SCIENTOMETRIC PRODUCTIVITY OF SELECTED UNIVERSITIES IN KARNATAKA STATE BASED ON INDIAN CITATION INDEX

Suresh Jange
University Librarian
Virtual Learning Resource Centre & Digital Library,
Gulbarga University, Kalaburagi (Gulbarga), Karnataka
E-mail: sureshjange@gmail.com

Abstract

Indian Citation Index – a popular and recognized web-based citation database of Indian content covering a whole range of disciplines, i.e. sciences, technologies, social sciences and humanities and highly preferred database by the universities and educational institutions to determine their research productivity and citation impact for better accreditation in this world of competition for quality and excellence in higher education. Using this database, an attempt has been made to analyze and infer the research productivity of selected six universities in Karnataka to determine its scientific temper.

Keywords: Research Productivity, Scientometrics, Publication Productivity, Universities In Karnataka

Introduction

Visibility has been the core motto of any academic institute and every institute of higher education strives to achieve top ranking in the roadmap of Indian Universities either through NIRF Ranking or better accreditation in NAAC or AICTE or other accreditation agencies in the country. Hence it is often said `Publish or Perish' in an academic University environment. Research publications in the form of journal articles, conference papers, books, edited book chapters and major research projects have remained an important yardstick for measuring the impact factor and quality of research. In this direction, this study provides scientometric dimensions of the four universities of Karnataka to show their research bent of mind in an academic and research setup.

In Karnataka state, there are 28 State Universities, 17 Private Universities, 11 state deemed universities, one Central university and four institutes of national importance. Today ranking of universities in the world (viz., QS World University Rankings) depends on indicators like academic

reputation, citation impact, employability, faculty student collaboration with national and international bodies and international attractive modalities. As per the Ministry of Human Resource Development, National Institutional Ranking Framework (NIRF), the parameters for evaluation and ranking of academic institutions in the country is on teaching, learning resources, research and professional practice, graduation/post graduation outcomes, outreach ability and overall perception. It is therefore clear that one of the significant parameter for any university or higher educational institute is Research and Professional productivity.

The important sources to determine the research excellence and productivity of any university or college or institutions of higher learning are SCOPUS and Web of Science at international perspective but in India, it is only Indian Citation Index – an authenticated and certified by the Government of India Online Citation Database to reveal the research productivity of individual researchers and institutions scholarly output of Indian origin.

The Question is how many universities in India are subscribing Indian Citation Index to determine the publication and research productivity of university or institute? Although under E-Shodhsindhu Consortium e-resources of INFLIBNET Centre of UGC provides free access to Web of Science database, but most of the times, the peer team of NAAC or other agencies demand SCOPUS database and Indian research output through Indian Citation Index. There is a need to have better compatibility to seek the demand and provide the need based database freely to the higher educational institutions, as these databases especially Indian Citation databases like Indian Citation Index is bit costly and independent subscriptions becomes costly for many and as such the national bodies - INFLIBNET Centre should initiate and provide Indian origin Indian Citation Index to all the universities and colleges in the country. In this context, the Libraries being heart of any institution occupies significance in fetching the research output of its faculty and institutional scientific productivity.

Literature Review

The existing literature on scientometric and bibliometric techniques, which have become tools to evaluate the productivity of research institutes, individual researcher and to map the growth of subject have been culled out and studies have been reported over a period of time. Publication and citation counts are being extensively used for evaluation purpose of an institute and some of them are Shubert and Braun (1981);

Garg and Rao (1988); Kalyane and Kalyane (1991) Zachos (1991); Gupta, Suresh Kumar and Khanna, (1999); Koganuramath, Angadi and Kademani (2002); Swarna, Kalyane and Vijai Kumar (2002) and Lee (2003). Sudhier and Abhila (2011) analyzed the research productivity of social scientists at the Centre for Development Studies (CDS), Thiruvananthapuram, during 1998-2008. Kaur and Aggrawal (2010) brought out the results of a bibliometric study of research publications of department of Chemistry, Gurunanak Dev University, Amritsar for the period 2002-2006. Bhatia (2010) studied quantitatively research publications published by the scientists of National Institute of Occupational Health (ICMR) Ahmedabad, India during 2002-2006. Sevukan and Sharma (2010) evaluated the research performance of biotechnology faculties in central universities of India from 1997-2006. Jange and Others (2016) studied on Publication Productivity and Impact of Research in University Environment and Dixit and Jange (2017) conducted Scientometric Portrait of Prof. S Sreenivasa Murthy.

