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Mapping knowledge in higher education: A Bibliometric study of UGC CARE list of LIS journals

Banani Das
bananiakhom@gmail.com

Sanjay Kumar Singh
Gauhati University, sksgu1@gauhati.ac.in

Mapping knowledge in higher education: A Bibliometric study of UGC CARE list of LIS journals

Banani Das
M. Phil Scholar
Gauhati University
E-mail: bananiakhom@gmail.com

Prof. Sanjay Kumar Singh
HoD , Department of Library and
Information Science
Gauhati University
E-mail: sksgu1@gauhati.ac.in

Abstract-

Various policies have been adopted worldwide for the upliftment of research work in higher education. The current paper is a study of initiatives taken by University Grant Commission (UGC), which is a statutory body set up by Indian Union Government to maintain the standards of higher education in India. The paper studied the quality journal list published by UGC-Consortium for Academic and Research Ethics (UGC CARE) in LIS discipline. Top 20 journals has been analysed from the list in accordance to their ranking in Scimago journal ranking list. The articles are analysed as the most prolific author, prolific institute, most cited paper and country wise publication. Keyword analysis is also done where the most used keywords are found to be- bibliometric (355), social media (222) and citation analysis (219). Cluster map is also drawn to derive the relation between the concepts.

Keyword- Bibliometric, Term map, Cluster Analysis**.**

Introduction-

In this modern technological era, the world is flooded with millions of published research article by thousands of publishers. Everybody is claiming that they are publishing scholarly, quality articles that can provide the researcher authentic and useful information. It's become headache for the researcher to decide where to publish their article and what are the sources to be consulted. They seek some guidance, so that they can publish their article in high quality journals that gives visibility to their hard work as well as improve their rankings in global platform. These rankings not only helps them in their career but also improved the institute rankings as well as country rankings. Keeping in view to all this University Grant Commission (UGC , New Delhi, India) establishes Consortium for Academic and Research Ethics(CARE, collectively known as UGC-CARE on 8th November, 2019) that prepares a list of journal by consulting nodal persons and universities. This exclusive list of journals helps to guide the researcher to publish their work in the high quality journals as well as to consult the authentic information.

Literature review-

Barik and Jena (2019) in their paper "Bibliometric portrait of select Open Access Journals in the field of Library and Information Science: A Scopus based analysis" analyzes 10 open

access journals of library and information science. They found that USA is the leading countries among all they also analyses the article in growth of citation, most contributing author and institution. Elango (2019) in his article 'A bibliometric analysis of literature on engineering research among BRIC countries' tries to make an quantitative analysis of engineering literature among the BRIC (Brazil, Russia, India and China) countries. The data were collected from SCImago. Various parameters such as number of articles and citable articles, world share and rank, citations per paper and h-index, and international collaboration were analyzed. China was found to be the most productive country in the field of engineering research. Ajibade and Mutula (2019) in their article "Bibliometric Analysis of Citation Trends and Publications on E-government in Southern African Countries: A Human-computer Interactions and IT Alignment Debate" analyses the growth and pattern of the researches done in the e government articles and conference proceeding by the African scholars. Jena,Swain and Sahu (2010) in their paper "Scholarly communication of The Electronic Library from 2003-2009: a bibliometric study" tries to measure the coverage and contribution of 'The Electronic Library' journals in the LIS field. The study finds out that the scattering of contributors is limited within a few countries.

Objectives

Following are the objectives of the study-
   a) To study the mostly cited papers of LIS discipline of the UGC CARE list.
   b) To identify the top contributing institution
   c) To identify the prolific authors of these journals.
   d) To determine country wise publication
   e) To determine the current hot topics of research through keyword analysis.

