

# JOURNAL OF TAIBAH UNIVERSITY OF SCIENCE: A BIBLIOMETRIC STUDY

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**Abstract** *The study presents the bibliometric analysis of “Journal of Taibah University of Science”. The analysis scrutinizes mainly distribution of articles, length of articles, collaboration pattern, distribution of citations, and self-citations etc.*

**Methodology:** *A total number of 111 articles were analysed which were retrieved from the journal website for a period of 2008 to 2014.*

**Results:** *Collaborative approach is more preferable (79%) than solo approach as it constitutes only 21%. Most of the contributions are from foreign sources (60%) with 40% of the contributions local in nature. The average number of citations for articles cited in Google Scholar is 2.07, but as a whole for all cited and not cited articles is .50 per article.*

**Keywords:** *Bibliometrics, Journal of Taibah University of Science, Author Collaboration Patterns, Geographical Distributions, Citation Analysis.*

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## INTRODUCTION

The term “bibliometrics” was coined by Alan Pritchard (1969) to mean “the application of mathematics and statistical methods to books and other media of communications”. There are various definitions used for “bibliometrics” and essentially, it is the application of quantitative analysis and statistics to publications such as journal articles and their accompanying citation counts (Thomson Reuters, 2008). It is a set of methods to quantitatively analyse academic literature and allow the growth & nature of recorded knowledge. While bibliometric methods are most often used in the field of Library and Information Science, their application in other areas cannot be ignored. It is used in research performance evaluation, especially in university and government labs, and also by policymakers, research directors and administrators, information specialists, librarians, and researchers themselves (Thomson Reuters, 2008) with the purposeful application in measuring the coverage and quality of various types of resources and thus helps in collection building policies of the libraries, more particularly in the selection process (Satpathy, Maharana & Das, 2014).

Due to an explosive growth in the research output it has become a mandatory aspect to track its usage and keep a record of same. Furthermore, due to the escalating cost of the periodicals and lack of adequate library budgets, the

library authorities are forced to reduce the number of journal subscriptions. Therefore, the selection of any particular journal for a library needs to be done more carefully and it is only the bibliometric or metrics based techniques that enable the library managers to make a distinction between the good, better and best carriers of research so that the best ones will be selected, thereby assists in framing new subscription policy for tomorrow. When a single journal is studied bibliometrically, it creates a portrait of the journal, providing a description that offers an insight that is beyond the superficial and indicates the quality, maturity and productivity of the journal in any field, in a country or region. It also informs us about the research orientation that it supports to disseminate and its influence on author’s choice as a channel to communicate or retrieve information for their research needs (Anyi, Zainab & Anuar, 2009). In this context the current study has been undertaken in order to know the nature and contents of articles published in the “*Journal of Taibah University of Science*”.

## REVIEW OF LITERATURE

Over the past few decades applicability of bibliometric methods has increased in the phase of information pollution. The number of bibliometric studies on single journals in the Sciences and Technology has remained high with 36% and when this was combined with studies on Medical and

