75%),below 20 of the age group were (21.25%) ,41-50 were only (05%) and finally people above 50 years of age group use internet very rarely (03.75%).

Table 1Age-wise Respondents to Use the Internet Browsing Centers

Sl.No.	Age Group	Male	Female	Total	%
1	Below 20	9	8	17	21.25
2	21-30	20	17	37	46.25
3	31-40	11	8	19	23.75
4	41-50	3	1	4	05.00
5	Above 51	2	1	3	03.75
	Total	**45**	**35**	**80**	**100**

Table 2 revealed that the educational qualification of the internet browsing center users. Majority of the (36.25%) Post graduate respondents were using the internet browsing centers. The next place were under Graduate (32.05%), and SSLC were (11.25%), others were (18.75%), Illiterate were (01.25%) using the browsing centers.

Table 2 Distribution of Educational Qualification of the Internet Browsing Center Users

Sl. No.	Educational Qualification	No of Respondents	%
1	Illiterate	01	01.25
2	SSLC	09	11.25
3	Under Graduate	26	32.05
4	Post Graduate	29	36.25
5	Others	15	18.75
	Total	**80**	**100**

Table 3 evaluates that the frequency wise internet browsing centers users. The majority of the users were twice a week (42.50%) ,the next place of the internet browsing center user were once in a week(27.50%),only about (13.75%) users were daily. And (16.25%) of the respondents were used browsing center for occasionally.

Table 3 Frequency-wise Internet Browsing Centers Users

Sl. No.	Frequency	No. of Respondents	%
1	Daily	11	13.75
2	Twice a Week	34	42.50
3	Once in a Week	22	27.50
4	Occasionally	13	16.25
	Total	**80**	**100**

Table 4 shows that the internet users are browsing for various purposes. According to the importance of the purpose weightage has been given and on the basis of weightage ranking has been given for the various purposes for which Browsing is done by the respondents. This table reveals that the majority of the internet browse mainly for academic purposes (36.25%).The second rank has been given for job opportunity (28.75%), the third purpose were E-mail (15%), up-to-date knowledge were (11.25%) the fourth place. And other purposes were the (08.75) last.

Table 4 Purpose of Using Internet Browsing Centers

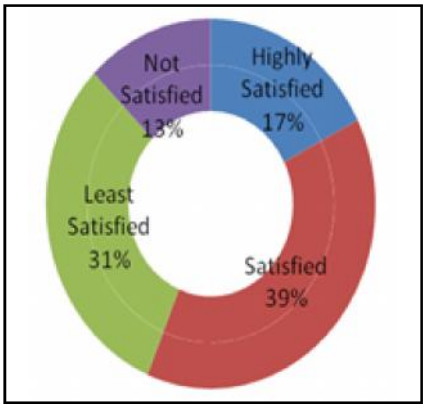
Sl. No.	Purpose of Browsing	No. of Respondents	%
1	Job opportunity	23	28.75
2	E-mail	12	15.00
3	Academic purpose	29	36.25
4	Update knowledge	9	11.25
5	Others	7	08.75
	Total	**80**	**100**

Table 5 shows that the user's opinion about the internet browsing centers services. Most of the respondents were says satisfied (38.75%), least satisfied were (31.25%), highly satisfied, were (17.50%) and not satisfied were (12.50%).

Table 5 User's Opinion about the Internet Browsing Centers Services

Sl. No.	User Opinions	No of Respondents	%
1	Highly Satisfied	14	17.50
2	Satisfied	31	38.75
3	Least Satisfied	25	31.25
4	Not Satisfied	10	12.50
	Total	**80**	**100**

This figure shows the user's opinion about the internet browsing centers services



5. FINDINGS OF THE STUDY

The following are the major findings of the study**.** The objectives of the study are concentrated on Use and users of internet browsing centers in Salem taluk, Tamilnadu: a study.

i. The study evaluate that the majority of the internet users fall in the age group of 21-30. The study also evaluate that the most of the browsing center users were male (45), compared to female (35).
ii. The study reveals that the Distribution of Educational qualification of the internet browsing center users. Most of the Post Graduate users were used the internet browsing centers.
iii. The majority of the users were frequency of internet browsing centers used for twice a week.
iv. The study examine that the Purpose of using Browsing center for Academic purpose.
v. The user's opinion about the internet browsing centers services majority of the respondents Satisfied for its services.

6. CONCLUSION

The study mainly concludes that the main purpose of the internet browsing is for academic purposes. The study reveals that browsing for academic purpose stands for most and ranked first. This helps them to do their work more efficiently. Internet Browsing centers should be opened in various rural places for the benefit of the academic growth of the all students.

REFERENCES

[1] Perry, "Travelers on the Internet: A Survey of Internet Users", Online, Vol.35, No.3, 1995, pp.29-34.
[2] T.M.Sairosse and S.M. Mutula, "Use of Cybercafé of Gaborone City, Botswana", Program, Vol.38, No.1, 2004, pp.60-68.
[3] C.V Anunobi and F.C. Mbagwn, "Determinates of Internet Use in Imo State Nigeria" Educational Research Reviews, Vol.4, No.9, 2009, pp.436-442.
[4] Jenna Burrell, "Technology Hype Versus Enduring Users: A Longitudinal Study of Internet Use Among Early Adopters in An African City", first Monday, Vol.17, No.6-7, 2012.

A Study on Challenges of Information Seeking Behaviour of Madurai Kamaraj Univesity Scholars, in Tamilnadu

K.Urkalamuthu[1], R.Murugesan[2] and Dr. P.Balasubramanian[3]

[1&2]Research Scholar, Library and Information Science, Manonmaniam Sudaranar University, Tirunelveli-627 012, Tamil Nadu

[3]Deputy Librarian, Manonmaniam Sudaranar University, Abishkapatti, Tirunelveli-627 012, Tamil Nadu,

Abstract

The primary objective of this present paper is to analyse the demographic characteristics of scholars of Madurai Kamaraj University, in Tamilnadu to determine the factors leading to online accessibility in Madurai Kamaraj University to evaluate the availability, accessibility and utilization for online information by scholars of Madurai Kamaraj University.

Keywords: *E-resources, E-mail, Hyperlink,Online Resources*

1. INTRODUCTION

The American Library Association defines information as "all ideas, facts and imaginative works of the mind that have been published, repeated and /or distributed formally or informally". The use of Information is a behaviour that" helps an individual to meet his/her informations needs. The term Information Behaviour denotes all activities comprising of information seeking, information gathering, and informations accessing and communicating. It has three elements namely people, information and system.

There is a universal assumption that man was born innocent or ignorant, and he has been actively seeking information and knowledge. Information seeking is a natural and necessary mechanism of human existence. Today generation, storage and communication of information are inextricably linked with technology. Informal seeking is part of learning or problem solving. In the late sixties, Paisley (1968) and Allen (1969) introduced models for the first time to present the concept of information seeking behavior. This model includes the following three elements:

i. Information need and its drivers ie., the factors that give rise to an individuals perception of need.
ii. The factors that effect the individual's response to the perception of need.
iii. The processes or actions involved in that response.

Today the internet has become one of the most important technological advancements in the history of humanity. The online Information Seeking Behavior has become a part and parcel of academic activities. Faculty members, research scholars and PG students depend on the Online resources to enrich their information. To fulfill their needs most of the libraries especially academic libraries have become smart libraries providing facilities like digital books, e-journals, inflibnet etc.,

2. OBJECTIVES

The primary objective of this present paper is

i. To analyse the demographic characteristics of scholars of Madurai Kamaraj University, in Tamil Nadu.
ii. To determine the factors leading to online accessibility in Madurai Kamaraj University.
iii. To evaluate the availability, accessibility and utilization of online information by scholars of Madurai Kamaraj University.

3. SCOPE OF THE STUDY

The present paper entitled "A Review of Online Information Seeking Behaviour of Madurai Kamaraj University, Madurai" is related to the available online information facility and its access to the users/scholars of Madurai Kamaraj University. The area of the study focused on the department libraries of Madurai Kamaraj University. The geographical area of this study is confirmed only to Tamil Nadu city.

4. HYPOTHESIS

i. The present research is not going to demarcate the users/Respondents in the name of gender, marital status, age etc., as they are in no way related to their information needs of academic permits.
ii. The Present study also aims to compare the maximum utilization of web resources and traditional resources to assess the need and skill of the users.

