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CITATION BASED COMPARATIVE ANALYSIS OF LIBRARY HI-TECH AND LIBRARY QUARTERLY JOURNALS USING SCIMAGO JOURNAL RANK

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Abstract

Journal rankings are widely used in academic circles in evaluating the impact and quality of academic journals. The purpose of a journal ranking is to reflect the location of a journal within its field, the relative difficulty of being published in that journal, and the reputation associated with it. SCImago Journal Rank - A measure of the scientific impact of scholarly journals that accounts for both the number of citations received by a journal and the importance or reputation of the journals from which such citations come. This paper examined citation-based analysis using the SCImago journal rank to compare Library Quarterly and Library Hi-Tech journals are published from 1999 onwards particularly in the fields of library and information science. This study found that in 2018 SJR ranking, H indexes and best quartile etc. For Library Hi-Tech Journal SJR 0.75, h index is 33, Q1 is the best quartile and in 2018 about Library Quarterly Journal SJR 0.73, h index 34, and Q1 best quartile. And also found number of citable documents and non citable documents, number of self citations and total citation of the both journals from 1999 to 2018.

Keywords: *Citation analysis, SCImago journal rank, citation, self citation, academic journals*

Introduction

Traditionally, journal ranking "measures" or evaluations have been provided only through institutional lists established by academic leaders or through committee votes. These attitudes of real reputation and quality have been portrayed politically incorrect and inaccurate, as they often reflect the prejudices and personal career objectives of those included in the rankings of magazines; also due to the problem of highly uneven evaluation in institutions. Consequently, many institutions require external sources of journal quality evaluation. The traditional approach here has been through surveys of leading academics in a given field, but there is also potential for bias in this approach, though not as deep as seen with institution-borne lists. Consequently, leaders in government, institutions, and scientific research have turned to a litany of journal-level observational bibliographic measures that can be used as a surrogate for quality and thus subjective evaluation May eliminate the need.

Citation Analysis – An Overview

Citation analysis involves counting the number of articles cited by other works to measure the impact of a publication or author. Caviot however, does not have a single citation analysis tool that aggregates all publications and their cited references. For an in-depth analysis

of the impact of the author or publication, one needs to look across multiple databases to find the references cited. There are several resources available at UIC that identify cited works including: Web of Science, Scopus, Google Scholar and other databases with limited database data.

When an author quotes another author, a relationship is established. Citation analysis uses citations in scholarly works to establish links. Many different links can be determined, such as links between authors, scholarly works, journals, regions, or even two or more nations. Excerpts from a certain document and from both can be studied. Citation analysis is very useful for determining the impact of a single author on a given area by counting the number of times the author has quoted another person. Citation analysis allows researchers to see how often the work has been cited in the article and is an invaluable tool for reviewing any literature. The process by which the impact or "quality" of an article is judged, while other authors refer to it in their work.

About *SCImago Journal Rank*

The SCImago Journal and Country Rank is a publicly available portal containing journals and country scientific indicators developed from information contained in the Scopus® database (Elsevier BV). These indicators can be used to assess and analyze scientific domains. Journals can be compared or analyzed separately. Country rankings can also be compared or analyzed separately. Journals can be classified by subject area (27 major thematic areas), subject categories (313 specific subject categories) or by country. Citation data has been generated from more than 5,000 international publishers from 239 countries around the world and over 34,100 titles from the country's performance matrix. SJCR allows you to embed important magazine metrics in your web as a clickable image widget. This platform takes its name from the SCImago Journal Rank (SJR) indicator (PDF), a widely known algorithm developed by SCImago from Google Page Rank. This indicator shows the visibility of journals included in the Scopus® database since 1996.

SCImago Consejo Superior de Investigaciones Científicas (CSIC), University of Granada, Extremadura, is a research group of Carlos III (Madrid) and Alcal de Henares, dedicated to information analysis, representation and retrieval through visualization techniques.

Along with the SJR portal, SCImago has developed The Shape of Science, SIR (SCImago Institution Rankings) and Atlas of Science. The Shape of Science is an information visualization project that aims to reveal the structure of science. Its interface is designed to access the Bibliometric Indicator Database of the SCImago Journal and Country Rank Portal. The SIR is a classification of academic and research-related institutions ranked by a composite indicator that combines three different sets of indicators based on research performance, innovation. Output and social impact are measured by their web visibility. The Atlas of Science project proposes the creation of an information system whose main objective is to obtain a graphic representation of Ibero American science research. Such representation is envisioned as a collection of interactive maps, which allow navigation functions in the sense locations formed by the maps.

