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Internet Use in ERIC: A Scientometric Study

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Abstract *- The study is based on the Scientometric analysis of 775 research article published on Internet use in ERIC: A Scientometric Study.This Study will review length of the title, numbers of pages, type of document, chronological distribution of article, no. of references print as well as web references, authorship pattern, author productivity and further it reveals Majorities 278 articles are published by* USA *contributors followed by Turkey and alternative contributors. The findings reveals various aspects of the characteristics and patterns of contributions of the study.*

Keywords: Internet Use; ERIC; Scientometrics.

Introduction

Scientometrics is the science of measuring and analyzing science. In practice, Scientometrics is often done using Bibliometrics which is a measurement of the impact of (scientific) publications.

Scientometrics is the science of method scientific output similar to Bibliometrics used by librarians and information scientist. (Agrawal, aruna, 1982); related fields are the history of science and technology philosophy of science and sociology of scientific knowledge. (Eugene Garfield, 1995) ; application of mathematical and statistical methods of scientific literature (Derek de solla, 2000) ; to identify national an international network and to map the development of new fields of science and technology as well as to know the inner logic of science development (yadavJaisi Ram, 1984) ; this enables to evaluate the size of scientific production on the assumption that the essence of scientific activity is the assumption the production of knowledge (Eugene Garfield, 2002); open access has emerged in the last few years as serious alternative to additional commercial publishing models taking the benefits offered by technology one step further (Wasudevan K T 1995); one significant finding in the field is principle of cost escalation to the effect that achieving further findings at a given level of importance grow exponentially more costly in the expenditure of efforts and resources (Manavalan R 1982) ; other

characteristics of open access journals are that author relation copyrights and they must self-achieved content in an independent repository (David Wilson, 2001); modern Scientometrics is mostly based on latter founded the institute for scientific information which is heavily used for Scientometric analysis (Derek, J. 1995); currently prepares and international methodological manual that will contain guidelines for creating applying and interpreting the indices based on Bibliometric data (Eva Rodenas, 2001).

Scientometrics:

According to bankapur, M.B. and Kumabar, (1993) "Scientometrics is a more general that Bibliometrics. It is interesting to know, that both disciplines have a large overlap. It is surprised to learn certain comments stating that both disciplines have a large overlap. It is surprised to learn certain comments stating that Scientometrics, using Bibliometrics techniques id a part of Bibliometrics".
According to (2006), wouters, a cart intension has always existed between academic Scientometrics and political /practical, Scientometrics, the letter of which has been described as a hybrid of social science and bur rerate expertise (2006).

ERIC

The Education Resources Information Center (ERIC) is an online digital library of education research and information. ERIC is sponsored by the Institute of Education Sciences of the United States Department of Education. The mission of ERIC is to provide a comprehensive, easy-to-use, searchable, Internet-based bibliographic and full-text database of education research and information for educators, researchers, and the general public. Education research and information are essential to improving teaching, learning, and educational decision-making.

Review of Literature

Scientometric / Bibliometric / Citation studies have done earlier by different authors on the different individual journal publications and literature on specific subject areas. The following studies related to the objectives of this study have been reviewed. Srimurugan A & Nattar S analyzed the D-LIB magazine published during 2000 –2007 which revealed that highest number of paper was published in 2005 and the lowest in2007. Vijay K R & Raghavan I analyzed the Journal of Food Science &Technology published during 2000 – 2004 and found that above 93% of contributions were by multiple authors.

Khaparde V S (2011) she studied the pattern of information use by researcher in the field of library and information science. It is based on the references appended to International Journal of "Library Hi Tech" during 2005-2009. The present study is based on 3876 references appended to 247 articles contributed by the authors Library Hi Tech. In Authorship pattern it was found that Solo Research is Predominant than Collaborative Research. The degree of research collaboration was calculated and it was found that the single authorship trend increased gradually in Library Hi Tech.