Health Sciences journals (19%), the proportion increased to 58%. The number of bibliometric studies on journals in the field of Library and Information Science (LIS) was also high at 26% and when this was combined with those in the arts, Humanities and the Social Sciences, the proportion increased to 41% (Anyi *et al.*, 2009). A number of bibliometric studies have reported their findings regarding the article productivity, authorship collaboration, length of articles, geographical distribution of authors and citation pattern of articles (Davaranah & Aslekia, 2008; Jena, Swain & Sahoo, 2012; Swain & Panda, 2012; Roy & Basak, 2013; Swain, 2013). Thanuskodi (2011) in *Library Herald* Journal reveals that majority of article published have a length of 6-10 pages followed by articles with 11-15 pages and 1-5 pages, whileas in *Internet Research* the domination of collaborative research and the degree of collaboration (DC) is found to be 0.83 with average articles citing over 53 references (Swain, 2013). Bakri & Willett (2008) made an exhaustive bibliometric study of *Malaysian Journal of Library & Information Science* and unfolded the publication trend of the journal from 2001 to 2006. Naseer and Mahmood (2009) reviewed the use of bibliometrics in LIS research and concluded that bibliometrics is very useful in solving diverse issues. Sapa (2007) employed bibliometrics to understand the international contribution to library and information science in Poland. Regolini and Jannes-Ober (2013) carried out the bibliometric study of *Informing Science* and confirm that it is possible to observe the evolution of a new transdiscipline by analyzing the citations to papers from its flagship journal. Hussain, Fatima and Kumar (2011) have also done the bibliometric analysis of *The Electronic Library* journal stressing on the year-wise distribution of articles, authorship patterns, and institutions-wise distribution of contributions. Jena, Swain and Sahu (2012) have also conducted a bibliometric analysis of *The Electronic Library* journal showcasing authorship pattern, geographical distribution of contributors and length of articles. While analyzing two core LIS journals, *The International Information & Library Review (IILR)* and *Library & Information Science Research (LISR)*, Sethi and Panda (2012) have examined the growth of the literature, authorship patterns, geographical distributions of authors, citation pattern and length of articles. Swain, Swain and Rautaray (2013) examine the scholarly communications in *Library Review (LR)* from 2007 to 2011 and to reveal key aspects of its publication trends. The publication trends of the scholarly journal *Library Management*, indicate that the majority of the contributions are by single authors. The study also highlights the chronological distribution of articles, authorship pattern, geographical distribution of authors, citation pattern and length of articles (Singh & Chander, 2014). Thavamani (2014) analysed the various bibliometric components of the articles published in the *Malaysian Journal of Library and Information Science* from 1996

to 2012. Various quality aspects of the published journal period were studied. The study demonstrates and elaborates on different aspects of the journal, such as its distribution of article by year, authorship patterns, distribution of contributions by institution, citation patterns, length of article, and geographical distributions of authors.

## OBJECTIVES OF THE STUDY

- To determine the number of contributions and year wise distribution of articles.
- To study the authorship pattern.
- To find out the nature of author collaboration.
- To know the geographical and institutional distribution of articles.
- To study the page count of articles.
- To display the citation and self-citation pattern.

## ABOUT THE JOURNAL

Journal of Taibah University for Science (JTUSCI) (ISSN: 1658-3655) is an international scientific journal for the basic sciences. This journal is produced and published by Taibah University, Madinah, Kingdom of Saudi Arabia. The scope of the journal is to publish peer reviewed research papers, short communications, reviews and comments as well as the scientific conference proceedings in a special issue. The emphasis is on biology, geology, chemistry, environmental control, mathematics and statistics, nanotechnology, physics, and related fields of study. The JTUSCI now publishes four issues (Jan 15th, Apr 15th, Jul 15th and Oct 15th) per year. Submission to the Journal is based on the understanding that the article has not been previously published in any other form and is not considered for publication elsewhere. Other regular features within the journal include case reports, letters to the editor, and updates which detail symposia, conferences and workshops located primarily in the Kingdom of Saudi Arabia and the Gulf countries. The Journal has recently devoted a new Students' Section where the research projects written by the students shall be entertained.

## METHODOLOGY

The issues of the Journal of Taibah University for Science (JTUSCI) over the years 2008 to 2014 have been taken into consideration for this study. The details regarding each published article like number of articles, number of authors, their institutional affiliation and addresses, number of references at the end of each article etc were recorded. Google Scholar was used to check the citations of the articles since JTUSCI is not yet indexed either by Sciverse Scopus or Web of Science (WoS).

## DATA ANALYSIS & INTERPRETATION

### Year Wise Distribution of Articles

There are ups and downs in the number of contributions from 2008-2012 indicating its infancy stage, with sharp rise in the year 2014 (40.54%) signifying its growing mark in the field (Table 1).

