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Periodical Literature Bibliometric Analysis: A case study of four International Journals

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Abstract

Bibliometrics is most popular among the scholars, researchers and academics in the faculty of Library and Information Science research. The current study is a bibliometrics analysis of four international journals such as: 1st "Language Sciences" (LS) and 2nd "Linguistics and Education" (L&E), 3rd 'Political Geography' (PG), and 4th 'Religion' (Rgn). The present paper attempts to evaluate the publications indexed under the database of Science Direct Top 25 hottest Papers journal literature to understand the global approach of research output in four core journals. This is a comprehensive survey work rendering bibliographic records from Science Direct top 25 hottest papers database during 2005-2013, and this paper strenuously tries to give a complete sketch of the evaluation of research outputs. The key findings of the research divulge that, out of a total number of 3300 papers undertaken for the present research work, 900 were taken from 1st three journals and 600 shared by the 4th journal "Religion". It is indicated from the study that top 15 authors of all four journals identically contributed 349 (38.77%), 281 (31.22%), 384 (42.66 %) and 239 (39.83 %) papers to their credit which counts more than one third of the whole contribution except 2nd journal. In all journals the greater number 79, 76, 72, and 85 percent papers were produced by single authors, while the collaborated papers were only 21, 24, 28, and 15 percent the study unmasks. Considering the authors' institutional affiliation it is ascertained that, the authors' contributed to the journals was affiliated to 153, 152, 169 and 80 unique institutions encompassing intercontinental regions, which again determines maximum number of institutional contributors are involved in 3rd journal, while minimum institutional contributors in 4th journal respectively. Besides, the geographical analysis indicates the involvement of cross national regions in the research practices is well found considerably benchmarking. Moreover, the study evidently shows that the overwhelming and most productive geographical region contributors' USA shared 208 (23.11%), 354 (39.33%) and 231 (38.5 %) papers in 1st, 2nd and 4th journal with posed 1st rank, while UK achieved 1st rank having contribution 396 (44%) to the 3rd journal respectively. Resultantly, it could be professed here that, the both regions (USA and UK) are considerably granted as leading productive nations and prolific in the realm of global research.

Keywords: *Bibliometrics; Research output; Authors productivity; Degree of collaboration; Authorship pattern; Citation pattern; Productive countries and Institutions; Prolific Authors; Science Direct; Scholarly Publications; Research Excellence; LS; L&E; PG; Rgn.*

1. Background Study

The examination of the research publication and its contributions is a buzzing area of research in the field of library and information science. Bibliometrics, Scientometrics, Citation Study, and Content analysis are the concepts supplementary and complementary to each other in their respective applications in the field in the domain of research which are most familiar tools extremely and extensively used by the scholars, researchers and

academics across the globe. This technique has been put forth over the present study to evaluate research productivity at a global context to induce necessary inferences.

To avoid confusion it would be worthwhile to point out here that, though the data undertaken from papers indexed in Science Direct Bibliographic Database top 25 hottest papers of journals such as: 1st "Language Sciences" (LS), 2nd "Linguistics and Education" (L&E), and 3rd 'Political Geography' (PG), under the time period 2005-2013, while the journal "Religion" (Rgn) covers the time period 2005-2010, but the table no. 2 indicates the actual year of publication of these papers in concerned source journals.

2. Introduction:

Bibliometrics and scientometrics are the two closely related approaches for measuring scientific publications and science in general, respectively. In practice, much of the work that fall under this header involves various types of citation analysis, which looks at how scholars cite one another in publications. In the context of this toolkit, bibliometrics are also one of the key ways of measuring the impact of scholarly publications. 'Scientometrics' is often done using bibliometrics which is a measurement of the impact of (scientific) publications. Modern scientometrics is mostly based on the work of Derek J. de Solla Price and Eugene Garfield. The latter founded the Institute for Scientific Information which is heavily used for scientometric analysis. Methods of research include qualitative, quantitative and computational approaches.

(<http://en.wikipedia.org/wiki/Scientometrics/> accessed on 15.12.11).

Bibliometrics is a type of research method being used in LIS. It is an emerging area of research in the LIS field. The quantitative analysis and statistics to describe patterns of publication within a given field of literature are utilized. Researchers use bibliometric methods of evaluation to determine the influence of a single author or to describe the relationship between two or more authors or works. Bibliometric studies can also be used to study the regional patterns of research, the extent of cooperation between research groups and national research profiles. The main derivatives of bibliometrics are: publication counts, citation counts, co-citation analysis, co-word analysis, scientific 'mapping' and citations in patents. The word 'bibliometric' has been derived from the Latin and Greek words 'biblio' and 'metrics' which refer to the application of mathematics to the study of bibliography (Thanuskodi, 2010, p.78).

The term bibliometrics was coined by Alan Pritchard in a paper published in 1969, titled *Statistical Bibliography or Bibliometrics?* He defined the term as "the application of mathematics and statistical methods to books and other media of communication".

Bibliometrics is statistical analysis of written publications, such as books or articles. Bibliometric methods are frequently used in the field of library and information science, including scientometrics. For instance, bibliometrics are used to provide quantitative analysis of academic literature. Analysis and content analysis are commonly used bibliometric methods. Many research fields use bibliometric methods to explore the impact of their field,^[3] the impact of a set of researchers, or the impact of a particular paper. Bibliometrics also has a wide range of other applications, such as in descriptive linguistics, the development of thesauri, and evaluation of reader usage.