5. TOOLS

As the target group is highly educated, the questionnaire method has been adopted instead of interview schedule method. The important facets of the questionnaire are as follows:-

1. Personal data
2. Educational status
3. Place of Internet availed by them
4. Use of Internet facility at University Central Library, departments and students amenities centre.
5. Level of Internet accessing
6. Purpose of internet accessing
7. Frequently used Browser and search engines.
8. Problems in accessing internet information
9. Categories of accessing Online information
10. Role of internet accessing in enhancing academic efficiency.

6. SAMPLING TECHNIQUE

The population of the study is 2368 from the population, and sample size of 25% was selected from the university, one fourth of the population including faculty members, research scholars were chosen from each department. Hence the sample size is 592. Of these 592 users of the department libraries, 495 users responded to the questionnaire.

7. PERIOD OF STUDY

The study covers on period of one academic year from March 2013 to February 2014.

Limitation of the study:-

The study is entirely based on the data provided by the responses drawn from the faculty members and M.Phil., Ph.D., research scholars in 18 departments of Madurai Kamaraj University. As this study is concerned with the attitude and behavior of the respondents, the information need not be constant at all time. However the researcher tried his best to bring out the true answers from the respondents.

Table 1.1 Status-wise Distribution of Respondents

Sl. No.	Status		No. of Respondents	%
1	Faculty Members		100	20.20
2	Research Scholars	Ph.D.,	120	24.24
		M.Phil.,	66	13.33
3	Post Graduate Students	I Year	107	21.61
		II Year	94	18.98
		M.C.A.,	08	1.61
	Total		**495**	**99.97**

Source: Primary data

Table 1.2 Department/Subject-wise Distribution of Respondents

Sl. No.	Departments / Subjects	No. of Respondents	%
1	Sciences	165	33.33
2	Social Sciences	138	27.87
3	Humanities	192	38.78
	Total	**495**	**99.98**

Source: Primary data

Table 1.3 Location of Access of Internet within the University Campus

Sl. No.	Location	No. of Respondents	%
1	University Central Library	204	41.21
2	Office/Dept	143	28.88
3	Studetns Amenities Centre on Campus	52	10.50
4	Other Places	14	2.28
5	University central Library and Office/Dept.	82	16.56
	Total	**495**	**99.43**

Source: Primary data

Table 1.4 Category of Internet Skill

Sl. No.	Category	No. of Respondents	%
1	Novice	50	10.10
2	Intermediate	297	60.00
3	Expert	148	29.89
	Total	**495**	**99.99**

Source: Primary data

Table 1.5 Frequency of Use of Internet

Sl. No.	Frequency	No. of Respondents	%
1	Everyday	165	33.33
2	Two to Three Times a Day	75	15.15
3	Once in a Week	70	14.14
4	Two To Three Times a Month	60	12.12
5	Once in a Month	80	16.16
6	Occasionally	30	06.06
7	Never Use	15	03.03
	Total	**495**	**99.99**

Source: Primary data

Table 1.6 Time Spent On Internet per Day During the Use

Sl. No.	Hour	No. of Respondents	%
1	½ hour	175	35.35
2	One hour	110	22.22
3	Two hour	70	14.14
4	Three hours	95	19.19
5	More than Three hours	45	9.09
	Total	**495**	**99.99**

Source: Primary data

Table 1.7 Purpose of Using Internet

Sl. No.	Purpose	No. of Respondents	%
1	Ongoing Research work	105	21.21
2	Subject Specific Information	75	15.15
3	Employment Information	50	10.10
4	Preparation of Teaching/Lecture notes	45	9.09
5	Writing a Research paper for publication	60	12.12
6	Entertainment Information	70	14.14
7	E-mail	55	11.11
8	For career development	20	4.04
9	E-Journals	15	3.03
	Total	**495**	**99.99**

Source: Primary data

Table 1.8 Sources to Find Out New Www Pages

Sl. No.	Sources of WWW	No. of Respondents	%
1	Book	120	24.24
2	Friends	145	29.29
3	Follow hyperlinks from other web pages	60	12.12
4	Internet Search Engines	55	11.11
5	Internet directories	40	8.08
6	Usenet news groups	30	6.06
7	Magazines/Newspapers	25	5.05
8	Television advertisements	10	2.02
9	Other sources	10	2.02
	Total	**495**	**99.99**

Source: Primary data

Table 1.9 To Access Online Reference Materials

Sl. No.	Option	No. of Respondents	%
1	Daily	245	49.49
2	Weekly	90	18.18
3	Bimonthly	70	14.14
4	Monthly	55	11.11
5	Never	35	7.07
	Total	**495**	**99.99**

Source: Primary data

Testing of Hypothesis 5

Ho: Null Hypothesis

There is no association between the Subject/ Department of respondents and their access of UGC-INFONET journals.

H1: Alternative Hypothesis

There is an association between the Subject/ Department of respondents and their access of UGC-INFONET journals.

Chi-Square Summary Result

Chi-Square Calculated Value	Degrees of Freedom	Chi-Square Table Value
	2	5.991

8. INFLUENCE ON ACADEMIC EFFICIENCY

i. **The impact of Use of Internet**

Among the respondents in Science and Social Science departments most of them report that dependency of the Internet increased whereas most of the Humanities respondents report that use of Internet is to improve the professional competencies.

ii. **Comparison of Internet and Convention Documents**

Most of the respondents report that Using Internet is time saving, more informative,
more useful, less expensive and more preferred to man using conventional documents.

iii. **Present Extent of the Use of Web Resources and Traditional Resources**

For overall 495 respondents, the number users of web resources and traditional resources are almost equal.

Most of the respondents in Science, Social Science and Humanities departments use 50% WEB and 50% traditional library resources.

iv. **Level of satisfaction while using internet in university sources**

Among the 495 respondents, 66.72% of them are satisfied with using internet in University sources. More than three fourth of the Science, Social Science and Humanities departments respondents are satisfied or highly satisfied with the University Internet services.

v. **Results of the Hypotheses Formulated**

The set of hypotheses formulated , were subject to the application of appropriate statistical tools.

9. SUGGESTIONS

9.1 For Service Improvement

In the light of the study, the following suggestions are made to be adopted in all depatments of Madurai Kamaraj University.

Many Schools of Madurai Kamaraj University do not have their own exclusive portals on the Internet. All the schools of Madurai Kamaraj University should have their own portals instead of forming part of the University main Web page. The school Web page may find the places in the University main web page and hyperlinked.

The school portal should display the services along with the list of E-resources which should be hyperlinked.

Awareness Programmes should be conducted for all faculty members, Ph.D., M.Phil research scholars and post graduate students on a periodical basis to enlighten them about the academic resources available with special attention to UGC-INFONET journals.

The internet use by Respondents in Humanities departments is less when compared to other departments and hence the librarian should take steps to conduct special programmes to make them understand that internet is the main source of information for their academic development.

In addition to the UGC infonet journals more online journals and E-resources should be subscribed for the University Library/Department for the benefit of the scholars.

It is suggested that internet awareness programmes exclusively for female faculty members, research

scholars of Ph.D., M.Phil., and post graduate students must be conducted.

9.2 For Future Studies

The present study is confined to the faculty, scholars and students of the 18 schools of Madurai Kamaraj University and generalizations are made on the basis of the analysed results. The study can be extended to all the affiliated colleges and Directorate of Distance Education in Madurai Kamaraj University. Further studies can be conducted to make comparative studies. This will help the authorities to enhance the digital library divisions.

10. CONCLUSION

In the era of technological advancements in all fields in the world. Information Technology plays an important role in the development of Education. With the emergence of Information Technology the concept of information providing centers such as Libraries. Internet centres, computer centres, etc has been transformed a lot in its functioning and changed the users' expectations. The vital aim of the information providing institutions in extending online services is to provide public access to the Internet to fulfill its missions to preserve and promote universal access to broad range of human knowledge, experience, information and ideas to support the academic and research endeavor. Thus internet connects intellectuels electronically in the global village under one umbrella. Those in the Library profession play a vital role in information handling, which comprises of information retrieval, information consolidation and information repackaging. Hence the authorities of the academic institutions must pay due respect to the development of library professionals and services especially digital services in the present context. Many studies have proved that academic development leads to overall economic development of the nation and hence due attention has to be paid for the online information services and their utilization. The more the utilization of online information services, the more will be the development of Indian economy.