Methodology

There are all total 86 journals are in the LIS discipline of the UGC CARE list which are WOS indexed. Among these, those journals that are available in the Scimago journal list 2018 are chosen and a list of top 20 journals has been prepared for the time period of 2014-2018.The list of journals with their SJR rank and country is given below-

Sl no	SCImago Ranking	Journal Name	Country
1	1	Information Systems Research	USA
2	3	Journal of Information Technology	England
3	4	European Journal of Information Systems	England
4	6	International Journal of Information Management	England
5	8	Research Evaluation	England
6	13	Journal of the Association for Information Science and Technology	USA
7	14	Social Science Computer Review	USA
8	15	Government Information Quarterly	USA
9	16	Journal of Academic Librarianship	USA
10	17	International Journal of Geographical Information Science	England
11	19	Scientometrics	Netherlands
12	28	Journal of Documentation	England

13	29	Library Hi Tech	England
14	30	Library Quarterly	USA
15	31	Information Technology and Libraries	USA
16	37	Online Information Review	England
17	38	Journal of Information Science	England
18	43	Ethics and Information Technology	Netherlands
19	45	Journal of Librarianship and Information Science	England
20	47	Electronic Library	England

Table 1

Then the citation data of these journals are downloaded from the web of science (WOS) database using the advanced search strategy, putting the ISSN no of the journals and refining the search in article level for the period 2014 to 2018. Only English language articles have been considered in this study. A total of 7471 no of article has been analysed for this study. For the analysis of data MS Excel and VOSviewer software is used.

Result and discussion

Most cited paper

From the Table 2, a list of top 10 most cited article has been prepared. The paper entitled "Beyond the hype: Big data concepts, methods, and analytics" has received highest number of citation (654). This paper was published in- International journal of Information Management. Again, "The sharing economy: Why people participate in collaborative consumption" has received a total of 351 citation leading it to the second position. It can be seen from the table 2 that the second title is having almost half of the citation received by the first paper.

Sl No	Title	Author(s)	Journal Title	Year	Citation received
1	Beyond the hype: Big data concepts, methods, and analytics	Gandomi, Amir; Haider, Murtaza	International Journal of Information Management	2015	654
2	The sharing economy: Why people participate in collaborative consumption	Hamari, Juho; Sjoklint, Mimmi; Ukkonen, Antti	Journal of the Association for Information Science and Technology	2016	351
3	Big other: surveillance capitalism and the prospects of an information civilization	Zuboff, Shoshana	Journal of Information Technology	2015	224
4	Understanding the Internet banking adoption: A unified theory of acceptance and	Martins, Carolina; Oliveira, Tiago;	International Journal of Information Management	2014	203

			use of technology and perceived risk application	Popovic, Ales			

5	The journal coverage of Web of Science and Scopus: a comparative analysis	Mongeon, Philippe; Paul-Hus, Adele	Scientometrics	2016	197
6	Growth rates of modern science: A bibliometric analysis based on the number of publications and cited references	Bornmann, Lutz; Mutz, Ruediger	Journal of the Association for Information Science and Technology	2015	161
7	Google Scholar, Scopus and the Web of Science: a longitudinal and cross-disciplinary comparison	Harzing, Anne-Wil; Alakangas, Satu	Scientometrics	2016	159
8	Do altmetrics correlate with citations? Extensive comparison of altmetric indicators with citations from a multidisciplinary perspective	Costas, Rodrigo; Zahedi, Zohreh; Wouters, Paul	Journal of the Association for Information Science and Technology	2015	158
9	Social media research: Theories, constructs, and conceptual frameworks	Ngai, Eric W. T.; Tao, Spencer S. C.; Moon, Karen K. L.	International Journal of Information Management	2015	148
10	How well developed are altmetrics? A cross-disciplinary analysis of the presence of 'alternative metrics' in scientific publications	Zahedi, Zohreh; Costas, Rodrigo; Wouters, Paul	Scientometrics	2014	135

Table 2

Top contributing Institution

Table 3 shows the most productive institution based on the ranking of the citation they have received. University of Wolverhampton, UK received the highest number of citation- 1677 with a average citation of 23.95 per article. Wuhan University is in the second place with 1220 citation although their average citation per article is quite low.