Historically bibliometric methods have been used to trace relationships amongst academic journal citations. Citation analysis, which involves examining an item's referring documents, is used in searching for materials and analyzing their merit.^[4] Citation indices, such as Institute for Scientific Information's Web of Science, allow users to search forward in time from a known article to more recent publications which cite the known item. (Retrieved from <http://en.wikipedia.org/wiki/Bibliometrics>)

3. Scope & Objective of the Study:

The scope of the study encompasses four international journals viz., 1st "Language Sciences" (LS), 2nd "Linguistics and Education" (L&E), and 3rd 'Political Geography' (PG), and 4th "Religion (Rgn)" indexed at Science Direct Database under the heading Top 25 Hottest Articles. The study accounts a total of 3300 papers adding 900 (Nine hundred) each from three journals, and 600 (Six hundred) from journal 'Religion' categorically. For clarity it may be noted here that, data on the papers of journal "Religion" from the year 2011-2013 are not available under the heading top 25 hottest papers site of *Science Direct Bibliographic Database*, for which the researcher excluded the period from the study. The key objectives of the present study holds to acclaim the following issues are as follows:

- i. Nature of Authorship pattern of publication;
- ii. Single Vs Multiple authored papers;

- iii. Trace the Geographical Distribution/scattering of research publication;
- iv. Chronological Growth pattern of literature;
- v. Most productive authors of top countries;
- vi. Degree of collaboration of authors;
- vii. Degree of citation of articles;
- viii. Study of length of the papers and
- ix. Understanding the changing trends in scholarly research output

4. Methodology Employed

The study specifically concentrates on the Bibliometric analysis is one of the most widely used methods in Library and information science research. It is an examination of the frequency, patterns, and graphs of citations in articles. This study is aimed to discuss about the analysis of the research output of four international journals indexed under *Science Direct on-line Database*. The relevant sources and data are collected from top 25 hottest papers site of above mentioned database. Based on the available sources the following discussions were made.

Data on papers published in four journals such as: 1st "Language Sciences" (LS), 2nd "Linguistics and Education" (L&E), and 3rd 'Political Geography' (PG), and 4th "Religion (Rgn)" were collected from each downloaded records from Science Direct on-line Bibliographic Database and each data were examined identically to find out the result. All papers included in the analyses which are indexed under the top twenty five hottest papers site of 1st three journals accounting 900 papers each, whereas the 4th journal with 600 papers identically. Further, each items of information processed by developing a database of 3300 down loaded records adding essential fields viz. journal title, article title, 1st author, number of authors, affiliation with institutions, country of origin (considering 1st author), year of publication in source journal, number of citations, length of papers and ranking pattern, etc. using the MS-Excel spread sheet. It may be noticed here that, in case of 4th journal "Religion" due to non-availability of data on papers period from 2011-2015 in top 25 hottest papers site 300 records have been excluded which caused a total 600 records considered under the gamut of the present study. Since, reference counts are not freely available with the abstract site the investigator did not able to analyze the reference pattern of the papers. Finally, all relevant data are then sorted, tabulated, and assimilated in a logical order to draw inferences for the present research.

5. Review of Literature

Lipetz (1999) studied many bibliometric aspects of papers in JASIS by examining volume of 1955, 1965, 1975, 1985 and 1995. One of his findings revealed that the number of scholarly papers published per year in JASIS has grown exponentially from 21 to 68.

Dutt, Garg & Bali (2003) analyzed 1317 papers published in the first fifty volumes of the international journal of *Scientometrics* during 1978 to 2001. They found that the U.S.A share of papers is constantly declining while that of the Netherlands, India, France and Japan is on the rise. The research output is highly scattered as indicated by the average number of papers per institution.

Mukherjee (2008) analyzed the authorship pattern of scientific productions of the four most productive Indian academic institutions for the eight-year -period from 2000 to 2007. The results show that among four universities, the authors of Delhi University contributed the highest number of articles, followed by Banaras Hindu University. There is also an increasing tendency toward collaborative research among Indian authors as well as more frequent collaboration with international authors. Biochemistry and Molecular Biology are two of the most prolific research areas in these four Indian universities. The average rate of references per item is 28 and the citations received per item are 3.56.

Tian, Wen & Hong (2008) conducted a bibliometric analysis to evaluate global scientific production of Geographic Information System (GIS) papers from 1997 to 2006 in Science Citation Index. Results indicated that GIS research steadily increased over the period and the annual paper production in 2006 was about three times higher comparing to 1997s paper productions.

6. Need of the study

There have been incessant studies on bibliometrics, scientometrics, content analysis etc. which is most familiar among the researchers, scholars, and academicians all over the globe in the field of Library and information science (LIS). The trend has given new dimensions and understanding to the domain of LIS research. However, the very study trace this trend and aims at highlighting the aspects which would be most useful and further encourage the researchers', scholars and library practitioners in enriching their respective research activities and professional exercises with designing a nuance platform to the hub of given research.

7. Analysis and Interpretation of Data

The present study is based on the analysis of the collected data of four international journals indexed under science direct database top 25

hottest papers link which has been represented in the tabular form for the easy understanding of the theme, finding inferences. and meeting the goal of the present research work.