Objectives

The main objectives of the study are to determine

- Research productivity of academic and research community working in selected universities of Karnataka state,
- Year-wise growth of research publications and
- Preference of research communication channel among research community and
- Domain-wise publications of scientific productivity,

Methodology

Indian Citation Index (ICI) – a Indian origin of Indian Research content is developed by "The Knowledge Foundation" (a registered society) with the required support of M/s DIVA ENTERPRISES Pvt. Ltd., making substantial contribution in various domains of world knowledge but a tool to measure and evaluate such national knowledge is not yet in place. Though, at international level few tools/databases are available but coverage of Indian contents particularly publish in the local national journals are negligible. To bridge this gap, Indian Citation Index (ICI) database covering about 1000 top Indian scholarly journals encompassing all disciplines of knowledge. The ICI database enables access and empowers users to search, track, measure and collaborate in the sciences, social sciences, arts, and humanities to turns raw data/information into the

powerful knowledge one needs

(Source:http://www.indiancitationindex.com). Research Contribution indexed in Indian Citation Index (ICI) from University of Mysore (UM), Mysore; Mangalore University (MU), Mangalore; Gulbarga University (GU), Gulbarga; Bangalore University (BU), Bangalore; Karnatak University (KU), Dharwad and Manipal University (ManU), Manipal has been taken into account from 2004 to 2018 (August).

The search strategy adopted is by University-wise to determine the number of articles, citation patter, type of communication channels and year-wise growth of research contribution in the domain of knowledge in Indian context. Although there are 28 state universities, but for the study, only six State universities are taken into account , is the limitation of the study.

Results and Discussion

It is observed from Table 1 that, the number of articles contributed in the Scientific channels indexed in Indian Citation Index by the scientific community of six universities in Karnataka is found to be highest in University of Mysore (N=1862) with 1341 citations and 0.720 citation density. This is followed by Bangalore University (N=853) and then Gulbarga University (N=736). It should also be noted that University of Mysore is the oldest university established in 1916 in Karnataka. It is further interesting to note that Gulbarga University has 736 articles with 819 citations which is higher as compared to other universities in proportion to number of articles and its citations and thus, it can be inferred that articles contributed by the research community has more of citation value.

Institution & Established Year	Article	Citation	Citation Density	Article/ Citation	Cited Article	Cited Density	Article/ Cited Art
Bangalore University (BU) 1966	853	617	0.723	1.382	236	0.277	3.614
Karnatak University (KU) 1949	743	442	0.595	1.681	189	0.254	3.931
Gulbarga University (GU) 1980	736	819	1.113	0.899	256	0.348	2.875
Mangalore University (MU) 1980	592	478	0.807	1.238	166	0.280	3.566
Manipal University (MU) 1953	370	163	0.441	2.270	92	0.249	4.022
University of Mysore (UM) 1916	1862	1341	0.720	1.389	508	0.273	3.665

Source: Indian Citation Index (ICI) Database - http://www.indiancitationindex.com

Table 1: University-wise contribution of Articles and it's Citationsin Universities of Karnataka

Year	Bangalore University			Karnatak University			Gulbarga University		
	Article	Citation	Cited Article	Article	Citation	Cited Article	Article	Citation	Cited Article
2004	67	76	30	70	96	30	58	144	33
2005	64	98	32	47	68	23	51	119	28
2006	59	99	25	47	58	21	38	65	22
2007	71	56	28	43	37	18	38	72	17
2008	50	45	23	45	29	15	71	138	39
2009	81	113	27	64	42	20	82	97	32
2010	96	35	21	76	31	13	81	61	29
2011	68	46	16	71	38	20	85	63	24
2012	80	21	17	47	9	8	66	25	14
2013	65	3	3	50	13	9	53	18	9
2014	55	17	8	52	15	8	36	7	5
2015	41	5	3	50	6	4	21	3	2
2016	31	3	3	45	0	0	39	7	2
2017	24	0	0	35	0	0	17	0	0
2018	1	0	0	1	0	0	0	0	0