Khaparde V S (2011) stated in study "Bibliometric Study of Electronic Journal of Academic and Special Librarianship." that single author contributions have dominated the journal with 47.95% of contributions, and in geographical based distribution of articles India have occupied the top position with 28.41% publications. Khaparde V S (2013) her paper conducted the Bibliometric Analysis of Research Publication of Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, from 1975 to 2012. 774 research publications were analysed from 144 journals. The study examines year-wise distribution of papers, authorship pattern, journal in which author published Khaparde and Pawar (2013) studied the authorship pattern and author's collaborative research in Information Technology with a sample of 17917 articles collect from LISA during 2000-2009.The average number of authors per article is 1.80. In the study the degree of collaboration (C) during the overall 10 years (2000-2009) is 0.71, but the year wise degree of collaboration is almost same in all the years of mean value 0.49. According to 10 years of period, the multi- authored articles are higher and predominant than single author.

Fawaz Alhamdi and Vaishali Khaparde (2015) Analyzed Authorship pattern in cloud computing research in LISTA . They collect 108 articles during the year 2009 to 2013.In this study the number of contributions found to be the highest is 24 in the year of 2012. The rate of growth of publication highly decreased from the rate of 0.693 in 2010 to 0.193 .in 2013 whereas the corresponding the Doubling time for different years gradually increased from 1 in 2010 to 3.95 in 2013.

Objectives of the Study:

The primary objective of this study is to *Internet use in ERIC: A Scientometric Study.*and their research output in global during the period 2010 - 2014. More specific objectives are as follows:

- To study the year-wise distribution of articles.
- To study Authorship pattern of contribution.
- To study Most productive Author
- To find out Institution wise distribution of contribution.
- To find out country-wise distribution of contribution.
- To study Domain name wise distribution of the contribution.
- To Study Length of page wise distribution of the article
- To identify Type of document wise distribution of contribution.
- To identify Length of Title wise distribution of contribution.
- To find out the reference in the contribution. (Print as well as Web)

Hypothesis:

The following hypotheses are formulated for the present study.

- Majority of the contributions are contributed by Single Authors.
- USA is the highest productive country.
- Majority of the references are print references.

Scope and Limitation of the Study:

The present study is based on the Scientometric Profiles of Internet use in ERIC: A Scientometric Study. The present study is based on over all 775 articles during 2010-2014.

Data Collection:

Data can be numerically expressed that is quantified quantifiable or objective (Fasibs off and Dely, 1990) the data was collected from journal of Internet use, with the help of spss.total 775 articles, during 2010-2014.

Data Analysis and Interpretation:

Scientometrics analysis is a branch of bibliometrics. It is an important research tools for understanding of the subject it aims at measuring the utility of documents and relationship between documents and fields.

The present study is based on the Scientometric Profiles of Internet use in ERIC: A Scientometric Study during 2010-2014.The present study is based on over all 775 articles during 2010-2014.

Year-wise Distribution of Contributions

Table No. 1: Year-wise Distribution of contributions

Sr. No.	Year-Wise Distribution	Frequency	Percentage
1	2010	272	35.1
2	2011	217	28
3	2013	147	18.97
4	2012	128	16.52
5	2014	11	1.42
Total		**775**	**100**

The Distribution of contributions (year- wise) is shown in Table No. 1& Figure no. 1 out of the total 775 contributions majority of the contributions i.e. 272 contributions were contributed in 2010 were as minimum contributions i.e. 11contributions were contributed in 2014.

Authorship pattern of contribution

Table No.2: Authorship pattern of contributions

Type of Authors	No. of Contribution	Percentage
Single Author	298	38.45
Two Authors	222	28.65
Three Authors	138	17.81
Four Authors	62	8
Five Authors	29	3.74
More than five Authors	23	2.97
Not mentioned	3	0.39
Total	**775**	**100**

The distribution of Authorship pattern is given in the Table No.2. The table shows the single authorship is predominant then multi authors. Table No. 2&Figure no. 2 indicates the majority of the contributions are contributed by two author. Therefore the hypothesis "Majority of the contributions are contributed by Single authors(Hypothesis No. 1) is valid"