Table-7.1: State of the Art of Study

Area of Study	Number of Jr.	Name of Journal	Period of Coverage	No. of Papers	Percentage	C. F.	C. P.
Arts & Humanities	1	Language Sciences	2005-13	900	27.27	900	27.27
	2	Linguistics and Education	2005-13	900	27.27	1800	54.54
	3	Political Geography	2005-13	900	27.27	2700	.8181
	4	Religion	2005-10, three years data (2011,2012 & 2013) not available	600	18.18	3300	99.99
Total	2	*	8 Years except journal 'Religion'	3300	100	3300	100

The present study is undertaken pertaining papers indexed under Science Direct Database top 25 hottest papers link during the period 2005–2013 (8 years) of four international journals namely 'Language Sciences (LS)', 'Linguistic & Education (L&E)', 'Political Geography (PG)', and 'Religion (Rgn)' accounts a total 3300 papers, 900 from each 1st , 2nd , and 3rd journals, and 600 from 4th journal as a bibliometric dimension with the key objectives to measure and find a nuanced approach to the strength and weakness of scholarly research output.

Table-7.2: Chronological Analysis of Papers on the basis of Year of Publication in Source Journal

Journals																			
1. Language Sciences					2. Linguistics and Education					3. Political Geography					4. Religion				
Sl. No	Year	No. Of papers	%	Avg per Year	Sl. No	Year	No. of papers	%	Avg per Year	Sl. No	Year	No. of Papers	%	Avg per Year	Sl. No	Year	No. Of Papers	%	Avg per Year
1	1988	1	0.11		1	1995	1	0.11		1	1992	1	0.11		1	1985	1	0.16	
2	1995	8	0.88		2	1996	3	0.33		2	1995	5	0.56		2	1997	10	1.66	
3	1996	5	0.55		3	1998	4	0.44		3	1996	8	0.89		3	1999	14	2.33	
4	1998	1	0.11		4	2000	25	2.77		4	1997	3	0.33		4	2001	19	3.16	
5	20	44	4.		5	20	27	3		5	19	5	0.		5	20	4	0.	

	00		88			01				98		56			02		66		
6	20 01	3	0. 33	47. 36 papers	6	20 02	66	7. 33	50 papers	6	19 99	8	0. 89	45 papers	6	20 03	57	9. 5	46. 15 papers
7	20 02	10	1. 11		7	20 03	30	3. 33		7	20 00	10	1. 11		7	20 04	147 04	24 .5	
8	20 03	49	5. 44		8	20 04	74	8. 22		8	20 01	69	7. 67		8	20 05	96	16	
9	20 04	46	5. 11		9	20 05	163	18 .1 1		9	20 02	33	3. 67		9	20 06	45	7. 5	
10	20 05	139	15 .4 4		10	20 06	89	9. 88		10	20 03	23	2. 56		10	20 07	58	9. 66	
11	20 06	66	7. 33		11	20 07	36	4		11	20 04	91	10 .1 1		11	20 08	63	10 .5	
12	20 07	99	11		12	20 08	99	11		12	20 05	118	13 .1 1		12	20 09	45	7. 5	
13	20 08	58	6. 44		13	20 09	88	9. 77		13	20 06	131	14 .5 6		13	20 10	41	6. 83	
14	20 09	102	11 .3 3		14	20 10	58	6. 44		14	20 07	254	28 .2 2		To ta l	13 Ye ar s	600	10 0	
15	20 10	94	10 .4 4		15	20 11	64	7. 11		15	20 08	61	6. 78		Gr an d To ta l	13	600	10 0	
16	20 11	82	9. 11		16	20 12	36	4		16	20 09	14	1. 56		*				
17	20 12	49	5. 44		17	20 13	36	4		17	20 10	27	3						
18	20 13	38	4. 22		18	20 14	1	0. 11		18	20 11	25	2. 78						
19	20 14	6	0. 66		To ta l	18 Ye ar s	900	10 0		19	20 12	7	0. 78						
To ta l	19 Ye ar s	900	10 0							20	20 13	7	0. 78						
										To ta l	20 Ye ar s	900	10 0						
Gr an d To ta l					Gr an d To ta l	18	900	10 0		Gr an d To ta l	20	900	10 0						

To avoid confusion and for clarity it would be worthwhile to state here that, on the basis of the year of publication in the source journal the papers as shown in above table are classified and arranged. It is determined from the that 2005 is the most prolific year for the journals '**Language Sciences**' , and '**Linguistics and Education**' from which a largest number of papers 139