**Table 1: Year Wise Distribution of Articles**

Year	No. of Articles	Cumulative No. of Articles	Percentage
2008	5	5	4.51
2009	13	18	11.71
2010	13	31	11.71
2011	5	36	4.51
2012	4	40	3.60
2013	26	66	23.42
2014	45	111	40.54
Total			100

### Year-Wise Authorship Pattern

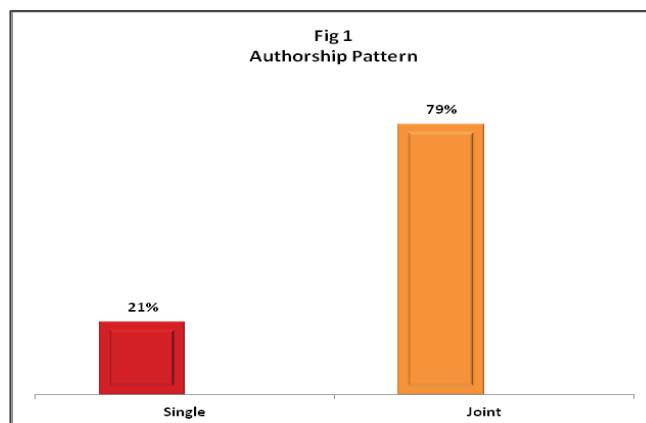
Table 2 reveals that maximum number of the articles is contributed by more than three authors (32.43%) and two authors (27.93%) followed by single authorship pattern (20.72%). Collaborative approach is much evident in Fig. 1 with joint authorship amounting to 79% and single authorship constituting 21% of the total. The findings are contrary to the study carried out in the field of Library and Information Science wherein either the authorship pattern does not show remarkable difference between the number of single author and co-authors (Davaranah & Aslekia, 2008) or the single-authored papers comprise the highest percentage (Warraich & Ahmad, 2011). However, the findings of the study are in conformity with the analysis carried out in the field of Palaeobotany and Palynology (Saravanan, Saravanan & Dominic, 2014).

**Table 2: Year Wise Authorship Pattern**

Year	Number of Authors				Total
	One	Two	Three	More than 3	
2008	3	0	0	2	5
2009	2	8	2	1	13
2010	4	1	3	5	13
2011	1	2	1	1	5
2012	0	0	1	3	4
2013	7	10	4	5	26
2014	6	10	10	19	45

Total	23	31	21	36	111
%age	20.72	27.93	18.92	32.43	100

**Fig. 1: Authorship Pattern**



### Nature of Author Collaboration

Maximum number of authors collaborating together (53; 60.23%) are local in nature i.e. the authors belong to the same institution, followed by international collaboration (18; 20.45%) wherein the authors belong to different countries and national collaboration (17; 19.32%) wherein authors belong to different institutions but to same country.

### Geographical Distribution of Articles

The geographical distribution of articles is based upon the address of corresponding authors' affiliation given in the article. Majority of the contribution is from Saudi Arabia constituting (40%) of the total. India ranks 2<sup>nd</sup> with 16.36% of the articles followed by Egypt (14.54%) and Iran (7.27%). One country (Oman) contributes 4 articles with 4 countries contributing 3 articles each and six countries contributing 1 article each. However, the nationality of 1 author couldn't be ascertained (Table 3).

**Table 3: Geographical Distribution of Articles**

Area	No. of articles	Percentage
Saudi Arabia	44	40
India	18	16.36
Egypt	16	14.54
Iran	8	7.27
Oman	4	3.64
Algeria	3	2.73
Malaysia	3	2.73
Iraq	3	2.73
Nigeria	3	2.73

Bangladesh	2	1.81
Turkey	1	.91
Jordan	1	.91
USA	1	.91
Tunisia	1	.91
Morocco	1	.91
Cameroon	1	.91
Total	110	100

### Institution-Wise Contribution of Articles

A large proportion of contributions are from universities 93 (85.32%) and a meager number of contributions are from institutions of different types 8 (7.34%) and colleges 6 (5.50%). Training school and plant laboratory contribute one article each, whereas the institutional nature of two articles could not be ascertained.

### Length of Articles

Majority of articles (83; 74.77%) are 6-10 pages long followed by 19 (17.12%) articles 11-15 pages long and 6 (5.41%) articles in the range of 1-5 pages (Table 4). A similar pattern is observed in the Library Herald Journal also (Thanuskodi, 2011). Seglen (1996) also confirms that

standard article format ranges from 7-8 pages. An average page count of 8.6 is also observed by Dong, Xu, Luo, Cai and Gao (2012).