Most Productive Author

Table no.3. Most Productive Author

Author Name	No. of Contribution	Percentage
Fivos Papadimitriou	3	0.39
George Veletsianos	3	0.39
Glen Bull	3	0.39
Ahmad Mashhour	2	0.26
Airdre Grant	2	0.26
Alan Dessoff	2	0.26
Birgy Lorenz	2	0.26
Brad M. Maguth	2	0.26
Bridget Dalton	2	0.26
Christine I. Ofulue	2	0.26
danielchudnov	2	0.26
Del Siegle	2	0.26
Genevieve Marie Johnson	2	0.26
Helen Crompton	2	0.26
Hsiao-Chien Lee	2	0.26
IvarBraten	2	0.26
Jennifer Duncan-Howell	2	0.26
Joseph B. Walther	2	0.26
Kate Pritchard	2	0.26

Kathy Ishizuka	2	0.26
Katie Meyer-Griffith	2	0.26
Kevin Oliver	2	0.26
Kostas Dimopoulos	2	0.26
M. Kay Cresci	2	0.26
MeralHakverdi-Can	2	0.26
Michael Stevenson	2	0.26
OzguYolcu	2	0.26
Paula Devine	2	0.26
Peter Kerkhof	2	0.26
SerpilYalcinalp	2	0.26
Shane Dawson	2	0.26
SibelDincyurek	2	0.26
Stephen Brown	2	0.26
Tim Unwin	2	0.26
Trevor M. Harris	2	0.26
Wei-Ying Lim	2	0.26
Yu-Cheng Shih	2	0.26
Yu-Fen Yang	2	0.26
Yujong Hwang	2	0.26
single time publiation 1*694	694	89.55
Total	**775**	**100**

Table no. 3 shows that, the Author names, the total 775authors has published the papers in the ERIC databases on information resources during 2010-2014, the most productive authors are three they Fivos Papadimitriou, George Veletsianosand Glen Bull, who has the highest number 3(0.39%) contribution, 36 authors with Two (0.26) contribution, and 694 authors with single publication.

Institution wise distribution of contribution

The distribution of article with sponsoring parental institution where from the collaborators contributed articles was analyzed and interpreted in the table no. 4

Table No. 4. Institution wise distribution of Article

Institution	No. of Contribution	Percentage			
Nanyang Technological University	8	1.03	McGill University	2	0.26
Michigan State University	7	1.9	Middle East Technical University	2	0.26
National Central University	7	0.9	Mississippi State University	2	0.26
Anadolu University	6	0.77	National Cheng Kung University	2	0.26
			National Kaohsiung Marine University	2	0.26

Athabasca University	6	0.77	National Open University of Nigeria	2	0.26
National Chiao Tung University	6	0.77	National Taiwan Normal University	2	0.26
Sakarya University	6	0.77	National University	2	0.26
Istanbul University	5	0.65	National Yunlin University	2	0.26
Open University	5	0.65	North Carolina State University	2	0.26
Deakin University	4	0.52	Old Dominion University	2	0.26
Griffith University	4	0.52	Pennsylvania State University	2	0.26
Utrecht University	4	0.52	Queensland University of Technology	2	0.26
Brigham Young University	3	0.39	Russian Academy of Sciences	2	0.26
DePaul University	3	0.39	San Diego State University	2	0.26
DokuzEylul University	3	0.39	Sheffield Hallam University	2	0.26
Gazi University	3	0.39	Southern Connecticut State University	2	0.26
Hellenic Open University	3	0.39	Southern Cross University	2	0.26
Macquarie University	3	0.39	State University	2	0.26
National Taiwan University	3	0.39	SuleymanDemirel University	2	0.26
Texas Tech University	3	0.39	Syracuse University	2	0.26
University of Gothenburg	3	0.39	University Putra Malaysia	2	0.26
University of London	3	0.39	University of Adelaide	2	0.26
University of Melbourne	3	0.39	University of Arkansas	2	0.26
University of New South Wales	3	0.39	University of Bath	2	0.26
University of Oslo	3	0.39	University of British Columbia	2	0.26
University of Peloponnese	3	0.39	University of Connecticut	2	0.26
University of South Australia	3	0.39	University of East London	2	0.26
University of South Carolina	3	0.39	University of Haifa	2	0.26
University of Wollongong	3	0.39	University of Jyvaskyla	2	0.26
West Virginia University	3	0.39	University of Michigan-Dearborn	2	0.26
AhiEvran University	2	0.26	University of Minnesota	2	0.26
Akdeniz University	2	0.26	University of New England	2	0.26
Appalachian State University	2	0.26	University of North Carolina	2	0.26
Arizona State University	2	0.26	University of North Carolina at Chapel Hill	2	0.26
Australian Catholic University	2	0.26	University of Northern Iowa	2	0.26
Balikesir University	2	0.26	University of Oklahoma	2	0.26
Bangkok University	2	0.26	University of Pennsylvania	2	0.26
Baskent University	2	0.26	University of Rhode Island	2	0.26
City University of New York	2	0.26	University of South Florida	2	0.26
De Montfort University	2	0.26	University of Southern Mississippi	2	0.26
Eastern Illinois University	2	0.26	University of Technology	2	0.26
Florida State University	2	0.26	University of Texas	2	0.26