47, 12-27, 19-35 and 10-29 respectively. Yuh-Fang Chang is the most productive author affiliated to institution 'National Chung Hsing University', Angela Creese affiliated to institution 'University of Birmingham', Arturo Escobar affiliated to institution 'University of North Carolina' and Henry Munson associated to institution 'University of Maine' identically in 4 journals with publications 47, 27, 35 and 29, which accounts about 5.22%, 3%, 3.88% and 4.83% of the total publications found quite encouraging. Moreover, the top 15 authors account about 349 (**38.77%**), 281 (**31.22%**), 384 (42.66%) and 239 (39.83%) papers in separate journals out of total publications undertaken for the present study. Besides, to track the publication trend of top second author it is explored that, the author Cliff Goddard affiliated to 'University of New England', Vera F utiérrez-Clellen affiliated to 'San Diego State University', Michael K. Goodman associated to 'University of California' and Philip A. Mellor amalgamated with 'University of Leeds' reports 42 (4.67%), 25 (2.78%), 34 (3.83%) and 25 (4.16%) papers to their credit, followed by top 3rd ranking authors Lyle Campbell, Constant Leung, Philippe Le Billon, and Steven Engler being teamed up with the institutions such as: University of Canterbury, King's College London, School of Geography, and University of Leeds Contributed papers 41 (4.56%), 24 (2.67%), 34 (3.83%) and 24 (4%) to their respective journals as the above table connotes. A glance at table 4 emphatically indicates that, average papers per author is 4.20, 4.36, 4.54 and 3.89 found quite closer to each another in four different journals, while average papers per institution is 5.88, 5.92, 5.32 and 7.5 observed which is more than the average contribution of papers per author, but in the same category 1st three journals average institutional value is quite closer to each other, although 4th journal leads a gap among others as the study prompts.

Table-7.5: Geographical Analysis of Papers Published in Four (4) Journals

<i>Journals</i>												
<i>Sl. No.</i>	<i>1. Language Sciences</i>			<i>2. Linguistics and Education</i>			<i>3. Political Geography</i>			<i>4. Religion</i>		
	<i>Name of Country</i>	<i>No. of papers</i>	<i>%</i>	<i>Name of Country</i>	<i>No. of papers</i>	<i>%</i>	<i>Name of Country</i>	<i>No. of papers</i>	<i>%</i>	<i>Name of Country</i>	<i>No. of papers</i>	<i>%</i>
1	USA	208	23.11	USA	354	39.33	UK	396	44	USA	231	38.5
2	Australia	111	12.33	UK	165	18.33	USA	275	30.55	UK	102	17
3	France	94	10.44	Australia	134	14.88	Norway	48	5.33	Canada	71	11.83

4	UK	83	9.2 2	Canada	52	5.7 7	Australia	33	3.6 7	The Netherlands	48	8
5	Taiwan	55	6.1 1	Spain	37	4.1 1	Ireland	32	3.5 6	Norway	20	3.3 3
6	South Africa	41	4.5 5	China	32	3.5 5	Canada	29	3.2 2	Australia	18	3
7	Belgium	38	4.2 2	Singapore	26	2.8 8	Singapore	29	3.2 2	Italy	11	1.8 3
8	Spain	29	3.2 2	Finland	18	2	Israel	7	0.7 8	Denmark	10	1.6 6
9	The Netherlands	28	3.1 1	The Netherlands	14	1.5 5	Switzerland	6	0.6 7	Egypt	9	1.5
10	Hong Kong	24	2.6 6	New Zealand	11	1.2 2	Sweden	3	0.3 3	Israel	8	1.3 3
11	Germany	18	2	Hungary	11	1.2 2	Turkey	3	0.3 3	Wales	8	1.3 3
12	Israel	18	2	Hong Kong	10	1.1 1	Germany	2	0.2 2	Finland	5	0.8 3
13	Singapore	16	1.7 7	Belgium	8	0.8 8	Netherlands	2	0.2 2	Switzerland	4	0.6 6
14	Iran	16	1.7 7	Africa	2	0.2 2	Estonia	1	0.1 1	Germany	3	0.5
15	Canada	12	1.3 3	Sweden	1	0.1 1	Hong Kong	1	0.1 1	News land	3	0.5
16	*	*	*	*	*	*	news land	1	0.1 1	Philippines	3	0.5
17	*	*	*	*	*	*	Russian Federation	1	0.1 1	Sweden	3	0.5
18	*	*	*	*	*	*	*	*	*	Taiwan	2	0.3 3
19	*	*	*	*	*	*	*	*	*	Czech Republic	1	0.1 6
20	*	*	*	*	*	*	*	*	*	France	1	0.1 6
21	*	*	*	*	*	*	*	*	*	Japan	1	0.1 6
Top Countries with corresponding papers	15 Countries collectively contribute	791	87.88	15 Countries collectively contribute	875	97.22	17 Countries collectively contribute	869	96.55	21 Countries collectively contribute	562	93.66
Other	Data on country of origin of papers not available	109	12.11	Data on country of origin not available	25	2.78	Data on country of origin not available	31	3.44	Data on country of origin not available	38	6.33
Total	*	900	100	*	900	100	*	900	100	*	600	100

Geographical analysis of papers is another vital factor which is ever intended in bibliometrics studies of research output as the table number 5