Sl No	Institution Name	Country	No of documents	No of citation received	Average citation

1	University of Wolverhampton	UK	70	1677	23.95714
2	Wuhan University	China	172	1220	7.093023
3	Leiden University	Netherlands	68	1150	16.91176
4	University of Amsterdam	Netherlands	73	899	12.31507
5	University of Montreal	Canada	37	893	24.13514
6	University of Granada	Spain	84	880	10.47619
7	Indiana University	USA	80	875	10.9375
8	Chinese Academy of sciences	Republic of China	96	855	8.90625
9	Delft University of Technology	Netherlands	34	785	23.08824
10	Administrative Headquarters of Max Planck Society	Germany	34	753	22.14706

Table 3

Prolific authors

A list of top 10 contributing authors in these 20 journals has been prepared in Table 4 depending upon the citation they received.

Sl No	Author Name	Documents	Citation	Average citation
1	Thelwall, Mike	100	1796	17.96
2	Bornmann, Lutz	91	1402	15.40659
3	Leydesdorff, Loet	57	777	13.63158
4	Hamari, Juho	5	506	101.2
5	Lariviere, Vincent	26	491	18.88462

6	Costas, Rodrigo	17	473	27.82353
7	Kousha, Kayvan	24	457	19.04167
8	Dwivedi, Yogesh k.	14	430	30.71429
9	Janssen, Marijn	9	419	46.55556
10	Haustein, Stefanie	8	418	52.25

Table 4

Country wise publication

Table 5 represents the top 10 countries in accordance to the citation they received. USA topped the list with 16050 citations in 2198 documents (average of 7.30 no of citation per paper) following the Peoples Republic of China (average of 7.74 no of citation per paper) and England (average of 10.28 no of citation per paper).

Sl no	Country	Documents	Citations
1	USA	2198	16050
2	Peoples Republic of China	1083	8386
3	England	615	6326
4	Netherlands	357	4523
5	Germany	430	4192
6	Spain	508	4148
7	Canada	347	3828
8	South Korea	287	2334
9	Australia	302	2187
10	Taiwan	265	2158

Table 5

Term map

In Table 6 a list of frequently used keyword has been given. While deriving the keyword the authors keyword field (DE) of WOS has been used. For those articles which don't have any author's keyword, the keyword plus facility available in the WOS has been used. For some articles both of these absent and for those articles manually keywords are obtained from the title of the article. A total of 17,329 keyword has been derived. The table 6 shows the top 50 most frequently used keyword with their occurrence.

Keyword	Frequency	Keyword	Frequency
bibliometrics	355	information seeking	63
social media	222	innovation	62
citation analysis	219	open access	61
academic libraries	139	classification	59
scientometrics	122	citation	58
information literacy	117	evaluation	58
twitter	113	impact factor	58
altmetrics	106	internet	58
collaboration	105	Scopus	58
information retrieval	102	scientific collaboration	57
science	97	digital libraries	55
research evaluation	93	knowledge management	55
social network analysis	89	web	55
information	88	knowledge	54
impact	86	trust	54
citations	84	peer review	50
e-government	83	facebook	49
h-index	82	public libraries	49
network analysis	78	co-authorship	48
web of science	78	google scholar	47
bibliometric analysis	76	communication	46
china	71	interdisciplinary	46
text mining	69	machine learning	46
privacy	66	model	46
big data	64	technology	46