Objectives of The Study

- To find the SJR (SCImago Journal Rank) Ranking with h-Index for the Library Hi-Tech and Library Quarterly Journals
- To know the percentage level of Citation per document wise Library Hi-Tech and Library Quarterly Journals in the field of LIS
- To extract the number of Cited and uncitied documents in both journals from the publication period of the journals
- To get the percentage level of Self cites and total sites of the journals
- To analyze the number of suitable and non suitable documents from first appear to till 2018.

Methodology of SCImago Journal Rank

If scientific influence is assumed to be related to the number of citations a journal receives, as citations, then reputation can be understood as the number of endorsements and the prestige or importance of the journals issuing them. The SJR indicator assigns different values to citations depending on the importance of the journals where they come from. In this way, citations coming from highly important journals will be more valuable and hence the journals receiving them will get more reputation. The calculation of the SJR indicator is similar to the Eigenfactor score, the former based on the Scopus database and the latter based on the Web database. The SJR indicator calculation is performed using an iteration algorithm, which distributes prestimulus values among journals until a steady state solution is reached. The SJR algorithm begins by setting an equal volume for each magazine, then using an iterative process, this reputation is redistributed into a process where the journals transfer their received reputation to each other via citations. This process ends when the difference between journal reputation values in successive iterations does not reach any minimum threshold. This process is developed in two stages, (a) calculating the Prestige SJR (PSJR) for each journal: a size-dependent measurement that reflects the entire journal's reputation, and (b) achieving a size-independent Generalization of this measure for prestige measurement, SJR indicator.

Library Quarterly and Library Hi-Tech Journal in LIS

S.N	Categories	Library Quarterly	Library Hi-Tech
1	Country	United States	United Kingdom
2	Subject Area and category	Social Sciences & Library and Information Science	Social Sciences & Library and Information Science
3	Publisher	University of Chicago Press	Emerald Group Publishing Limited
4	Publication Type	Journal	Journal
5	ISSN	00242519, 1549652X	07378831
6	Coverage	1999 Onwards	1999 Onwards
7	h-index	34	33
8	SJR 2018	0.72	0.75
9	Best Quartel	Q1	Q1

Table 1: Comparison general information based on the SCImago Ranking

Data Analysis and Interpretation

Year Wise SJR (*SCImago Journal Rank)*

SJR is a size-independent reputation indicator that ranks magazines by their 'average reputation per article'. It is based on the idea that 'not all citations are created equal'. SJR is a measure of the scientific impact of journals that accounts for both the number of citations received by a magazine and the importance or reputation of the journals from which such citations come, it measures the scientific impact of an average article in a journal, It expresses how the central journal is an average article for global scientific discussion.

Year	Library Quarterly	Library Hi-Tech
1999	1.837	0.436
2000	0.926	0.455
2001	0.326	0.326
2002	0.311	0.668
2003	1.461	0.644
2004	1.146	0.543
2005	0.728	0.679
2006	1.155	0.704
2007	0.712	0.403
2008	0.656	0.516
2009	0.691	0.481
2010	2.029	0.999
2011	0.838	0.884
2012	0.972	0.982
2013	0.964	0.912
2014	0.822	0.775
2015	1.1	0.939
2016	0.983	0.676
2017	0.801	0.427
2018	0.717	0.746

Table 2: Year wise SJR

Library Quarterly and Library Hi-Tech journals started 1999 onwards so that appeared with 1.837 and 0.436 SJR point initially. As well both journals got highest SJR in 2010 with the score of 2.029 and 0.999. In year wise SJR 2002 is very low score for Library Quarterly Journal and 2001 for Library Hi-Tech Journal. SJR point of view Library Quarterly journal reducing the point wise last three consecutive years 2016 to 2018. Library Hi-Tech Journal SJR little increased last two years 2017 and 2018.

Citation per Document

This indicator counts the number of citations received by documents from a journal and divides them by the total number of documents published in that journal. The chart shows the growth of the average number of documents published in a magazine in the last two, three and four years. The two-year line is equivalent to the journal impact factor (Thomson Reuters) metric.