REFERENCES

[1] E. Abels, "Information Seekers' Perspectives of Libraries and librarians, Advances in Librarianship", Vol.28, 2004, pp.151-170.

[2] B. Allen, "The Effects of Academic Background on Statements of Information Need", Library Quarterly, Vol.60, No.2, 1990, pp.120-138.

[3] A.F. Bane and W.D. Milheim, "Internet Insights: How Academics are Using the Internet", Computers in Lirbaries, Vol.15, No.2, 1995, pp.32-36.

[4] Boyd, "A Multi-Channel information Seeking: A Fuzzy Conceptual Model", Aslib Proceedings, Vol.52, No.2, 2004, pp.81-88.

[5] J.M.M. Budd and K.A. Williams, "CD-ROMs in Academic Libraries: A Survey", College & Research Librarians, Vol.54, No.6, 1993, pp.529-535.

[6] Dalgleish, Andrew and Hall, Robert, "Uses and Perceptions of the World Wide Web in an Information-Seeking Environment", Journals of Librarianship and Information Science (JASIS), Vol.32, No.3, 2000, pp.105-115.

[7] Hsieh-Yee, "Research on Web Search Behaviour", Library and Information Research, Vol.23, 2001, pp.165-185.

[8] J. Krikelas, "Information Seeking Behaviour: Patterns and Concepts", Drexel library Quarterly, Vol.19, 1983, pp.5-20.

[9] G. Kumar, "Defining the Concept of Information Needs in Social Science Information: Problems and Prospects", ed. By Binwal, J.C *et al*, New Delhi: Vikas OPublishing House, 1990, pp.295.

[10] K. Sinha, Pradeep and Sinha, Priti, "Foundation of Computing", New Delhi: BPB Publications, 2003, pp.591-615.

[11] T.D.Wilson, "Human Information Behavior", Special issue on Information Science Research, Vol.3, No.2, 2000, pp.49-55.

[12] T.D.Wilson, "On User Studies and Information Needs", Journals of Documentation, Vol.37, 1981, pp.3-15.

Brain Dominance and Academic Achievement of Eleventh Standard Students

S. Nangaiyarkarasi[1] and S. Kamatchi[2]

[1]Assistant Professor of Education,Vinayaga College of Education, Pallavaram, Chennai - 600 117, Tamil Nadu
[2]Librarian and Information Officer, Anna Centenary Library, Chennai - 600 025, Tamil Nadu

Abstract

The objective of this study is to explore the brain dominance among the XIth standard students with regard to their Academic Achievement. This study further tries to enlighten the each hemisphere of the brain impact on Academic Achievement of the students. The sample comprises of 250 XIth standard students of Chennai District. Data was collected through structured Brain Dominance questionnaire. Findings revealed that right brain dominating more than left and Right Left Brain Dominance. More over the result shows that Matriculation male students and government and government Aided female students have more right Brain dominance.

Keywords: *Brain dominance*

1. INTRODUCTION

"Learning is the modifications in behavior to meet environment requirements". Wood worth, R.S (1945)

Learning is a process that modifies or strengthens world views, beliefs, opinions, attitudes, behavior, skills, understanding and knowledge. Thinking is a process of response to external stimuli and if thinking is effective it results to change our behavior and knowledge. Thinking and Learning have the same outcomes, so have to be closely related.

Brain dominance is a term used to describe the way in which our preferred thinking style and personality by the physical attributes of our brains. Most humans develops physical dominance wherever we have the right hand over our left for the tasks such as writing , throwing, or catching: We prefer to use foot over the other when kicking a ball: we even have a dominant eye.

Just like physical dominance, our Brain Dominance provides us with an automatic lead response to any given situation. This is important as, at any one point in time, we are being bombarded of bits of information, but our brains can only consciously process around seven pieces of information's at any one time.

Brain Dominance is the cerebral dominance of an individual's in retaining and processing modes of information in his own style of learning and thinking. (Venkataraman 1989). Research conducted during the last two decades have shown that the human left cerebral hemisphere is to be specialized for primarily verbal , analytical , abstract , temporal and digital operations (Begen-1969, Gazzaniga-1970 , Ornstein-1972). The same investigations revealed that the right cerebral hemisphere is to be specialized for primarily non-verbal holistic, concrete, creative, analogical and aesthetic functions.

Brain Dominance referred to the idea that people rely on a preferred mode of cognitive processing that is linked to predominant activity of either their left of right cerebral hemisphere. Individual Brain Dominance was erroneously thought to be located somewhere on a gradient between right and left brain dominance with most people being intermediate.

2. OBJECTIVES OF THE STUDY

The following objectives were framed in this study.

i. To find out the impact of brain dominance in XIth standard students.
ii. To find out the influence of brain dominance in their Academic Achievement of XIth standard students.
iii. To find out the impact of Right, Left &both brain dominance on their academic Achievement of XIth standard students.

3. HYPOTHESIS OF THE STUDY

H.1) There is no significant difference between Brain Dominance of XIth standard students and the subgroups of the sample
H.1.1) Sex
H.1. 2) Medium
H.1.3) Types of Management

H.2) There is no significant relationship between both Brain Dominance and Academic Achievement of the XIth standard students.

4. METHOD

4.1 Sample

The population of the study constituted of XIth standard students of Kancheepuram District, TamilNadu and the sample comprised of 250 XIth standard students selected through simple random sampling method, the sample was taken from Government, Government Aided and Private School of Kanchieepuram District.

The sample comprised of Male as well as girls. The sample represented medium, types of management of XIth Standard students.

4.2 Sampling Strategy

Random Sampling techniques have been adopted to choose the sample. Random Sample of 250 students from XIth Standard level students from the rural area only.

4.3 Tools Used in this Study

SOLAT (Styles of Learning and Thinking) developed by Venkataraman (1994) is used in the present study. It is a modified version of the tool developed by Torrance. It identifies brain dominance by way of studying the hemisphere functions. It indicates the learning and thinking styles and brain hemisphere preference. This scale has 120 items and each item is 4 point scaled but with differing scaled responses.

This scale has been standardized by the author on Indian population and it has split half reliability of 0.71 and also has face content, & predefines validity of 0.84 which confirms the dominance scale.

4.4 Academic Achievement

No separate tool was prepared by the investigator to measure the achievement. Half-Yearly Examination marks were collected from the school authorities.

5. ANALYSIS

Descriptive analysis was done using the statistical package SPSS (VERSION 11.5) to stratify the subgroups of the sample by the method of finding out the averages, deviation and "t" test. Correlation was done in order to find out the relationship between brain dominance and academic performance.

5.1 Purpose & Nature of the Test

This study intends to find out the influence of brain dominance (Right, Left & Right, and Left) in their academic performance. Administrative of the tool was done group wise and survey were conducted**.**

5.2 Analytical Discussion

Table 1 represents the mean and S.D scores of the brain dominance scores based on the sub groups of the sample. It may be observed from table 1 that there exists no significant difference with almost all the chosen subgroups of the sample.

Table 1Mean and S.D of the Brain Dominance Scores Based On the Subgroups of the Sample

Sl. No.	Back Ground Variables	Categories	N	Mean	SD	Df	t-Value	Level of Significant
1	Gender	Male	125	1.36	0.614	248	1.558	p>0.05 Not Significant
		Female	125	1.25	0.518			
2	Medium	Tamil	133	1.32	0.595	248	0.350	p>0.05 Not Significant
		English	117	1.29	0.542			

From the above noted that there is no significant difference (0.05) of the XIth Standard level students on their Brain Dominance with respect to their Types of Management.

Table 3 reveals that the brain dominance scores are found to be comparatively more that the academic achievement scores of almost all the sub samples from his it may be interpreted that right brain dominance plays a vital role in determining the academic achievement of the XIth standard students. More over it emphasizes that Right hemisphere score is high than left and both hemisphere scores. And it shows that right hemisphere scores is high in government and aided school female students

and matriculation male students and when compare to the schools type , the matriculation school students' right hemisphere scores is high than other. This has been observed by Jangaiah (1998) on a study on learning and cognitive styles for the same age-group. In total, right hemisphere dominating more among the students.