discloses above is undertaken for the present work. Out of four, in three journals i. e. 1st '**Language Sciences**', 2nd '**Linguistics and Education**', and 4th '**Religion**' the highest number 208 (23.11%), 354 (39.33%), and 231 (38.5%) papers has been contributed by USA, while in the journal '**Political Geography**' major contributor is UK with 396 (44%) papers. Hence, it is ascertained that, USA is the most productive country in the field of research output across the globe. In 1st journal Australia, UK, France, Taiwan, posed second, third, fourth and fifth place having 111 (12.33%), 94 (10.44%), 83 (9.22%), and 55 (6.11%) contributions respectively. As regard to 2nd journal the countries such as: UK, Australia, Canada, and Spain achieved second, third, fourth and fifth rank contributing 165 (18.33%), 134 (14.88%), 52 (5.77%), 37 (4.11%) to their credit. With respect to 3rd journal it is noticed that USA, Norway, Australia, and Ireland got second, third, fourth and fifth rank with 275 (30.55%), 48 (5.33%), 33 (3.67%), and 32 (3.56%) papers as their research output. Moreover, in concern to 4th journal it is found that UK, Canada, Netherlands, and Norway schedules their rank producing 102 (17%), 71 (11.83%), 48 (8%), and 20 (3.33%) research papers in the respective journal. Although, UK achieved 1st rank in 3rd journal it might be moot having 2nd rank, in 2nd and 4th journals following USA. However, resultantly it might be worthwhile to say here that USA and UK both are most prolific countries among other top contributors of the globe. In concluding phase the researchers would like to focus over the number of country contributors in different journals as the table shows that, fifteen countries involved in research contribution in 1st two journals, followed by seventeen countries in 3rd journal, while the highest twenty one countries associated with 4th journal respectively.

Table-7.6: Top 20 Productive Institutions/Institutional Contributors'

Journals																
Sl. No.	1. Language Sciences				2. Linguistics and Education				3. Political Geography				4. Religion			
	Name of Institution	Name of Country	No. of Papers	%	Name of Institution	Name of Country	No. of Papers	%	Name of Institution	Name of Country	No. of Papers	%	Name of Institution	Name of Country	No. of Papers	%
1	National Chung Hsing University	Taiwan	47	5.40	University of California	Canada	62	6.89	University of Durham	UK	65	7.48	University of Maine	USA	30	5
2	University of New England	Australia	42	4.83	University of British Columbia	USA	36	4	University of California	USA	51	5.89	University of Leeds	UK	28	4.66
3	University	New	41	4.	Univer	Chin	36	4	Durham	UK	39	4.	Mount	Canad	24	4

	ty of Canterbury	Zealand		71	sity of Technology	a			Univer sity			49	Royal Colleg e	a		
4	Andrews Univer sity	USA	32	3. 68	King's Colleg e London	Canad a	35	3. 89	School of Geog raphy	UK	39	4. 49	Florid a Intern ation al Univer sity	USA	22	3. 66
5	Ghent Univer sity	Belgi um	28	3. 22	San Diego State Univer sity	Spai n	31	3. 44	Intern ation al Peace Resear ch Instit ute	Norway	36	4. 18	Facult y of Humani ties	The Nethe rland s	19	3. 16
6	Monash Univer sity	Austr alia	27	3. 10	Univer sity of Sydney	USA	28	3. 11	Univer sity of North Caroli na	USA	35	4. 09	School of Englis h	Austr alia	16	2. 66
7	Univer sity of Cape Town	South Afric a	25	2. 87	Univer sity of Birmin gham	USA	27	3	Univer sity of Washin gton	USA	34	3. 94	Univer sity of Bergen	Norwa y	16	2. 66
8	Leaple, UMR	Franc e	23	2. 64	Univer sity of Bristol	USA	25	2. 78	Manche ster Univer sity	UK	29	3. 34	Univer sity Colleg e Cheste r	UK	15	2. 5
9	Max Planck Institut e for Psycholi nguistic s	The Nethe rland s	22	2. 53	Univer sity of London	Aust ralia	23	2. 56	Nation al Univer sity of Singap ore	Singap ore	29	3. 34	Univer sity of Amster dam	The Nethe rland s	14	2. 33
10	The Univer sity of Hong Kong	Hong Kong	20	2. 30	Univer sity of Sheffi eld	USA	22	2. 44	Univer sity of Essex	UK	26	2. 99	Univer sity of Chicag o	USA	14	2. 33
11	Australi an National Univer sity	Austr alia	19	5. 14	Sharpe Consul ting (NSW),	USA	19	2. 11	Indian a Univer sity	USA	25	2. 88	Univer sity of Wiscon sin	USA	13	2. 16
12	College of William and Mary	USA	18	3. 22	Univer sity of Jyvask yla	Spai n	18	2	Univer sity of Melbou rne	Austra lia	25	2. 88	Colum bia Univer sity and New York State	USA	12	2

													Psychiatric Institute				
13	University of Wales Swansea	UK	18	3.22	University of Wisconsin at Madison	USA	17	1.89	Dublin City University	Ireland	23	2.64	University of Alberta	Canada	12	2	
14	American University	USA	16	1.84	Arizona State University,	USA	14	1.56	University of Oxford	UK	23	2.64	University of Manchester	UK	12	2	
15	Baikal National University of Economics and Law	Russia	16	1.84	National Institute of Education	USA	14	1.56	New Mexico State University	USA	21	2.47	University of Nijmegen	The Netherlands	12	2	
16	University of Sheffield	UK	16	1.84	University of Leeds	UK	14	1.56	Lancaster University	UK	19	2.19	North University Avenue	Canada	10	1.66	
17	The Open University	UK	14	1.61	University of New England	UK	14	1.56	University of Portsmouth	UK	15	1.72	Oxford University	UK	10	1.66	
18	Universidad de Cádiz	Spain	14	1.61	Columbia University	Canada	13	1.44	University of London	UK	14	1.62	University of California Riverside	USA	10	1.66	
19	University of California	USA	14	1.61	Northern Arizona University	UK	13	1.44	University of Southampton	UK	14	1.62	University of Ottawa	Canada	10	1.66	
20	National University of Singapore	Singapore	13	1.49	Universitat Autònoma de Barcelona	USA	13	1.44	University of Wisconsin	USA	13	1.49	University of Tennessee	USA	10	1.66	
<i>Total Publication of 20 Institutions</i>			465	51.66	<i>Total Publication of 20 Institutions</i>		474	52.66	<i>Total Publication of 20 Institutions</i>			575	63.88	<i>Total Publication of 20 Institutions</i>		309	51.5
Others	130 Institutions	*	432	48	107 Institutions	*	401	44.55	136 Institutions	*	293	32.55	51 Institutions	*	245	40.83	
Total	Data not Available on Inst.	*	03	0.33	Total	Data not Available on Inst	25	2.77	Data not Available on Inst. (13)	*	32	3.55	Data not available on Inst. (9)	*	46	7.66	