	Library Quarterly			Library Hi-Tech		
Year	4year	3year	2year	4year	3year	2year
1999	1.289	1.289	1.04	0.333	0.333	0.535
2000	0.961	0.711	0.48	0.299	0.359	0.356
2001	0.66	0.459	0.56	0.241	0.246	0.289
2002	0.558	0.575	0.63	0.426	0.535	0.585
2003	1.075	1.1	0.964	0.432	0.496	0.55
2004	1.145	1.116	1.179	0.456	0.523	0.561
2005	1.344	1.37	1.061	0.673	0.772	0.719
2006	1.318	1.189	0.842	0.836	0.89	0.742
2007	1.296	1.071	1.132	0.657	0.732	0.667
2008	1.026	1.086	0.605	0.765	0.81	0.767
2009	1.145	0.982	1.132	0.82	0.819	0.718
2010	1.581	1.875	1.417	1.333	1.289	1.337
2011	1.342	1.214	1.132	1.239	1.287	1.184
2012	1.351	1.288	1	1.394	1.384	1.265
2013	1.443	1.459	1.512	1.39	1.252	1.127
2014	1.169	1.175	1	1.338	1.282	1.219
2015	1.636	1.612	1.915	1.354	1.472	1.419
2016	1.44	1.577	1.102	1.377	1.418	1.184
2017	1.464	1.24	1.18	1.139	0.955	0.851
2018	1.039	1.156	1.226	1.588	1.603	1.467

Table 3: Citation per document 4Year/3Year/2Year wise

2018 is the best year for 4 years, 3 year and 2 year citation per document with 1.588, 1.603 and 1.467 for Library Hi-Tech Journal. In Library Quarterly Journal citation per document in the 4 years 2014 is best with 1.169, 1.612 for 3 years and 1.915 for two year citation per document. 2001 year is the lowest citation per document in both journals.

Self Cites and Total Sites

Development of the total number of citations received by the published documents of the journal and the self-citations of the journal during the last three years. Journal self-citation is defined as the number of citations from a journal citing an article published by the same journal.

	Library Quarterly		Library Hi-Tech	
Year	**Self Citation**	**Total Citation**	**Self Citation**	**Total Citation**
1999	5	49	7	53
2000	6	27	3	47
2001	2	17	7	29
2002	7	23	15	68
2003	7	44	22	65
2004	5	48	6	78
2005	7	63	20	112
2006	13	63	14	130
2007	7	60	7	109
2008	2	63	8	124
2009	3	55	8	127
2010	5	105	18	196
2011	2	68	15	193
2012	5	76	22	209
2013	3	89	18	189
2014	8	74	23	191
2015	16	108	32	209
2016	17	112	23	190
2017	16	93	10	127
2018	11	89	37	210
Total	**147**	**1326**	**313**	**2656**

Table 4: Self cites and total sites

In 1999 onwards Library Quarterly and Library Hi-Tech Journals registered to count the citations. In 2018 Library Hi-Tech journals got highest number self citation (37) and total number of citations 210. In the year of 2000 only 3 self citation and 2001 only 29 total citation is year wise low of Library Hi-Tech Journal. About Library Quarterly Journal 2016 got 112 total citations with 17 self citations. According to SCImago ranking Library Quarterly Journal 147 self citations and 1326 total citations received. About Library H-Tech Journal 313 self citations and 2656 total citation received. Its double while compare the Library Quarterly in citations wise. last consecutive three years 2016-2018 frequently reduce the self citation and total citation fact for Library Quarterly.

External Cites and Cites Per Document

Development of the number of documents and external citation per document (ie journal self-citations removed) obtained by the published documents of a journal during the three previous years. External citations are calculated by subtracting the number of self-citations from the total citations received by journal documents.

	Library Quarterly		Library Hi-Tech	
Year	External Cites per document	Cites per document	External Cites per document	Cites per document
1999	1.158	1.289	0.289	0.333
2000	0.553	0.711	0.336	0.359
2001	0.405	0.459	0.203	0.246
2002	0.4	0.575	0.417	0.535
2003	0.925	1.1	0.328	0.496
2004	1	1.116	0.483	0.523
2005	1.217	1.37	0.634	0.772
2006	0.943	1.189	0.795	0.89
2007	0.946	1.071	0.685	0.732
2008	1.052	1.086	0.758	0.81
2009	0.929	0.982	0.768	0.819
2010	1.786	1.875	1.171	1.289
2011	1.179	1.214	1.187	1.287
2012	1.203	1.288	1.238	1.384
2013	1.41	1.459	1.132	1.252
2014	1.048	1.175	1.128	1.282
2015	1.373	1.612	1.246	1.472
2016	1.338	1.577	1.246	1.418
2017	1.027	1.24	0.88	0.955
2018	1.013	1.156	1.321	1.603

Table 5: External cites and cites per document

In the Library Hi-Tech journal external cites per document percentage is higher in the year of 2018 as well cites per document also high percentage. In the same view year of 2013 is high for external cites per document (1.41) and the year of 2010 cites per document with 1.875 for Library Quarterly Journal. In the view of external cites per document and cites per document rapidly growing in the last two years in Library Hi-Tech Journal.