Table 2 ANOVA scores of Brain Dominance based on Type of Management

Sources of Variance	df	Sum of Squares	Mean Sum of Squares	F -ratio	Level of Significant
Between groups	2	0.932	0.466	1.440	p>0.05 Not Significant
Within groups	247	79.964	0.324		
Total	**249**	**80.896**			

Table 3 Comparison Means Scores of Brain Dominance of the Variables

Types of Manage	Medium	Gender	Right	Left	Both (R&L)	A.Ach
Govt	Tamil	Male	68.9	22.2	8.9	45
		Female	84.4	13.3	2.2	55
Aided	Tamil	Male	59.1	27.3	13.6	46
		Female	85.7	9.5	4.8	53
	English	Male	61.1	6	5.6	43
		Female	68.4	26.3	5.3	69
Matric	English	Male	85	12.5	2.5	63
		Female	75	20	5.0	69

Table 4 represents the correlation scores of brain dominance with academic achievement were found to hold significant negative correlation between brain dominance and academic achievement. The result of the above table reveals that brain dominance is not playing a vital role in the academic achievement of the high school students. To be precise, brain dominance found to be a lzzettin kok's study of listening comprehension achievement and brain dominance.

Table 4 r – scores between Brain Dominance and Academic Achievement

	Correlations	Brain Dominance	Academic Achievement
Brain Dominance	**Pearson Correlation**	1	-.102
	Sig. (2-tailed)		.109
	N	250	250
Academic Achievement	**Pearson Correlation**	-.102	1
	Sig. (2-tailed)	.109	
	N	250	250

6. CONCLUSION & SUGGESTIONS

Learning and thinking styles plays a vital role in every human being. Learning and thinking style requires consistency, stability, and tends to resist change and it's related to Academic performance. The study concluded from the findings that there is a negative relationship between brain dominance and academic achievement. The brain dominance should be reduced only Academic Performance will be increased. Since the focus is on child-centered pedagogy giving primacy to the child's experiences, voices, thoughts and participation in learning which the National Curriculum Framework (2005) reiterates in its chapter on 'Learning and Knowledge', it becomes necessary to change our approach to teaching.

REFERENCE

[1] J .E. Bogen, "The other side of the Brain – II : An Appositional Mind", Bulletin of the Los Angeles Neurological Society, Vol.34, 1969, pp.135-162.

[2] D.Fitzgerald and J. A. Hattie, "An Evaluation of Your Style of Learning and Thinking Inventory", British Journal of Educational Psychology, Vol.53, 1983, pp.336-346.

[3] M. S.Gazzaniga, "Recent Research on Hemisphere Later location of the Human Brain", UNCLA Education, Vol.15, 1975, pp.9- 12.

[4] D.Venkataraman, "Styles of Learning and Thinking – Administrators", Manual. New Delhi: Psycom Services, 1994.

[5] L. Kok, "The Relationship between Students' Reading Comprehension Achievement and Their Attitudes towards Learning English and Their Abilities to Use Reading Strategies With Regard To Hemispheric Dominance", Procedia- Social and Behavioral sciences, Vol.3, 2010, pp.144-151.Retrieved from http://www.sciencedirect.com.

[6] L. Kok, "Listening Comprehension Achievement and Brain Dominance", Procedia- Social and Behavioral Sciences, Vol.122, 2014, pp.320-334. Retrieved from http://www.sciencedirect.com.

[7] V. Kalpana and K.Mridula, "Styles of Learning and Thinking", Journal of the Indian Academy of Applied Psychology, Vol.33, No.1, 2007, pp.111-112. Retrieved from http://medind.nic.in/jak /t07/i1/ jakt07i1p111Pdf.

Use of Online Medical Sources in the Information Technology Environment for Clinical Information Search among the Allopathic Medical Practitioners in North-Western Districts of Tamilnadu, India: An Analysis

B.O. Sathivelmurugan[1] and S. Allysornam[2]

[1]Librarian, Institute of Road and Transport Technology (IRTT), Erode - 638 316, Tamil Nadu
E-mail: irtsathivel@yahoo.co.in

[2]Associate Professor & Head, Department of Library Information and Science, Bishop Heber College, Tiruchirappalli - 620 017, Tamil Nadu

Abstract

The main objective of this paper to analyse the allopathic medical practitioners' use of the online medical sources in the digital environmenl for clinical information search in India, North-Western Districts of Tamilnadu like, Salem Erode, Trippur, Coimbatore and the Niligri Districts are selected as study region of this study. Stratified Proportionate Random Sampling (SPRS) method is applied for selection of the allopathic medical practitioners (study subjects) in these districts. Totally 5290 practitioners are in the study region. 10% of the study subjects are selected by the SPRS. Gender (Male, Female), Educational qualification (UG, PGD and PG) and Work place (Rural, Sub-Urban, and Urban) are the independent variables and the dependent variables are online medical sources like, e-journals, e-books, medical databases, search engines, and online discussion forums. Percentage analysis, Student-t-test, One-way ANOVA, Post-hoc test and weighted average scores plots are used for data analysis. Based on the above analysis, PG qualified practitioners are using the online medical sources than the UG and PG-Diploma qualified practitioners. We conclude that educational qualification is one of the major influencing factor for the medical practitioners' use of the online medical sources as compared to gender and workplace. With the assistance of Medical Librarians Government/ Medical universities may Organize Information Literacy Programmes for the practitioners and medical students at different level as one of the initiative step for to better utilization of both printed and online version of medical information.

Keywords: *Allopathic Practitioners, Digital Sources, E-Sources, Medical Practitioners, Online Medical Sources*

1. INTRODUCTION

In the digital environment Medical information sources are available in various digitized formats like e-books, e-journals, medical databases etc. Nowadays, many publishers / professional associations are publishing their books & journals in online version, available over public network. Open Access (OA) initiatives are really useful for researchers and policy makers in developing countries. So many medical journals are coming through Open Access. It gives the availability of information to anyone, anywhere, anytime, and in any format [1]. Electronic journals are published a few week before the printed journals may have an extension that does not contain a printed form, such as animation, 3D display, etc., [2]. More users are coming forward to access online version.

Prakasan's (2013) review analysis of "Information Needs and Use of Healthcare Professionals: International Perspective" has noticed that the medical professionals are using the information sources and systems like colleagues, print and e-journals, MEDLINE, practice-based research network (PBRN), Electronic Medical Records (EMR), Index Medicus and MeSH [3]. General practitioners often are seeking and using information from books, journals and colleagues. Lack of awareness of information sources is the main barriers in using different types of resources. Electronic resources like MEDLINE, up-to-date and online review articles also ranked highly by the teaching hospital medical practitioners [4].

However, the Medical practitioners' information need significantly differs from gender, educational qualification, work place [5]. Schwartz (1995) reported that while in medical school, physicians needed information that was found in text books are conveyed to them during class lectures. As they began their residencies, the type of information they needed changed, and they turned to journals [6]. The quality of MEDLINE searches done by physicians, physician trainees, and expert searchers

tested by McKibbon.,et al (1990). They found that novice searchers on MEDLINE via GRATEFUL MED after brief training have relatively low recall and precision [7]. Sandra, *et al* (2003) made a research to determine the use of online biomedical journals and databases and to assess current users' characteristics associated with the use of online resources in an academic health sciences center. While 53 % of the users indicated that they searched MEDLINE at least once a week, other databases showed much lower usage [8].

General practitioners in India need more awareness about the use of various information sources (including digital) for their professional/personal competency developments [9]. Practitioners urgently need training in searching and evaluating information on the Internet and in identifying and applying evidence-based information [10].

Physicians can use the Internet to solve clinical problems, to support decision-making and to overcome memory limits [11]. The use of online retrieval information systems can help physicians to better answer their clinical questions [12]. Despite an increasing access to Internet, GPs still seem to prefer printed resources, Continuing Medical Education (CME) or contact with their colleagues to answer the questions arising in their clinical practice.

The medical practitioners of this information technology age need to acquaint themselves with the internet and the web and to constantly strive to gain the maximum out of their usage of these tools. Efficiently searching the web using search-engines, search tools, social networks, and their ever improving adaptations is of paramount concern for them. Modeling their approach to reduce time spent and increase the quality of results obtained from these sources not only helps the practitioner, *scholar or student of medicine to increase their knowledge but also adds up to the overall well-being of each and every person on this planet. Utilizing the methods discussed in this paper would assist in obtaining that efficiency and the excellence to which we all look forward to [13].*

2. AIM OF THE PAPER

Medical practitioners are using online information sources in addition to formal and informal sources for their regular practice. Present research study aims to analyse the Allopathic Medical practitioners' use of the online medical sources like e-journals, e-books, medical databases, search engines, and online discussion forums in the digital environment for clinical information search with practitioners' gender, educational qualification and workplace.