George Mason University	2	0.26	University of Texas at Austin	2	0.26
Georgia Southern University	2	0.26	University of Wisconsin-Madison	2	0.26
Hacettepe University	2	0.26	VU University Amsterdam	2	0.26
Illinois State University	2	0.26	Wayne State University	2	0.26
Illinois University	2	0.26	Yarmouk University	2	0.26
Iowa State University	2	0.26	Single time publication 1x436	436	56.25
James Madison University	2	0.26	Not Mentioned	81	10.45
Liverpool John Moores University	2	0.26	**Total**	**775**	**100**

The distribution of published papers by institution wise the table 4 reveals that, out of 775 contributors, There are not mentioned 81(10.45%) institutions, the highest number 8(1.03%) of contributors are contributed form the Nanyang Technological University. Michigan State Universityand National Central University with 7(0.90%) contributors. Four institution with 6(0.77%) contribution, Two institution with 5(0.52%) contribution, Four institution with 4(0.52%) contribution,18 institution with 3(0.39%) contribution,68 institution with 2(0.26%) contribution and 436(56.26%) institution with Single contribution.

Country wise distribution of the contribution

Table No. 5. Country wise distribution of the contribution

Country wise	No. of Contribution	Percentage	Country wise	No. of Contribution	Percentage
USA	278	35.87	South Africa	4	0.52
Turkey	72	9.29	Thailand	4	0.52
Australia	56	7.23	Belgium	3	0.39
UK	47	6.06	France	3	0.39
Taiwan	38	4.9	Iran	3	0.39
Canada	35	4.52	Israel	3	0.39
Greece	12	1.55	Russia	3	0.39
India	12	1.55	Italy	3	0.39
Singapore	12	1.55	Czech Republic	2	0.26
Netherland	12	1.55	Estonia	2	0.26
Norway	8	1.03	Georgia	2	0.26
Malaysia	8	1.03	Jordan	2	0.26
Germany	7	0.9	Korea	2	0.26
China	6	0.77	Nigeria	2	0.26
New Zealand	6	0.77	Northern Cyprus	2	0.26
Sweden	6	0.77	Pakistan	2	0.26
Spain	5	0.65	single time publication 1*21	21	2.73
Finland	4	0.52	Not Mention	84	10.84
Nigeria	4	0.52	**Total**	**775**	**100**

Table No. 5 shows that, the country wise distribution of contributors, the table 5 reveals that out of the total 775 contributors has contributed during 2010-2014, majority of article 278(35.87%) have been contributed form USA country. 72(9.29%) contributors have been contributed form Turkey, 56(7.23%) contributors have been contributed from Australia, 47(6.06%) contributors have been contributed from UK, 38(4.90%) contributors have been contributed from Taiwan, 8 country contributed with 2 contribution, and 21 country contributed with single contribution. 84(10.84%) contributors has not mention their country in the papers, Therefore the hypothesis **"USA is the highest productive country (Hypothesis No. 2) is valid".**