Grand Total	*	900	100	Grand Total	*	900	100	Grand Total	Institutions (169)	900	100	Grand Total: Institutions (80)	*	600	100
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As shown in Table 7.6, the top twenty institutional contributors of four journals contribute to the respective journal more than fifty percent of total citation and among those journals the 3rd journal's top twenty institutions found proficient having highest number of papers 575 (63.88%), followed by 2nd journal's top twenty institutional contributors with papers 474 (53.66%), 1st journal's top twenty institutional contributors with 465 (51.66%), and 4th journal's top twenty institutional contributors adds 309 (51.5%) papers identically. Moreover, the results as indicated above *National Chung Hsing University of Taiwan*, *University of California from Canada*, *University of Durham from UK* and *University of Maine of USA* are most productive institutions in four different journals accounting 47 (5.40%), 62 (6.89%), 65 (7.48%) and 30 (5%) papers as their contribution, among which *University of Durham (UK)* is best one. As regards to institutions, which ranks 2nd with respect to their contribution are *University of New England (Australia)*, *University of British Columbia* and *University of California (USA)*, and *University of Leeds (UK)* adds 42 (4.83%), 36 (4%), 51 (5.89%), and 28 (4.66%) papers individually to different four journals, among those *University of California (USA)* is best one with highest share. Furthermore, with respect to 3rd ranking institutions it is ascertained that, *University of Canterbury (New Zealand)*, *University of Technology (China)*, *Durham University (UK)* and *Mount Royal College (Canada)* reserved their positions with 41 (4.71%), 36 (4%), 39 (4.49%), and 24 (4%) papers to different journals, among which *University of Canterbury (New Zealand)* is the best one having grand share. Moreover, the above table can be viewed as recognizing the remaining top seventeen institutional contributors those who contributed with a range 13-47, 13-62, 13-65, and 10-30 papers in four different journals as the study unearths. In concern to total number of institutions involved in research contribution it is determined that, 150, 127, 156, and 71 institutional contributors involved in research output in four different journals respectively undertaken for the present study.

Table-7.7: Average Factors

Sl. No.	Factors	Journals				Total	'O' Table	'E' Table	X ² Calculated Value (CV)
		Language Sciences	Linguistics and	Political Geography	Religion				

			Education							
1	Avg. Citations per Paper	08	10.12	94.77	28.26	141.15	08	26.39	12.81	
2	Avg. Papers per Unique Author	4.20	4.36	4.61	4.08	17.25	4.20	3.22	0.29	
3	Avg. Authors per Paper (All Authors)	1.34	1.36	1.42	1.28	5.4	1.34	1.00	0.11	
4	Avg. Authors per Paper (Unique Authors)	0.22	0.22	0.21	0.24	0.89	0.22	0.16	0.02	
5	Avg. Page length per paper	23.70	19.35	21.33	17.28	81.66	23.70	15.26	4.66	
6	Avg. Papers per Year (considering year of publication of papers in source journal)	47.36	50	45	46.15	188.51	47.36	35.24	4.16	
7	Avg. Papers per Institution (Unique)	5.88	5.92	5.32	7.5	24.62	5.88	4.60	0.35	
8	Avg. Papers per Country (Unique)	23.07	47.36	50	28.57	149	23.07	27.85	0.82	
Total		113.77	138.69	222.66	133.36	608.48	10.12	32.17	15.11	
<p>Hy: H0: There is no variation in average factors of research papers of four (4) journals.</p> <p>Chi-Square (x^2) Formula: $x^2 = (o-e)^2/e$ applied</p> <p>Degree of Freedom (V) = 21 ; Calculated Value (CV) = 96.27 ; Tabulated Value (TV) at 0.050 or 95 % level of significance is = 32.7</p> <p>Chi-Square test applied over the data in the table no.7 with heading "Average Factors". Since, x^2 calculated value is 96.27 which is greater than x^2 tabulated value 32.7, so the null hypothesis stands false or rejected. Hence, it is concluded that, there is significant variation in the average factors of research papers of four journals.</p>							4.36	3.93	0.04	
							1.36	1.23	0.01	
							0.22	0.20	0.002	
							19.35	18.61	0.02	
							50	42.96	1.15	
							5.92	5.61	0.01	
							47.36	33.96	5.28	
							94.77	51.65	35.99	
							4.61	6.31	0.45	
							1.42	1.97	0.15	
							0.21	0.32	0.03	
							21.33	29.88	2.44	
							45	68.98	8.33	
							5.32	9.00	1.50	
							50	54.52	0.37	
							28.26	30.93	0.23	
							4.08	3.78	0.02	
1.28	1.18	0.008								
0.24	0.19	0.01								
17.28	17.89	0.02								
46.15	41.31	0.56								
7.5	5.39	0.82								
28.57	32.65	0.50								
							**	X² (CV) = 96.27		