3. STUDY REGION

In India, North-western districts of Tamilnadu like, Salem, Erode, Tiruppur, Coimbatore and Nilgris District are selected for this study region. There are 5290 qualified allopathic medical practitioners are in this study region. List of all practitioners are updated in MS Excel and classified into Gender (Male, Female), Educational qualification (MBBS, MBBS with Diploma (PGD), and MBBS with MD/MS/DNB (PG)), and Workplace (Rural, Sub-Urban and Urban).Among the total sample (5290), 10% of the study samples (529) are selected by the **S**tratified **P**roportionate **R**andom **S**ampling method.

4. METHODOLOGY

Survey method is the most commonest method for collection of primary data. Pre-tested, self-administrated, five point likert type questionnaires is a data collection tool. SPSS16.1verson statistical package is used for data analysis. Simple average, Student-t-test, One-way ANOVA, Post-hoc test and weighted average score plots are used for analysing data and test the hypothesis. Gender, Educational qualification and Workplace, are the independent variables and the dependent variables e-journals, e-books, medical databases, search engines, and online discussion forums. Gender is analysed with student-t-test. Educational qualification and workplaces are analysed with One-way ANOVA. Significant groups are found out by the post-hoc test. Weighted average score plots are also drawn.

5. LIMITATION OF THIS STUDY

MCI recognized allopathic medical practitioners in north-western district of Tamilnadu only used as study subjects. Allopathic medical practitioners in medical colleges, teaching facilities, and other system of medicine are excluded from this study.

6. HYPOTHESIS

All the allopathic medical practitioners are using the online medical information sources in proper manner is the basic assumption of this study. Based on the assumption the following null hypothesis "***There is no significant difference between the Gender,***

Educational qualification, and Workplace of the Medical practitioners with regards to their use of the online medical sources" is framed to analysis the collected data.

7. ANALYSIS

Table 1 reveals the respondents' educational qualification, gender and work place. It could be seen that out of the total respondents (529), 111(20.98), 165(31.19) and 253(47.83) are UG, PGD and PG qualified medical practitioners. Among the total practitioners, 321(60.68) are males and 208(39.32) are females. Out of 529 practitioners, 162(30.62) are rural practitioners, 190(35.92) are suburban practitioners and 177(33.46) are urban practitioners.

Table 1 Demographical Details of the Study Sample

Educational Qualification	Gender	Workplace			Total
		Rural	Sub-Urban	Urban	
UG	Male	32(28.83)	25(22.52)	14(12.61)	**71(63.96)**
	Female	15(13.51)	10(9.009)	15(13.51)	**40(36.04)**
	Total	47(29.01)	35(18.42)	29(16.38)	**111(20.98)**
PGD	Male	21(12.73)	39(23.64)	16(9.70)	76(46.06)
	Female	22(13.33)	38(23.03)	29(17.58)	89(53.94)
	Total	43(26.54)	77(40.53)	45(25.42)	**165 (31.19)**
PG	Male	45(17.79)	61(24.11)	68(26.88)	174(68.76)
	Female	27(10.67)	17(6.72)	35(13.83)	79(31.23)
	Total	72(44.444)	78(41.05)	103(58.19)	**253 (47.83)**
		Rural	**Sub-Urban**	**Urban**	
Gender	Male	98(18.53)	125(23.63)	98(18.53)	321(**60.68**)
	Female	64(12.10)	65(12.29)	79(14.93)	208(**39.32**)
		162(30.62)	**190(35.92)**	**177(33.46)**	529

(Figures in parenthesis as consider as percentage)

Table 2 describes the gender, educational qualification and workplace of the medical practitioners' and their use of online medical journals. Among the total sample (529), 20.42% of practitioners always used the e-journals. It doubles the percentage (41.02) never used condition. The means for the use of e-books by the respondents is not the same. Out of (529), 46(8.76) practitioners only always used the e-books and 247(46.69) of them never use it. 65(12.29) practitioners always used the medical database. 205(38.75) practitioners are never used it. 261(49.34) practitioners always used the internet search engines for their regular practice. 96(18.15) practitioners are never used the internet search engine. Always used the E-mail discussion forum is 46(8.13) and 221(41.78) of the practitioners never used it. The following chart 1 shows the above expressions.

Table 2 Gender, Educational Qualification and Workplace of the Medical Practitioners' use of Online Medical Sources

Use Frequency	Gender		Educational Qualification			Workplace			
	Male	Female	UG	PGD	PG	Rural	Sub Urban	Urban	Total
e-Journals									
Never	131 (40.81)	86 (41.35)	59 (53.15)	77 (46.67)	81 (32.02)	76 (46.91)	78 (41.05)	63 (35.59)	217 (41.02)
Always	70 (**21.81**)	38 (**18.27**)	7 (**6.31**)	21 (**12.73**)	80 (**31.62**)	31 (**19.14**)	36 (**18.95**)	41 (**23.16**)	108 (**20.42**)
Total	321	208	111	165	253	162	190	177	529
Significance	0.208^{NS}		**0.000^{**}(sig.@1%lelvel)**			0.068^{NS}			

e-Books									
Never	147 (45.79)	100 (48.01)	62 (55.86)	93 (56.36)	92 (36.36)	79 (48.77)	86 (45.26)	82 (46.33)	247 (46.69)
Always	33 (**10.28**)	13 (**6.25**)	4 (**3.60**)	3 (**1.82**)	39 (**15.42**)	11 (**6.79**)	12 (**6.32**)	23 (**12.99**)	46 (**8.70**)
Significance	0.090 NS		**0.000**(sig.@1%lelvel)**			0.342 NS			
Online Medical Database									
Never	125 (38.94)	80 (38.46)	62 (55.86)	75 (45.46)	68 (26.88)	67 (41.36)	70 (36.84)	68 (38.42)	205 (38.75)
Always	44 (**13.71**)	21 (**10.10**)	5 (**4.51**)	6 (**3.64**)	54 (**21.34**)	19 (**11.73**)	23 (**12.11**)	23 (**12.11**)	65 (**12.29**)
Significance	0.208NS		**0.000** (sig.@1%lelvel)**			0.714NS			
Internet Search Engines									
Never	55 (17.13)	41 (19.17)	43 (38.74)	26 (15.76)	27 (10.67)	42 (25.93)	30 (15.79)	24 (13.56)	96 (18.15)
Always	160 (**49.84**)	101 (**48.56**)	26 (**23.42**)	72 (**43.64**)	163 (**64.43**)	70 (**43.21**)	93 (**48.95**)	98 (**55.37**)	261 (**49.34**)
Significance	0.834NS		**0.000**(sig.@1%lelvel)**			**0.004**(sig.@1%lelvel)**			
E-mail Discussion forum									
Never	134 (41.75)	87 (41.83)	63 (56.76)	69 (41.82)	89 (35.18)	83 (51.24)	70 (36.84)	68 (38.42)	221 (41.78)
Always	29 (**9.03**)	14 (**6.73**)	3 (**2.70**)	8 (**4.85**)	32 (**12.65**)	12 (**7.41**)	14 (**7.37**)	17 (**9.61**)	43 (**8.13**)
Significance	0.772NS		**0.000**(sig.@1%lelvel)**			0.118NS			

(Figures in parenthesis is considered as percentage)

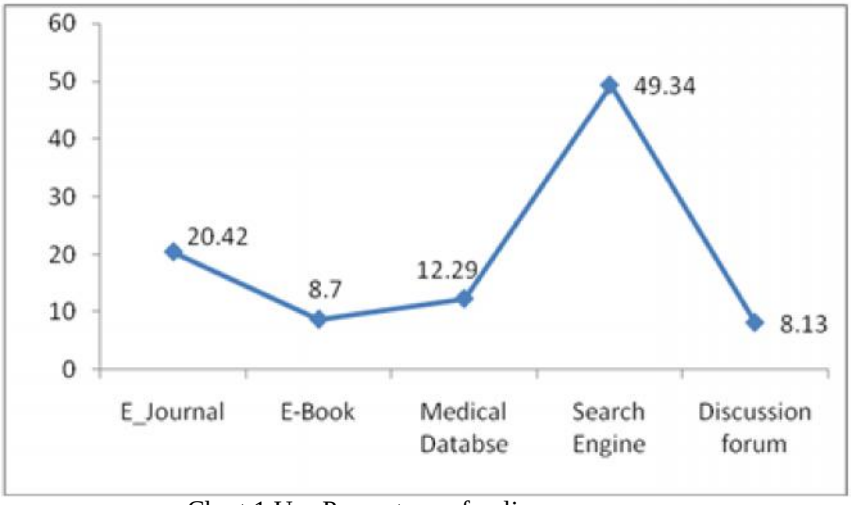


Chart 1 Use Percentage of online sources

As compared to the means of the respondents, there is no much difference between the gender and workplace of the practitioners and their use of the online medical sources. However significant difference is observed in educational qualification. One way ANOVA Statistical analysis also made. Based on the analyses, there is no significant difference between the gender of the respondents and their use of listed online medical sources. It is completely reversed for Educational qualification. However, use of internet search engine has statistically significant with work place. The significant groups are identified by the post-hoc test.