Domain name wise distribution of the article

Table No. 6 Domain name wise distribution of the article

Domain Name	Frequency	Percentage
edu	284	36.65
com	95	12.26
ac	52	6.71
ca	18	2.32
org	17	2.19
nl	11	1.42
gr	10	1.29
net	4	0.52
uio.no	4	0.52
uk	4	0.52
co	3	0.39
de	3	0.39
es	3	0.39
fi	3	0.39
it	3	0.39
no	3	0.39
au	2	0.26
gov	2	0.26
gu.se	2	0.26
ubc.ca	2	0.26
Single time publication 1x26	26	3.35
Not Mentioned	224	28.9
Total	**775**	**100**

It can be observed from Table No. 6 that, the high frequency domain name were edu(284), Not Mention (224), com (95), ac (52), ca (18), org (17), nl(11), gr (10),3 domain name (4), 6 domain name (3), 4 domain name (2) and 26 domain name,Not Mention (224),Table gives a list of domain name appeared in the author contribution.

Length of page wise distribution of the article

Table No. 7. Length of page wise distribution of the article

Length Of pages	Frequency	Percentage
11	53	6.84
14	52	6.71
5	48	6.19
6	48	6.19
13	46	5.94
12	44	5.68
9	42	5.42
17	40	5.16
8	39	5.03
7	37	4.77
10	35	4.52
15	34	4.39
16	34	4.39
18	33	4.26
19	28	3.61
4	23	2.97
21	20	2.58
20	19	2.45
22	17	2.19
23	16	2.06
3	14	1.81
25	10	1.29
26	9	1.16
28	8	1.03
32	5	0.65
24	3	0.39
27	3	0.39
30	3	0.39
2	2	0.26
31	2	0.26
35	2	0.26
Single Length of page 1x6	6	0.77
Total	**775**	**100**

Table no. 07 .shows that the highest frequency is 53 i.e.11 pages which is followed by 14 pages and lowest frequency is 6 i.e. 1 page articles.

Type of document wise distribution of contribution

Table no. 8. Type of document wise distribution of contribution

Documents Type	Frequency	Percentage
Article	770	99.35
Feature	3	0.39
Review	1	0.13
Short notice	1	0.13
Total	**775**	**100**

Table no. 8. and figure no. 3 Shows that, the highest (99.35%) number of publication has been published in article in these study, Feature (0.39%), Reviews(0.13%) andShort notice (0.13%) etc. is analyzed.

Length of Title wise distribution of contribution

Table no. 9. Length of Title wise distribution of contribution

Length of Title	Frequency	Percentage (%)
1 to 10	487	62.84
11 to 20	282	36.39
21 to 30	6	0.77
Total	**775**	**100**

Table no. 9 and figure no. 4shows that, Length of title wise distribution of contribution, there were as many as total 775 articles caring in ERIC databases on internet use during 2010-2014. The highest length of title are 487(62.84%) are from 1 to 10, 282(36.39%) followed by 11 to 20 length of title, 6(0.77%) followed by 21 to 30 length of title.

No. of References wise distribution of contribution

Table-10 No. of References wise distribution of contribution

Year	No. Of Print Reference	No. Of Web Reference	Total no. of References	Percentage
2010	6435	1321	7756	32.58
2011	5324	992	6316	26.53
2012	3406	807	4213	17.7
2013	4171	982	5153	21.65
2014	314	54	368	1.55
Total	**19650**	**4156**	**23806**	**100**

Table no. 10. and figure no. 5 Shows that no. of references wise distribution of article, total no. of references 4156 are mention in the ERIC databases on information sources during 2010-2014. The highest no. of references is 1321 in which 6435 are print references and 1321 are web references in the year 2010, and lowest no. of references are 368 in which 314 are print references and 54 are web references, the total no. of print references are 19650 and 4156 are web references, in the ERIC databases on information sources during 2010-2014.Therefore the hypothesis" Majority of the references are print references (Hypothesis No. 3) is valid**"**

Conclusion:

Scientometrics is a relatively new subject of information. It helps to evaluate information & to handle the information in libraries and information centers by the quantitative analyzed information. It deals with the mathematical and statistical analysis. This is an umbrella term used for many studies where quantitative method or techniques are used to investigate various aspect of written document.

A Scientometrics analysis is the technique of Bibliometrics used to measure the impact of individual online journal. Concluding results from the analysis of these online downloaded journals are presented in a manner corresponding to objectives of the study.

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