## CITATION ANALYSIS

### Year-Wise Distribution of Citations and self-citations

Maximum number of citations (1425; 41.92%) and self-citations 125 (41.67%) are in the year 2014 followed by 826 (24.30%) citations and 88 (29.33%) self-citations in 2013 indicating a correlation between citations and self-citations. It is also clear that about 8.82% citations are self-citations with highest increase in 2013 (Table 5).

### Articles and Reference Range

A good proportion of articles (98, 88.29%) have references in the range of 16 and more indicating a strong correlation and knowledge flow with other platforms of knowledge as the references in research papers provide empirical data on knowledge flows within and between scientific disciplines (Gu, 2004). None of the article contains references in the range of 1-5 (Table-6).

**Table 4: Year Wise Length of Articles**

Pages	Year							Total	Percentage
	2008	2009	2010	2011	2012	2013	2014		
1-5	2	0	0	0	0	0	4	6	5.41
6--10	2	10	12	4	4	23	28	83	74.77
11-15	1	3	1	1	0	2	11	19	17.12
16 & more	0	0	0	0	0	1	2	3	2.7
Total	5	13	13	5	4	26	45	111	100

**Table 5: Year-Wise Distribution of Citations and Self-Citations**

Year	No. of Citations	Citations (%)	No. of Citations Self-Citations	Self-Citations (%)	Citations Vs Self-Citations (%)
2008	141	4.15	13	4.33	9.21
2009	212	6.24	14	4.67	6.6
2010	420	12.36	37	12.33	8.80
2011	223	6.56	9	3	4.03
2012	152	4.47	14	4.67	9.21
2013	826	24.30	88	29.33	10.65
2014	1425	41.92	125	41.67	8.77
Total	3399	100	300	100	8.82

**Table 6: Year Wise Distribution of Articles and References**

No. of References	Year							Total	Percentage
	2008	2009	2010	2011	2012	2013	2014		
1--5	0	0	0	0	0	0	0	0	0
6--10	0	3	0	0	0	0	2	5	4.50
11--15	0	3	2	0	0	1	2	8	7.21
16 & more	5	7	11	5	4	25	41	98	88.29
Total	5	13	13	5	4	26	45	111	100

**Table 7: Citation Distribution in Google Scholar**

Number of citations	Scholarly Papers	Percentage
1	17	62.97
2	4	14.82
3	2	7.41
4	1	3.7
5	1	3.7
6	1	3.7
7	0	0
8	0	0
9	0	0
10	1	3.7
Total	27	100

### Citation Distribution in Google Scholar

Of 111 articles, only 27 (24.32%) articles were cited and 84 (75.68%) articles were not cited according to Google Scholar, which indicates that the difference between cited and uncited articles is quite wide and remarkable. It is also evident that, more than half of the cited articles carry just one citation. Less than one fifth of the cited articles contain two citations and only two cited articles have got three citations. The average number of citations for 27 articles is 2.07, but as a whole for all cited and not cited articles is .50 per article (Table 7).

### FINDINGS AND CONCLUSION

The present study conducts a bibliometric study of the "Journal of Taibah University of Science" for volumes published from 2008-2014. It is evident that the journal is on the path of progress as the contribution of articles has increased with sharp rise in the year 2014 (40.54%). Collaboration pattern is much more prominent (79%) than the solo one (21%), indicating that the journal is publishing

on a mature discipline, publishing complex articles & addressing complex issues (Koehler, Aguilar, Finarelli, Gaunce, Hatchette, Heydon, & Al, 2000) with maximum number of articles having length of 6-10 pages. Majority of the contributions are from universities prevalent in foreign countries with greatest lead from Muslim world. The universities being the rich platforms for the teaching and research the highest share of contributions from the universities is in conformity with the expectations. About 8.82% citations are self-citations and a good proportion of articles 98 (88.29%) have references in the range of 16 and more. Average number of citations is .50 per article in Google Scholar, the possible reason being the newness of the journal in the field of Medical Sciences.

Albeit the *Journal of Taibah University for Sciences* is indexed in renowned database "Elsevier", but the citation rate of content in the journal is not impressive. The marketing of the journal needs to be revamped for attracting the international authorship and readership so that it will grow in its value in the time to come. It will be in the fitness of things, if the journal employs social networking platform for reaching to maximum readership.

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