Table 2(a): Year-wise Growth of Research articles and Citation Impact Vs. Selected Universities in Karnataka during 2004-2018 (August)

Year	Mangalore University			Manipal University			University of Mysore		
	Article	Citation	Cited Article	Article	Citation	Cited Article	Article	Citation	Cited Article
2004	34	98	15	2	2	1	101	151	47
2005	38	93	16	6	18	4	97	144	38
2006	34	47	16	2	2	2	141	178	55
2007	23	17	6	4	4	2	136	164	47
2008	27	23	12	21	11	6	132	168	45
2009	52	53	24	9	7	3	176	120	50
2010	51	34	20	31	22	9	201	115	69
2011	59	45	20	32	28	12	166	136	56
2012	43	14	8	24	14	11	184	77	43
2013	56	34	15	40	13	11	129	45	24
2014	53	13	7	40	22	13	134	22	16
2015	43	2	2	53	11	10	119	15	12
2016	35	5	5	64	9	8	79	5	5
2017	41	0	0	41	0	0	66	1	1
2018	3	0	0	1	0	0	1	0	0

Table 2(b): Year-wise Growth of Research articles and Citation Impact Vs. Selected Universities in Karnataka during 2004-2018 (August)

It is quite clear from Table 2(a & b) that except University of Mysore, other five universities have published only two digit articles between 2004 and 2018. It is also observed that the peak year(s) of publication of universities in Karnataka seems to have contributed during 2009 to 2011. Results

further infer that there is a decline in number of articles contributed in ICI among universities in Karnataka in recent years.

Name	Bangalore University (BU)	Karnatak University (KU)	Gulbarga University (GU)	Mangalore University (MU)	Manipal University (MU)	University of Mysore (UoM)
Case Study	14	9	2	3	25	29
Editorial	14	7	20	11	29	25
Research Article	745	660	678	524	276	1704
Research Note	24	21	11	18	1	16
Review Article	13	7	6	13	27	33
Short Communication	32	32	18	17	5	46

Table 3: Preference of using Scientific Communication Channels

Scientific Communication Channels used for communicating research contributions are generally in the form of Case Study, Editorial, Research Article, Research Note, Review article and short Communication incorporated in Indian Citation Index database and its status of contribution by universities under study is depicted in Table 3. Among different forms of channels, Research articles is popular communication format preferred by University of Mysore (N=1704), followed by Bangalore University (N=745) and Gulbarga University (N=678).

Domain	Bangalore University (BU)	Karnatak University (KU)	Gulbarga University (GU)	Mangalore University (MU)	Manipal University (Man.U)	University of Mysore (UoM)
Agriculture	64	29	16	13	2	109
Biological Science	200	99	93	88	77	256
Biotechnology	43	16	62	22	6	47
Botany	39	41	36	13	2	66
Business and Marketing	4	11	2	10	5	15
Chemistry	119	124	147	135	28	195
Computer Science and Technology	10	18	12	26	4	24

Table 4: Domain-wise productivity of Research Contribution in selected Universities in Karnataka

Among the different domains of research contributions by the universities in Karnataka covered in the study, domain of Biological sciences is main contributed area by Bangalore University (N=200) and University of Mysore (N=256), Manipal University (N=77) and on the other hand,

Chemistry is the dominated domain of contribution by academic community in Karnatak University (N=124), Gulbarga University (N=147) and Mangalore University (N=135)

Conclusion

It is the high time for universities in India to identify the Scientific Journals which are indexed in national databases like Indian Citation Index and international databases like Scopus and Web of Science as a measure to publish to reveal its strength for better visibility, impact, H-Index and quality excellence. This study highlighted the status-quo subject to certain limitations of the study based on the Indian Citation Index database, the road map of their respective research productivity, which is an indicator for development. The results would definitely set guideline for the academic and research community in particular and universities in general to develop better research strategies for better scientific productivity to stay in tune with the current research trends.

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