Post-hoc Test: Educational Qualification and use of Online Medical Sources

3.1 Educational Qualification and e-Journals

The means for the use of e-journals by the UG and PGD practitioners are 1.76 and 1.92. It is a subset-1. It forms a homogeneous subset-1. There is no significant difference between the UG and PGD practitioners' use of e-journals. The mean for use of the e-journals by the PG practitioners is 2.62. It forms subset-2. However, the subset 1 and 2 of qualified practitioners has significant difference between them. PG practitioners' use of the e-journals is more than that of PGD and UG practitioners (PG>PGD&UG). (Table 3.1)

Table 3.1 Ed. Qualification and e-Journal

ed.qu	N	Subset for alpha = .05	
		1	2
UG	111	1.76	
PGD	165	1.92	
PG	253		2.62
Sig.		.278	1.000

3.2 Educational Qualification and E-Books

UG, PGD and PG practitioners use means for the e-books are 1.90, 2.36 and3.05. These three means forms three different subsets, subset-1, subset-2 and subset-3. Significant difference is between all the qualifications. Use of the e-book is in the descending order of the educational qualification of the medical practitioners (UG>PGD>PG). (Table 3.2)

Table 3.2 Ed. Qualification and E-book

ed.qu	N	Subset for alpha = .05		
		1	2	3
UG	111	1.90		
PGD	165		2.36	
PG	253			3.05
Sig.		1.000	1.000	1.000

3.3 Educational Qualification and Medical Database

Use of the medical database and the educational qualification of the medical practitioners have significant difference. The means for the use by the UG, PGD and PG practitioners are 1.77, 2.16 and 2.92. These three means form three different subsets. Access of the medical databases by the practitioners having different qualification has as significant difference among them. PG practitioners use medical databases more than the PGD and UG practitioners (PG>PGD>UG). (Table 3.3)

Table 3.3 Edu. Qualification and Medical Database

ed.qu	N	Subset for alpha = .05		
		1	2	3
UG	111	1.77		
PGD	165		2.16	
PG	253			2.92
Sig.		1.000	1.000	1.000

3.4 Educational Qualification and Search Engine

Use of internet search engines and the educational qualification of the medical practitioners have statistically significant difference. The means for the use by UG, PGD and PG practitioners are 1.95, 2.42 and 2.94. These three means form subset-1, subset-2 and subset-3. Each qualification has statistically significant difference between them. PG practitioners are using internet search engines more than the PGD and UG practitioners. (PG>PGD>UG).(Table 3.4)

Table 3.4 Edu. Qualification and& Search Engines

ed.qu	N	Subset for alpha = .05		
		1	2	3
UG	111	1.77		
PGD	165		2.16	
PG	253			2.92
Sig.		1.000	1.000	1.000

3.5 E-mail Discussion Forum

Educational qualification of the medical practitioners and the use of the discussion forum have a significant difference. The mean for the use of discussion forum by UG practitioner is 1.77. It is subset-1. The means for the use by PGD and PG practitioners are 2.21 and 2.49. It forms a homogeneous subset-2. There is no significant difference between the PGD and PG practitioners' use of e-mail discussion forum. However, the significant difference is between subset-1 and subset-2. (Table 3.5)

Table 3.5 Edu. Qualification and Discussion Forums

ed.qu	N	Subset for alpha = .05	
		1	2
UG	111	1.77	
PGD	165		2.21
PG	253		2.49
Sig.		1.000	.056

3.6 Workplace and Internet Search Engine

The above post-hoc test table shows the means of the homogeneous subsets. The mean for the use of the internet search engines by the rural practitioner is 3.47. It is the subset-1. Means of suburban and urban practitioners' use of the internet search engines are 3.82 and 4.02. These two means (suburban and urban) form a homogeneous subset-2. There is no significant difference between suburban and urban practitioners use of the internet search engines. However, significant difference is between these two subsets. (Table 3.6)

Table 3.6 Workplace and Internet Search Engines

Workplace	N	Subset for alpha = .05	
		1	2
Rural	162	3.47	
Suburban	190		3.82
Urban	177		4.02
Sig.		1.000	0.215

Means for groups in homogeneous subsets are displayed.
a Uses Harmonic Mean Sample Size = 157.711.
b The group sizes are unequal. The harmonic mean of the Group sizes is used. Type I error levels are not guaranteed.

8. FINDINGS

i. There are 529 practitioners involved this study.
ii. Study participants male and female percentage ratio is 61and 39.
iii. Based on the workplace, rural, sub-urban and urban practitioners' percentages are 30.62, 35.92 and 33.46.
iv. Based on the results of the statistical analysis, gender of the practitioners and their use of the listed online sources does not have significant difference. However, it is reversed for educational qualification.
v. Medical practitioners Educational Qualification have statistical significant difference (@1% level of significant) with their use of e-journal, e-books, online medical database, search engines and online e-mail discussion forum. Significant groups are identified by the post-hoc test. PG practitioners have a group and the PG. Diploma and UG practitioners form another group. The significant difference is between these two groups of the educational qualification.
vi. However, allopathic medical practitioners' workplace is an influencing factor for the use of online sources Workplace of the practitioners and their use of the e-journals, e-books, online database, and e-mail discussion forum does not have significant difference. Use of search engines has a significant difference. There is no significant difference between suburban and urban practitioners use of the internet search engines. It shows that rural practitioners' utility is less for their use of internet search engines.

9. CONCLUSION

Government may regularly organize Information Communication Technology (ICT) training programmes for medical practitioners with the assistance of Medical Library & Information Science professionals at regular intervals. Local Indian Medical Association (**IMA)** branches may conduct this type of Continuing Medical Education (**CME**) Programmes. This type of programmes may be in the titles of 'Information Literacy', 'Information Search Techniques', 'Bibliographic Access Training' for medical practitioners' which may include digital information literacy skills. Organizing Information Literacy Programme for the medical students at different level as one of the imitative step for the medical practitioners will lead to better utilization of both printed and online version of medical information. It is necessary to impart ICT training to medical teachers in India, and to incorporate ICT as a subject in medical curriculum. This will not only improve the quality of medical education, but also augment health care system and medical research. Medical universities and medical college authorities may understand the importance of medical information sources and services for updating the latest clinical knowledge of the medical teachers and students to organize Information literacy programmes [14].

10. SUGGESTION FOR FURTHER RESEARCH DIRECTION

This type study may be conducted at various regions of Tamilnadu and other medicine systems like, Siddha, Unani, Auyerveda, and Homeopathy for comparing the results. And also to find out the Information seeking level

and information literacy level for the medical college teaching staff and student for preparation of Information Literacy syllabi.

REFERENCES

[1] N.C.Jain, "Open Access Ensures effective Information Retrieval of Medical Literature in e-Database", Ind Journal of Comm Medicine Vol.38, No.1, 2013, pp.1-3.

[2] MasicLzet, "Review of Most Important Biomedical Databases for Searching of Biomedical Scientific Literature", Donald School Journal of Ultrasound in Obstetrics and Gynaecology, Vol.6, No.4, 2012, pp. 343-61.

[3] P.M.Prakasan, "Information Needs and Use of Healthcare Professionals", International Perspective. DESIDOC Journal of Library & Information Technology, Vol.33, No.6, 2013, pp. 465-473.