Percentage of International Collaboration

International collaboration accounts for articles produced by researchers from several countries. The chart shows the proportion of documents in a journal signed by researchers from more than one country; which includes more than one country address.

Year	**Library Quarterly**	**Library Hi-Tech**
1999	0	0
2000	0	0
2001	0	3.85
2002	6.25	5.88
2003	0	8
2004	5.26	0
2005	0	2
2006	5.56	5.77
2007	4.55	3.92
2008	15	3.85
2009	5.26	10
2010	9.09	8.16
2011	0	3.7
2012	13.64	18.37
2013	7.69	17.02
2014	3.03	6.52
2015	3.57	7.32
2016	3.45	10.87
2017	3.23	12.77
2018	4.55	12.86

Table 6: Percentage of International Collaboration

In the view of international collaboration 2012 is highest percentage level in Library Quarterly and Library Hi-Tech journal. But very first Library Hi-Tech journal registered international collaboration with 3.85 percentage. Initially very first three years Library Quarterly doesn't have the internal collaborations and 2003, 2005 and 2011 years also any collaboration. In 2004 there is no international collaboration for Library Hi-Tech Journal also first two publication years.

Citable and Non Citable Documents

Not every article in a journal is considered primary research and therefore "appropriate", this chart shows the proportion of articles in a journal that includes substantial research (research articles, conference papers and reviews) in three-year windows, which are included in documents other than research articles, reviews and conference papers.

	Library Quarterly		Library Hi-Tech	
Year	Citable documents	Non Citable documents	Citable documents	Non Citable documents
1999	38	0	159	2
2000	38	0	131	0
2001	37	0	118	0
2002	40	0	127	1
2003	40	3	131	3
2004	43	5	149	4
2005	46	6	145	3
2006	53	3	146	1
2007	56	1	149	0
2008	58	2	153	0
2009	56	4	155	0
2010	56	5	152	1
2011	56	5	150	1
2012	59	4	151	2
2013	61	5	151	1
2014	63	7	149	1
2015	67	14	142	0
2016	71	16	134	0
2017	75	15	133	0
2018	77	11	131	3
Total	**1090**	**106**	**2856**	**23**

Table 7: Citable and Non Citable Documents

Citable documents in the Library Hi-Tech journal published highest in the year of first publication year in 1999 with 159 citable documents. From 1999 to 2018 totally 2856 citable documents published by Library Hi-Tech Journal. From 2005 to 2009 rapidly increase the number of citable documents. Only 23 non citable documents are appeared in Library Hi-Tech Journal. About Library Quarterly journal citable documents highest appeared with 77 in 2018. Totally 1090 citable documents and 106 non citable documents are published by Library Quarterly Journals.

Cited and Uncited Documents

The proportion of items in a journal, grouped into three-year windows that are not quoted at least once during the following year.

	Library Quarterly		Library Hi-Tech	
Year	Cited documents	Uncited documents	Cited documents	Uncited documents
1999	23	15	37	124
2000	17	21	34	97
2001	9	28	20	98
2002	15	25	38	90
2003	18	25	44	90
2004	24	24	50	103
2005	24	28	57	91
2006	29	27	81	66
2007	22	35	63	86
2008	29	31	67	86
2009	33	27	68	87
2010	40	21	87	66
2011	31	30	77	74
2012	29	34	83	70
2013	32	34	86	66
2014	34	36	85	65
2015	36	45	84	58
2016	41	46	75	59
2017	39	51	61	72
2018	43	45	86	48
Total	568	628	1283	1596

Table 7: Cited and Uncited documents

Research articles are available in Library Hi-Tech Journal as a cited documents totally 1283 and uncited documents 1596. In year wise registered in 2010 cited documents 87 and 124 uncited documents (1999) as per Scopus record. In Library Quarterly 43 cited documents are highly available in the year of 2018 and 51 uncited documents are published in the year of 2017.

Findings and suggestions

- Library Quarterly and Library Hi-Tech journals started 1999 onwards so that appeared with 1.837 and 0.436 SJR point initially. Library Quarterly journal reducing the point wise last three consecutive years 2016 to 2018. Library Hi-Tech Journal SJR little increased last two years 2017 and 2018.

- 2018 is the best year for 4 years, 3 years and 2 year citation per document with 1.588, 1.603 and 1.467 for Library Hi-Tech Journal. The Year of 2001 is the lowest citation per document in Library Hi-Tech and Library Quarterly both journals.