Table-7.8: Citation Pattern of Publication

S l . N o	Journals															
	Language Sciences				Linguistics and Education				Political Geography				Religion			
	Cita	No.	%	C.	Citat	No.	%	C.	Cita	No.	%	C.	Cita	No.	%	C.

.	tion Pattern	of papers		F.	ion Pattern	of papers		F.	tion Pattern	of papers		F.	tion Pattern	Of papers		F.
1	1-25	853	94.78	853	1-25	734	81.56	734	1-25	167	18.56	167	1-25	508	64.66	508
2	26-50	37	4.11	890	26-50	57	6.33	791	26-50	191	21.22	358	26-50	5	0.83	513
3	51-75	10	1.11	900	51-75	22	2.44	813	51-75	176	19.56	534	51-75	4	0.66	517
4	Grand Total	900	100	900	Data not available	87	9.67	900	76-100	94	10.44	628	76-100	11	1.83	528
5	*	*	*	*	Grand Total	900	100	900	101-125	59	6.56	687	101-125	3	0.5	531
6	*	*	*	*	*	*	*	*	126-150	7	0.78	64	126-150	*	*	*
7	*	*	*	*	*	*	*	*	151-175	53	5.89	747	151-175	1	0.16	532
8	*	*	*	*	*	*	*	*	176-200	*	*	*	176-200	*	*	*
9	*	*	*	*	*	*	*	*	201 and above	130	14.44	877	201 and above	6	1	538
*	*	*	*	*	*	*	*	*	No Citation Data	23	2.56	900	No Citation Data	62	10.33	600
									Grand Total	900	100	900	Grand Total	600	100	600

Table-7.8.1: Application of Chi-Square (χ^2) test over table (8)

"O" Table	"E" Table	χ^2 Calculated Value (CV)
853	616.90	90.36
37	79.09	22.39
10	57.81	39.53
00	28.63	28.63
00	16.90	16.90
00	1.90	1.90
00	14.72	14.72
00	00	00
00	37.09	37.09
00	46.90	46.90
734	616.90	22.22
57	79.09	6.16
22	57.81	22.18
00	28.63	28.63
00	16.90	16.90
00	1.90	1.90
00	14.72	14.72
00	00	00
00	37.09	37.09
87	46.90	34.28
167	616.90	328.10
191	79.09	158.34
176	57.81	241.63
94	28.63	149.25

Hy: H0: There is no variation among the journals in citation pattern of their papers.

Degree of Freedom (V)=27 ; χ^2 Calculated Value (CV)=1982.72; Tabulated Value (TV) at 0.050 or 95 % level of significance is 40.11

Applying Chi-Square (χ^2) test using Formula $\chi^2 = (o-e)^2/e$ it is ascertained that:

59	16.90	104.87	<p>At (0.050) 95% level of significance X^2 tabulated value is 40.11, while calculated value is 1982.72.</p> <p>As calculated value of X^2 is greater than tabulated value the hypothesis stands false or rejected which means the citation pattern of papers of all four journals are significantly varied from each other.</p>
07	1.90	13.68	
53	14.72	99.54	
00	00	00	
130	37.09	232.73	
23	46.90	12.17	
508	411.27	22.75	
05	52.72	43.19	
04	38.54	30.95	
11	19.09	3.42	
03	11.27	6.06	
00	1.27	1.27	
01	9.81	7.91	
00	00	00	
06	24.72	14.17	
62	31.27	30.19	
		Calculated Value (CV)=1982.72	

Table-7.9: Pagination Pattern of Papers

Sl. No.	Language Sciences				Linguistics and Education				Political Geography				R e l i g i o n			
	Pattern of Pagination	No. of papers	%	C.F.	Pattern of Pagination	No. of papers	%	C.F.	Pattern of Pagination	No. of papers	%	C.F.	Pattern of Pagination	No. of papers	%	C.F.
1	1 - 5	2 0	2.22	2 0	1 - 5	1 8	2	1 8	1 - 5	1 8	2	1 8	1 - 5	3 8	6.33	3 8
2	6 - 1 0	6 0	6.67	8 0	6 - 1 0	1 5	1.67	3 3	6 - 1 0	5 9	6.56	7 7	6 - 1 0	8 4	1 4	122
3	1 1 - 1 5	2 4 2	26.89	322	1 1 - 1 5	2 9 7	3 3	330	1 1 - 1 5	7 5	8.33	152	1 1 - 1 5	1 7 2	28.66	294
4	1 6 - 2 0	1 8 6	2.06	508	1 6 - 2 0	2 7 3	30.33	603	1 6 - 2 0	2 0 7	2 3	359	1 6 - 2 0	1 4 1	23.5	435
5	2 1 - 2 5	1 4 0	15.56	648	2 1 - 2 5	1 5 0	16.67	753	2 1 - 2 5	3 1 0	34.44	669	2 1 - 2 5	9 9	16.5	534
6	2 6 - 3 0	8 3	9.22	731	2 6 - 3 0	6 6	7.33	819	2 6 - 3 0	1 6 6	18.44	835	2 6 - 3 0	4 7	7.83	581
7	31 and above	1 6 9	18.78	900	31 and above	8 1	3.44	900	31 and above	6 5	7.22	900	31 and above	1 9	3.16	600
Grand Total		9 0 0	100	900	Grand Total	9 0 0	100	900	Grand Total	9 0 0	100	900	Grand Total	6 0 0	100	600