Table 6

For mapping the terms VOSviewer software was used. Since the retrieved no of keywords is huge in number, the threshold frequency sets to 15 that is minimum occurrence of a keyword in all the journals should be at least 15. After defining the threshold frequency a total of 239 keywords obtained. The links between the words describe the strength of association of terms with one another. Fig 1 depicts the term map of keywords. It is quite prominent from the map that the term like- bibliometric, social media, citation analysis, scientometric etc are the mostly used keywords and hence denoting the mostly used topics by the LIS researcher.
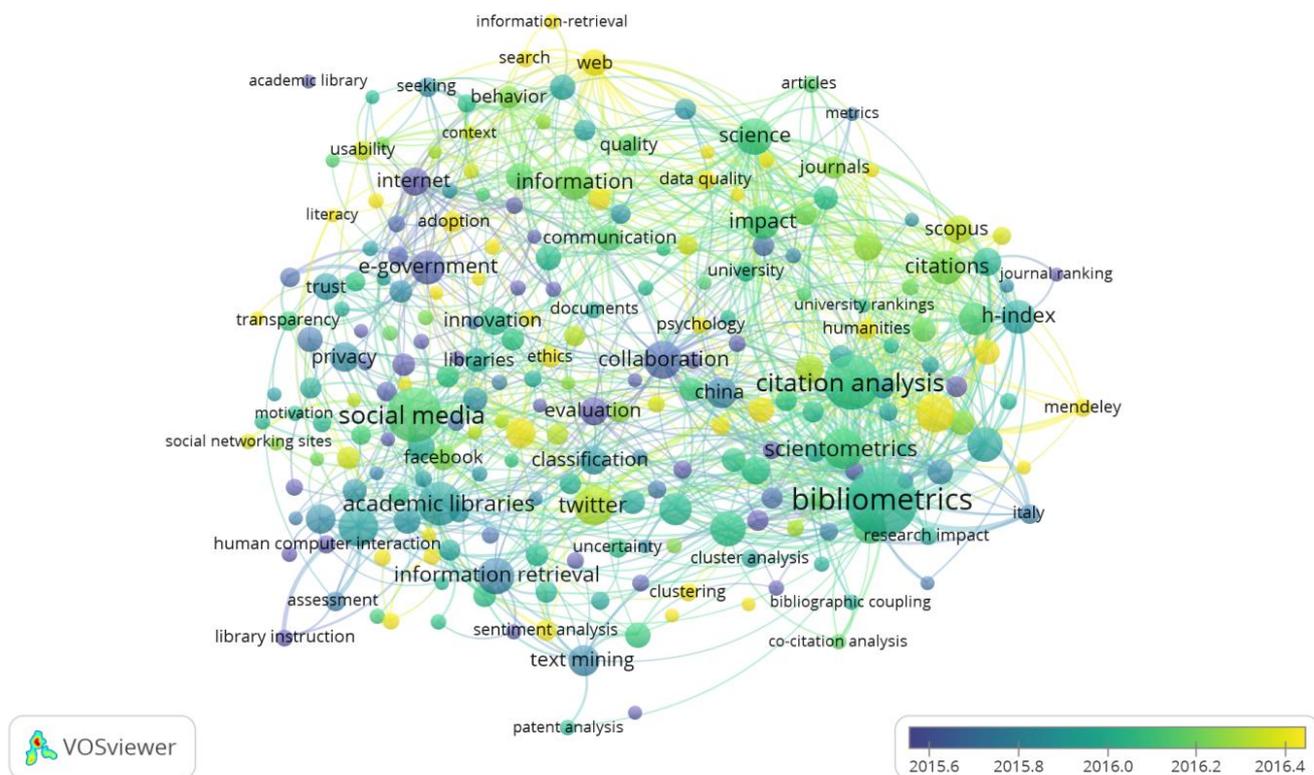
Figure 1

Cluster analysis

According to Merriam-Webster dictionary, definition of cluster is a number of similar things that occur together such as two or more consecutive consonants or vowels in a segment of speech. Hence the concepts in a cluster define the similarity in between them. Using VOSviewer software these 239 keywords are divided into 7 clusters. The top five keywords of each cluster in terms of their occurrences are given in the table 7.