[4] J. Phua and T. K. Lim, " Use of Traditional Versus Electronic Medical-information Resources by Residents and Interns" Med Teach. Vol.29, No.4, 2007, pp.400-2.

[5] Sathivel Murugan Bomman, S. Ally Sornam and V. Mohan Kumar, "Clinical Information Needs of the Allopathic Medical Practitioners in Developing Country, India: A Descriptive Analysis with Workplace", http://digitalcommons. unl.edu/ libphilprac/1042.

[6] D.G.Schwartz, "Medical Education and Faculty Development: A New Role for the Health Sciences Librarian", Bull. Med. Lib. Assoc., Vol.83, No.4, 1995, pp.483-89.

[7] K.A.McKibbon, *et al*, "How Good are Clinical MEDLINE Searches?: A Comparative Study of Clinical End-user and Librarian Searches", Comp. Biomed. Res., 1990, 23583-593.

[8] L.Sandra, *et al*, "Measuring Use Patterns of Online Journals And Databases", J. Med. Lib. Assoc., Vol.91, No.2, 2003, pp.231-41.

[9] BO. Sathivel Murugan and S.Allysornam, "Information Needs And Information Seeking Behaviour Of Allopathic Medical Practitioners In Tirppur District In Tamilnadu, India", Lib. Philosophy and Practice, 2011. (e-journal). http:// digitalcommons.unl.edu/ libphilprac/594.

[10] Rowena J Cullen, "In Search of Evidence: Family Practitioners' Use of the Internet for Clinical Information" J Med Libr Assoc, Vol.90, No.4, 2002, pp.370–379.

[11] R.M.Pluye, M.Grad, J.C.Dawes, and Bartlett, "Seven Reasons Why Health Professionals Search Clinical Information - Retrieval Technology (CIRT): Toward An Organizational Model" J. Eval. Clin. Pract, Vol.13, No.1, 2007, pp.39-49.

[12] J.I. Westbrook, E.W. Coiera and A.S.Gosling, "Do Online Information Retrieval Systems Help Experienced Clinicians Answer Clinical Questions", J. Am. Med. Inform. Assoc, Vol.12, No.3, 2005, pp.315-321.

[13] Pareek, "Effective Utilization of Web Search Engines: An Approach for Medical Practitioners. API India", www.apiindia.org/ medicine_update_2013/chap162.pdf. 2013.

[14] D Kotasthane and V.Kotasthane, "Letter To The Editor: Medical Teachers And Students In India Should Receive Training In Information Communication Technology", The Internet Journal of Medical Education, Vol. 2, No.2, 2012.

Mapping of Cell Biology Research Output in India: A Scientometric Analysis

Dr. R. Balasubramani[1] and K.S. Abu[2]

[1]Assistant Professor, Department of Library and Information Science, Bharathidasan University, Trichy - 24, Tamil Nadu, E-mail:lisbala@gmail.com

[2]Ph.D Scholar, Department of Library and Information Science, Bharathidasan University, Trichy - 24

Abstract

This study examined the growth of Cell Biology research in India from the year 1999-2013.A total of 822 records were downloaded from Web of science database. The findings revealed that Indian institute of technology and Indian institute of science were the major producers of research output in optical computing. In the extent of international collaboration India has often collaborated with U.S.A, contributing to 116 records having a global citation score of 2483 Contribution of journals, ranking of authors, preference of publication and frequency of keywords were also analyzed in this paper.

Keywords: *Cell Biology, Citation, Scientometrics, Web of science*

1. INTRODUCTION

Cell biology is a science that studies cells - their physiological properties, their structure, the organelles they contain, interactions with their environment, their life cycle, division and death. This is done both on a microscopic and molecular level. Cell biology research encompasses both the great diversity of single-celled organisms like bacteria and protozoa, as well as the many specialized cells in multi cellular organisms such as humans, plants, and sponges.

Knowing the components of cells and how cells work is fundamental to all biological sciences. Appreciating the similarities and differences between cell types is particularly important to the fields of cell and molecular biology as well as to biomedical fields such as cancer research and developmental biology. These fundamental similarities and differences provide a unifying theme, sometimes allowing the principles learned from studying one cell type to be extrapolated and generalized to other cell types. Therefore, research in cell biology is closely related to genetics, biochemistry, molecular biology, immunology, and developmental biology.

2. REVIEW OF LITERATURE

The following reviews related to the present study have been analyzed.

Faqvi, S. H. (2014) on his study on 'Polymer Science Research in India' based on Science Citation Index-Expanded and found out that publication in polymer science by Indian scientists has increased steadily during the period 1999-2012.

Abbasi, F., Biglu, M.H.(2011) had analyzed that quality and quantity of scientific productions originated by Iranian medical sciences and found out that the number of scientific productions emanated by Iranian Medical Sciences Universities has increased through this study period.

Miranda Lee Pao (1982) has investigated the relationship between collaboration and productivity in Musicology a Humanistic subject. The result indicated that only 15% of the literature of Musicology was the result of collaborative authorship.

3. OBJECTIVES

The objectives of the present study are:

i. To examine the growth of research productivity in the field of Cell Biology.
ii. To identify the document wise distribution of publication.
iii. To find out the extent of international collaboration.
iv. To determine the ranking of authors based on publications.
v. To assess the journal wise distribution of publication.
vi. To analyze the top institutions contributed to Cell Biology research.
vii. To identify the top keywords used in Cell Biology research.
viii. To create a historiographical map with LCS and GCS links for selective journals.

4. METHODOLOGY

This study, consisting of records obtainable from Web of science database which is a scientific and indexing service maintained by Thomson Reuters. Records pertaining to Cell biology were gathered from the year 1999-2034.The search string "Cell Biology" was used to download data from the database and a total of 822 records were downloaded. The data were analyzed using Histcite software which is used for Bibliometric analysis and Information visualization.

5. ANALYSIS

A total of 822 records were published in Cell Biology research in India. The research output was analyzed using various scientometric indicators.

5.1. Year-wise Output of Cell Biology

Table 1 presents the year wise research output of Cell biology in India from the year 1999-2013. It reveals that during the period of 15 years, a total of 822 publications were published by the researchers. The highest number of publications is found to be 106 in the year 2013 with 0 Local Citation Score and 63 Global Citation Scores scaled, followed by 124 papers in the year 2012 with 4 Local Citation Scores and 326 Global Citation Scores and 94 papers in the year 2011 with 12 Local Citation Scores and 543 Global Citation Scores. The lowest number of publication was 9 records in the year 1999 with 2 Local Citation Scores and 412 Global Citation Scores.

Table 1 Year- wise Analysis of Cell Biology Research Output

Sl.No.	Year	Records	% of 822	TLCS	TGCS
1	1999	9	1.1	2	412
2	2000	11	1.3	4	654
3	2001	19	2.3	12	526
4	2002	12	1.5	7	447
5	2003	23	2.8	10	547
6	2004	33	4.0	28	896
7	2005	40	4.9	14	1394
8	2006	47	5.7	8	1081
9	2007	66	8.0	16	1388
10	2008	79	9.6	11	1236
11	2009	76	9.2	6	1034
12	2010	83	10.1	8	915
13	2011	94	11.4	12	543
14	2012	124	15.1	4	326
15	2013	106	12.9	0	63
	TOTAL	**822**	**100**	**142**	**11462**

5.2. Prolific Authors

Table 2 indicates the ranking of top ten authors by the number of publications in Cell Biology research during the period 1999-2013. The study found out that totally 2491 authors contributed to Cell Biology research output. It is clearly seen from the table that Kumar A has published the highest number of publications with 14 records, having a global citation score of 270, followed by Pandey A and Sharma A with 13 records each, having a global citation score of 1071 and 116 respectively.It is also noted that Pandey A has scored the highest global citation score of 1071with 13 publications.

5.3 Document Types

Table 3 reveals the Document-wise distribution of publication in Cell Biology research in India. The highest numbers of publications were in the form of journal articles contributing to 546 (66.4%) records with 104 Local Citation Scores and 5844 Global Citation Scores followed by Review with 234 (28.5%) records with 36 Local Citation Scores and 5227 Global Citation Scores respectively. It is inferred from the table that the major form of documents preferred by the researchers for publishing Cell biology Research was found to be the journal articles. It is also noted that the global citation rate exceeded the local citation rate which indicates that the visibility of the publications is higher.