Table-7.9.1: Application of Chi-Square (x^2) test over table (9)

"O" Table	"E" Table	X^2 Calculated Value (CV)	<p>Hy: H0: Pagination pattern of papers of all four journals are not significantly different.</p> <p>Degree of Freedom (V)=18 ; X^2 Calculated Value (CV)=536.628; Tabulated Value (TV) at 0.050 or 95 % level of significance is 28.87</p> <p>Applying Chi-Square (x^2) test using Formula $x^2 = (o-e)^2/e$ it is ascertained that:</p> <p>At (0.050) 95 % level of significance X^2 tabulated value is 28.87, while calculated value is 536.628.</p> <p>As calculated value of X^2 is greater than tabulated</p>
20	25.63	1.23	
60	59.45	0.005	
242	214.36	3.56	
186	220.09	5.28	
140	190.63	13.44	
83	98.72	2.50	
169	91.09	66.63	
18	25.63	2.27	
15	59.45	33.23	
297	214.36	31.85	
273	220.09	12.71	
150	190.63	8.65	
66	98.72	10.84	
81	91.09	1.11	
18	25.63	2.27	
59	59.45	0.003	
75	214.36	90.60	
207	220.09	0.77	
310	190.63	74.74	
166	98.72	45.85	
65	91.09	7.47	
38	17.09	25.58	
84	39.63	49.67	

172	142.90	5.92	value for which the hypothesis stands false or rejected that means the pagination patterns of papers of all four journals are significantly varied from each other.
141	146.72	0.22	
99	127.09	6.20	
47	65.81	5.37	
19	60.72	28.66	
		Calculated Value (CV)=536.628	

8: Results and Findings

Overall, findings of this study reported that:

- i. The Degree of author collaboration is from range 0.15 to 0.29 found in four journals i.e. Majority of researchers prefers to contribute their papers individually rather than collaborated.
- ii. Besides, it might be ascertained from the study that, 2005 is the most prolific year during which the highest 139 (15.44%) and 163 (18,11%) number of papers published in 1st and 2nd journal (source journal) has been indexed under top 25 hottest papers database, while 254 (28.22%) papers from 3rd journal of the year 2007, followed by 147 (24.5%) papers of 2004 from 4th journal took place under the same database is found significant.
- iii. On the basis of the year of publication of papers in four source journals 45 to 50 papers on an average per year took place in top 25 hottest papers database.
- iv. The followings are most interesting to say here that, the authors Yuh-Fang Chang, Angela Creese, Arturo Escobar, Henry Munson, are most prolific contributors to respective four journals having highest number of papers such as: 47 (5.22%), 27 (3%), 35 (3.88%), 29 (4.83%) to their credit of total contribution.
- v. Geographical analysis of papers is another vital factor in quantitative analysis of research output determines the most productive countries, as the present study explores USA is the most dominating region having highest contribution i. e. 208 (23.11%), 354 (39.33%), 231 (38.5%) in 1st, 2nd, and 4th journals and UK in 3rd journal with 396 (44%)papers respectively.
- vi. *National Chung Hsing University (Taiwan)*, *University of California (Canada)* , *University of Durham (UK)* and *University of Maine (USA)* are most dominating institutional contributors in four different journals accounting maximum number of papers such as: 47 (5.40%), 62 (6.89%), 65 (7.48%) and 30 (5%) as their research productivity the study unearths.
- vii. *Applying Chi-Square test it is concluded that, there is significant variation in the average factors of research papers of four journals.*

viii. Applying Chi-Square (χ^2) test using Formula $\chi^2 = \frac{(o-e)^2}{e}$ it is ascertained that: the citation pattern of papers of all four journals are significantly varied from each other.

ix. Chi-Square (χ^2) test applied over Pagination pattern of papers and resultantly found that, the pagination patterns of papers of all four journals are significantly varied from each other.

9: Conclusion

This study served to develop a greater understanding of the characteristics of scholarly publications over multiple years. Additionally, by comparing the four different journals' research output, the present study confirms the characteristics, features, and patterns of research papers from various angles to reflect the strength and weakness at the arena of global research. Since the vast majority of papers are found single authored, the authors' collaboration is dominated in research practices the study explores. Furthermore, the study discovers, USA is the most productive geographical region, followed by UK from the geographical and institutional contributors' point of view. As the data collected for the present research encompasses a definite period requires further research all over the globe in succeeding decades adding more journals and years of publication of papers under the gamut of new research work. As a concluding remark the investigators earnestly hope and expect the study would be a promising platform for the forthcoming researchers, scholars and library practitioners for their research and day-to-day library activities to promote and support the practices.

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