Sl No	Items in the cluster	Top 5 keywords
Cluster 1	60	Social media (222)
		Twitter(113)
		E government(83)
		Privacy (66)
		Big data (64)
Cluster 2	43	Academic libraries (139)
		Information literacy (117)
		Information retrieval (112)
		Information seeking (61)
		Classification(59)
Cluster 3	35	Bibliometrics (355)
		Scientometric (122)
		Research evaluation (93)
		Network analysis(78)

		Bibliometric analysis (76)
Cluster 4	34	Information (88)
		Internet (58)
		Web (55)
		Knowledge (54)
		Model (46)
Cluster 5	26	Social network analysis (89)
		Text mining (69)
		Interdisciplinary (46)
		Machine learning (46)
		Data mining (37)
Cluster 6	23	Citation analysis (219)
		Altmetrics (106)
		Citations (84)
		H index (82)
		Web of science (78)
Cluster 7	18	Collaboration (105)
		Science (97)
		Impact (86)
		Citation (58)
		Communication (46)

Table 7

Figure 2

From the table 7 and the figure 2, we have a clear picture about the co ordination in between the terms, how the diverse topics are interconnected with each other. The cluster 1 mainly

focuses the research in social media like twitter, and the privacy issues related with the it. Cluster 2 mainly focuses on the traditional library services, how information are generated and disseminate. Cluster 3 depicts the research related to the bibliometric and scientometric analysis of knowledge. The cluster 4 consists of the terms that are related to knowledge and information that are transmitted over the web. Cluster 5 contains the technical aspects of research, how we can analyse the documents and association through various techniques like data mining, text mining etc. Cluster 6 composes of the research ideas of various scientometric, bibliometric and webometric indices. Finally the cluster 7 represents the researches that are related to scientific communication in between the peers globally- how they are collaborating, what is the impact, citation studies etc.

Conclusion

For a researcher it is very important to stay updated with all the development in their respective subjects. Initiatives like this in higher studies helps them to find out useful information and also guide them to publish their research article in a well recognised, peer reviewed global platform. Bibliometric indices helps to measure the impact of a research article and hence the journals and make it visible among the scientific community. Above study reveals the some of the prolific journals of LIS discipline and the most productive country, mostly cited paper, prolific institution, prolific authors of these journals. An analysis on the keywords derived from these journals is also done to reveal what are the areas in which most of the researches are done. The areas that attract most of the researcher are – bibliometric, social media, citation analysis, academic library, information literacy etc. An analysis on the association between the concepts is also done to find out relation between these research areas.

References

Pratic,A & Mutula, S. M.(2019), "Bibliometric Analysis of Citation Trends and Publications on E-government in Southern African Countries: A Human-computer Interactions and IT Alignment Debate" (2019). *Library Philosophy and Practice (ejournal).* Retrieved from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5644&context=libphilprac on 22nd August. 2019.

Barik, N & Jena, P. (2019). "Bibliometric portrait of select Open Access Journals in the field of Library and Information Science: A Scopus based analysis" (2019). *Library Philosophy and Practice (e-journal).* Retrived from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5988&context=libphilprac on 22nd August, 2019.

Elango, B. (2019). A bibliometric analysis of literature on engineering research among BRIC countries. *Collection and Curation*, *38*(1), 9-14. doi:10.1108/cc-05-2017-0017

Jena,K. M.; Swain, D. K. & Sahu, S.B. (2012). "Scholarly communication of The Electronic Library from 2003-2009: a bibliometric study", The Electronic Library, Vol. 30 Issue: 1, pp.103-119, https://doi.org/10.1108/02640471211204097

Jabeen, M.; Yun,L.; Rafiq, M. & Jabeen,M. (2015). "Research productivity of library scholars: Bibliometric analysis of growth and trends of LIS publications", New Library World, Vol. 116 Issue: 7/8, pp.433-454, https://doi.org/10.1108/NLW-11-2014-0132