Table 2 Prolific Authors According to Highest Research Productivity

Sl. No.	Authors	Recs.	TLCS	TGCS
1	Kumar A	14	0	270
2	Pandey A	13	8	1071
3	Sharma A	13	0	116
4	Chattopadhyay A	12	12	233
5	Kumar R	12	3	185
6	Singh S	11	4	278
7	Gupta S	10	2	44
8	Kumar S	10	1	30
9	Chaudhuri A	9	24	244
10	Sharma RK	9	7	73
11	Sodhi A	9	8	103
12	Das P	8	0	137
13	Jain S	8	0	110
14	Sharma P	8	0	129
15	Jameel S	7	11	325

5.4. Contribution of Journals

The study found out the total research output on Cell Biology during the period of study in India, comprising of 822 records were published in 490 journals. The journal "Cell Biology International" stands first with 35 records, having a global citation score of 321 and a local citation Score of 4 followed by the journal "Current Science 22 records, having a global citation score of 128 and a local citation score of 4.It is also noted that Journal of Biological Chemistry and Critical Reviews In Biotechnology have scored higher global scores of 323 and 289 with 9 and 5 records respectively.

Table 3 Document-wise Distribution of Publications

Sl. No.	Document Types	Records	% of 822	TLCS	TGCS
1	Article	546	66.4	104	5844
2	Review	234	28.5	36	5227
3	Proceedings Paper	19	2.3	2	327
4	Editorial Material	12	1.5	0	31
5	Review; Book Chapter	4	0.5	0	5
6	Article;Bookchapter	2	0.2	0	26
7	Meeting Abstract	2	0.2	0	0
8	Editorial Material: Book Chapter	1	0.1	0	2
9	Letter	1	0.1	0	0
10	Reprint	1	0.1	0	0
	Total	**822**	**100**	**142**	**11462**

5.5 Contribution of Institutions

Table 5 presents the contribution of top fifteen institutions in Cell Biology Research output in India. The study found out that totally 901 institutions contributed to Cell Biology Research Output during the study period. It is clearly seen from the table that Indian Institute of Technology (New Delhi) has the maximum number of publications with 48 records having a global citation score of 495, followed by Indian Institute of Science (Karnataka) with 42 publications, having a global citation score of 600.it is also noted that Center for Cellular and Molecular Biology has scored the highest global citation score of 659 with 30 publications.

Table 4 Prolific Journals According to Highest Research Productivity (Top 15)

Sl. No.	Journal Name	Records	TGCS	TLCS
1	Cell Biology International	35	321	4
2	Current Science	22	128	4
3	Plos One	16	86	0
4	Proteomics	11	75	1
5	Indian Journal of Medical Research	10	122	2
6	Journal of Biological Chemistry	9	323	10
7	Biochemical and Biophysical Research Communication	8	69	3
8	Journal of Biosciences	8	243	2
9	Immunology and Cell Biology	7	38	0
10	Molecular Bios system	6	47	0
11	National Academy Science Letters-India	6	5	0
12	BMC systems Biology	5	42	0
13	Critical Reviews In Biotechnology	5	289	2
14	Current Drug Metabolism	5	61	0
15	Digest Journal of Nanomamaterials and Biostructores	5	71	1

Table 5 Institution-wise Distribution of Cell Biology Research Output (Top 15)

Sl. No.	Institution	Records	TLCS	TGCS
1	Indian Inst Techno (New Delhi)	48	5	495
2	Indian Inst science (Bengaluru)	42	4	600
3	All Indian Inst Medical Science	31	8	395
4	Ctr Cellular & Mol. Biology	30	26	659
5	Int trGenerEngineerinh&Biotechnolgy	24	10	336
6	Banaras Hindu University	21	11	272
7	Natal Inst Immanuelogy	20	5	264
8	Tata Inst Fundamental Research	19	1	201
9	CSIR	18	4	339
10	Punjab Univesity	16	0	234
11	Indian Inst Chemical Biology	15	4	177
12	Indian Inst Chemical Technology	15	24	275
13	Natl Ctr Cell Science	14	2	568
14	University Delhi	13	0	182
15	Jawaharla Nehru University	11	1	86

5.6 Collaboration

Table 6 shows the International collaboration of India with top 15 countries. It is inferred from the table that India has often collaborated with U.S.A, contributing to 116 records having a global citation score of 2483, followed by Germany and UK with 25 records each having Global Citation Scores of 579 and 1188 respectively. It is also noted that UK with only 25 records has a Global Citation score of 1188 which indicates that these publications have higher quality.

5.7 Word Frequency

Table 7 presents the keywords frequently used by the researchers in their publications. It is revealed from

the table without any surprise that the word "Cell" has been used maximum number of times by the researchers in 110 records with a global citation score of 1211, followed by the word "Biology" in 100 records with a global citation score of 1927.

Table 6 Extent of International Collaboration in the Field of Cell Biology (Top 15)

Sl. No.	Countries	Records	TLCS	TGCS
1	India	805	140	11309
2	USA	116	21	2483
3	Germany	25	4	579
4	UK	25	2	1188
5	Japan	15	1	295
6	France	14	4	515
7	Canada	13	4	461
8	Sweden	12	0	128
9	Australia	9	0	42
10	Unknown	9	2	128
11	Singapore	7	0	28
12	Denmark	6	6	444
13	Finland	5	1	20
14	Slovakia	5	0	32
15	Switzerland	5	1	74

Table 7 Word Frequency Occurrence (Top 15)

Sl. No.	Word	Records	TLCS	TGCS
1	CELL	110	23	1211
2	BIOLOGY	100	29	1927
3	CELLS	82	11	1358
4	CANCER	62	12	721
5	HUMAN	59	16	1151
6	PROTEIN	57	13	1135
7	MOLECULAR	47	13	1265
8	STEM	40	1	648
9	ANALYSIS	35	1	287
10	EXPRESSION	32	3	470
11	ROLE	32	17	258
12	GENE	31	4	335
13	USING	31	4	610
14	PROTEINS	30	17	326
15	NOVEL	29	9	303

6.CONCLUSION

In This study, a scientometric analysis has been undertaken to show the current state of Cell biology computing research. The findings of the study discovered that totally 822 records were published in the field of Cell biology. Indian institute of technology and Indian institute of science were the major producers of research output in optical computing. In the contribution of journals, The journal "Cell Biology International" stands first with 35 records, having a global citation score of 321 and a local citation Score of 4 followed by the journal "Current Science 22 records, having a global citation score of 128 and a local citation score of 4.In the extent of international collaboration India has often collaborated with U.S.A, contributing to 116 records having a global citation score of 2483, followed by Germany and UK with 25 records each having Global Citation Scores of 579 and 1188 respectively. In the ranking of authors, that Kumar A has published the highest number of publications with 14 records, having a global citation score of 270, followed by Pandey A and Sharma A with 13 records each, having a global citation score of 1071 and 116 respectively and in the frequency of keywords used, the word "Cell" has been used maximum number of times by the researchers in 110 records with a global citation score of 1211, followed by the word "Biology" in 100 records with a global citation score of 1927.After 2009 the publications has been increasing considerably every year, but in the year 2013 the publications decreased considerably.

REFERENCES

[1] S. H.Faqvi, "Polymer science research in India during 1999-2012: A scientometric study", Based on science citation index-expanded, Science, Technology and Society, Vol.19, No.1, 2014, pp.95-108.

[2] F. Abbasi and M.H.Biglu, "Webometric Ranking of World Universities: Introduction, Methodology, and Future Developments", Higher Education in Europe, Vol.33, No.2, 2011, pp.233.

[3] Miranda Lee Pao, "The Literature of Bibliometrics, Scientometrics, and Informetrics. Scientometrics, Vol.52, No.2, 2001, pp.91-314.

[4] P.L. Maheswarappa, "Scientometric Study on Research Performance in China", Information Processing and Management, Vol.33, No.1, 1982, pp.81-89.

Indian Journal of Information Science and Services (IJISS)

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

Information for Authors

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

Guidelines for submission

Manuscript Formats

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

References

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

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

Example

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

SUBSCRIPTION

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

For subscription / further details please contact:

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

Indian Journal of Information Science and Services

Volume 8 Number 2 July - December 2014

CONTENTS