- In 1999 onwards Library Quarterly and Library Hi-Tech Journals registered to count the citations. In 2018 Library Hi-Tech journals got highest number self citations (37) and total number of citations 210. In the year of 2000 only 3 self citation and 2001 only 29 total citation is year wise low of Library Hi-Tech Journal. About Library Quarterly Journal 2016 got 112 total citations with 17 self citations. According to SCImago ranking Library Quarterly Journal 147 self citations and 1326 total citations received. About Library Hi-Tech Journal, 313 self citations and 2656 total citation received. Its double while compare the Library Quarterly in citations wise.

- Library Hi-Tech journal, external cites per document percentage is higher in the year of 2018 as well cites per document also high percentage. In the same view year of 2013 highest for external cites per document (1.41) and the year of 2010 cites per document with 1.875 for Library Quarterly Journal. In the view of external cites per document and cites per document rapidly growing in the last two years in Library Hi-Tech Journal.

- International collaboration 2012 is highest percentage level in Library Quarterly and Library Hi-Tech journal. But very first Library Hi-Tech journal registered international collaboration with 3.85 percentages. Initially very first three years Library Quarterly doesn't have the internal collaborations and 2003, 2005 and 2011 years also any collaboration. In 2004 there is no international collaboration for Library Hi-Tech Journal also first two publication years.

- Citable documents in the Library Hi-Tech journal published highest in the year of first publication year in 1999 with 159 citable documents. From 1999 to 2018 totally 2856 citable documents published by Library Hi-Tech Journal. From 2005 to 2009 rapidly increase the number of citable documents. Only 23 non citable documents have appeared in Library Hi-Tech Journal. About Library Quarterly journal citable documents highest appeared with 77 in 2018. Totally 1090 citable documents and 106 non citable documents are published by Library Quarterly Journals.

- Citation analysis has an ever increasing significance in evaluating scientific achievement. Scientific journals, individual researchers, research groups, research institutes, universities and whole countries are evaluated on the basis of scientific publications and citations they receive.

- All analysis strategies supported citation analysis are passionate about the contents and quality of the databases that contain the data on citations. once considering such analysis

indicators, attention must always be paid to that database's data the calculations ar from, as a result of the worth of even same indicators changes once the info changes. the quantity of references to a selected article differs per the info, nor ar the references within the completely different databases invariably precisely the same. Particularly with macro level evaluations, like once evaluating analysis teams, departments and countries, it's necessary to fastidiously investigate the calculative strategies of the symptoms used and also the reference information upon that the calculations are based mostly. Moreover, it's price considering the instructive limitations of the symptoms and also the connected issues. Thus, evaluations typically need the utilization of many indicators, and citation data from completely different databases. Evaluations supported citation data ought to be complemented with any knowledgeable assessments.

- There are important ongoing developments in scientific publishing that are likely to create opportunities to obtain more advanced measurements of citation impact. One development is the introduction of more sophisticated ways in which the contributions that authors have made to a publication can be specified, for instance by having group authors in addition to ordinary authors, by distinguishing between authors, contributors, and guarantors, or by providing author contribution statements. These improved ways of specifying author contributions may offer new possibilities to address the credit allocation problem discussed in Section

- Another major development is the increase in open access publishing, and related to this, the increase in the availability of the full text of scientific publications. The availability of full text data enables the construction of more advanced citation impact indicators, for instance indicators that take into account the number of times a publication is referenced in a citing publication, the location (e.g., introduction, methods, results, or discussion) where a publication is referenced in a citing publication, or even the context in which a publication is referenced (i.e., the sentences in a citing publication around the reference to a cited publication). Bibliometricians and scientometricians should broaden their perspective on citation analysis in order to take advantage of the opportunities offered by new data sources.

Conclusion

Citation analysis can be conducted for the following purposes: To identify the impact of a particular work on which other authors have based their work or cited it in their own papers. By identifying seminal functions in that area to learn more about an area or subject. More accurately generalized bibliographic indicators are urgently needed. These indicators need to be corrected not only for differences in citation practices between fields of science, but also for differences between research areas within the same field. For example research fields can be defined as algorithms based on citation patterns. Alternatively, in the context of general references, publications with long reference lists may be performed by citing only a small number of

references, citing the low weight of publications and the high weight of citations to publications. Several steps have already been taken towards such cited side normalization procedures, but more research is needed in this direction. Using the currently available bibliometric indicators, one should be aware of the biases caused by differences in citation practices, particularly between the areas of social science research, especially Library and Information Science.

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