Citation Analysis of the *Dialogue* with Proposed Quantification

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Abstract

Citation analysis of the Dialogue was conducted to get knowledge about the citation pattern; the most cited documents; references per article; references per year and proposed quantification for the documents published from 2014 to 2016. The quantitative approach was adopted for this study. The website of Dialogue was used for obtaining metadata about the research papers published during 2014-2016. Google Scholar citation instead of Journal Citation Report was used for the calculation of proposed Impact Factor (IF). The major findings of the study reflect that the proposed calculated Cite Score of the Dialogue for the mentioned period is 0.14 whereas the proposed self-calculated Impact Factor is 0.22. The citation rate of documents published in 2014 was recorded more as compared to the rest of the years. The citation rate should be improved by the inclusion of Dialogue in indexing databases of international repute. This practice will enhance quality of the Journal and will be able to create room in world of Thomson Router and other renowned research databases.

Keywords: Citation Analysis, h5-Index, Journal Citation Measurement, Journal Quantification, Proposed Impact Factor-Dialogue, Cite Score-The Dialogue

Introduction

Citation analysis can be defined as "the study of the impact and assumed the quality of an article, an author, a Journal or an institution based on the number of times works and/or authors have been cited by others. Citation analysis is the examination of the frequency, patterns, and graphs of citations in documents. It is a worthy area of research, useful

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for understanding subject relationship and publication trends. Gross and Gross (1927) was the first citation pattern of the subscribed journals[1]. It is a bibliometric technique that uses citation patterns in documents to trace the relationships between those documents and the original sources and authors.

A biblomteric pioneer Eugene Garfield[2] is of the view that citation links provide a quantitative picture of journal utility and relationship that is useful. Being pioneer of the Impact Factor (IF), Eugene Garfield engineered the idea and launched Journal Citation Report (JCR) in 1975. A typical aim would be to identify the most important documents in a collection or in a Research Journal. Impact Factor is considered as an important reference tool for the evaluation and ranking of a research journal or any other research document although its limitations are quite clear. Lack of quality evaluation, poor compatibility between different domains of interest per journal and self-citation are the major drawbacks of this universal assessment tool.[3]

Various contributors of this field have developed a similar algorithm for the assessment of scientific journals. Falagas et.al (2008) discussed the application of PageRank algorithm to the Scopus databases to develop the SCImago Journal Rank (SJR)[4]. The limitation of self-citation is covered in this ranking tool. Being open-source software, SJR has many advantages over other ranking utensils such as greater number of scientific journals and languages are included in this database.

Several efforts have been made by Pakistani researcher to write editorials about the need and importance of IF for Pakistani Journals[5]. Midrarullah[6] worked on national impact factor according to citation analysis. He also provided national guide lines for IF calculations. The first ranking in Pakistan was based on the total number of citations of all dates. The second ranking of the journals was based on impact factor of 2006. The third ranking was made on five years impact factor.

The Dialogue

The present work is an endeavor to conduct a study for the citation analysis of Higher Education Commission (HEC) recognized esteemed Journal "The Dialogue" published from Qurtuba University, Peshawar. Being a portrait of the journal, it will serve as an instrument for the promotion, quality and standardization of The Dialogue.

The Dialogue is a multi-disciplinary international research journal published by Qurtuba University of Science and Technology, Peshawar since 2006. The frequency of the Research Journal the Dialogue is quarterly. The main aim of the research journal is to provide a global forum to the research scholar community from the range of

academic disciplines and to encourage debates, controversy, and reflection.

The journal is already approved by the HEC Pakistan as category "Y", International Standard Serial Number (ISSN) 1819-6462 and electronic ISSN 1819-6470. The journal editorial board consists of local and foreign scholars.

Literature Review

The scrutiny of literature revealed that a reasonable number of studies have been conducted on citation analysis of documents in different disciplines. Line and Sandi son (1974) are of the view that citation analysis of documents exhibits relationship among papers, authors and scientific journals. It also assessed the quality and quantity of a research production[7].

Hakkalamani, et.al[8] highlighted that self- citation indicators affects Impact Factor (IF). This practice is not limited to orthopedic literature. Similar relations have been described by various authors of anesthesia and radiology in their intellectual piece of documents.Impact Factor is basically a measure of reputability of journals for librarians[9]. It has gained much authority and is playing a dominant role in hiring, tenure decisions and granting awards. [10] Mathur VP and Sharma described that the IF is affected by so many sociological and mathematical factors like thematic approach, authorship pattern, nature and size of journals and language etc[11].

Hussain, Akhtar studied citation analysis of 74 journals of computer Science. He stated that *wireless sensor network* was the most cited paper among 495 articles from 2005 to 2010.[12] Ullah, Midrar & Idrees Farooq Butt,[13] conducted the citation analysis of Pakistani Medical Journals. The prime objective of the study was to examine the ranking of Pakistani Medical Journals. It was revealed that Journal of Pakistan Medical Association was top –ranked with 110 citations followed by Journal of the College of Physician and Surgeon based on the 5-year impact factor. Asif, Muhammad and Masood Jawaid[14] were of the view that quality of a journal could not be judged by just the IF. It is one of the tools but surely not the absolute one. Shiwani[15] and Sohail[16] also tried to discuss the need and importance of the IF for Pakistani research Journals.

Ashraf Sharif, M., & Mahmood, K[17] revealed that more than 50 % of the citation were from non journal sources. However, citations were from online resources also seen. Majority of economists cite old literature. Most of the cited journals were form USA.

Li, J., and Burnham, J. et.al [18] have compared Web of Science, Scopus, SciFinder and Google Scholar for citations analysis. They explored that each database has presents its own strength and weaknesses, their method of analysis, differences in coverage and means of linking of references. Web of Science covered information from 1900 and Scopus 1996 onward. SciFinder mainly covered chemistry and natural sciences. Google Scholar has the capability to link citation to individual reference.

Jan, et.al[19] Studied the citation pattern of the leading multidisciplinary research journal of Pakistan. Total 269 original articles were examined for this purpose. Books (54.40 %) were the top cited sources followed by research articles (17.83%) in the all original articles published during the selected period.

Ibrahim, et.al [20] analyzed citations of 913 original articles published in Journal of Pakistan Medical Association during 2009 to 2013. They revealed that 17340 (90.5%) citations were from journals out of 19153. Books were cited 621 times and report/conference proceeding were cited 585. Articles with up to 30 references were 510 (55.9%) followed by up to 20 references 355(38.9%) per articles.

The prime objective of this study is the citation analysis and proposed quantification of the Dialogue, while some specific objectives of the study are listed below:

- ➢ To calculate the proposed *Impact Factor* and *CiteScore* of The Dialogue
- ➢ To study *h-Index &h5-Index* (Google Scholar Metrics)
- ➢ To examine articles Published per year
- ➢ To analyze articles cited per year
- ➢ To investigate the pattern of Citing Documents
- ➢ To examined the year of publication and citation

Material and methods

The Quantitative Method was adopted for this study and conducted from April to July 2017 by using the online version of "*The Dialogue*" published by Qurtuba University of Science and Information Technology Peshawar, quarterly.

Initially, data acquired from the website of *The Dialogue*. Data was included "the title of the articles and Principal Author name" for citation analysis the data from 2014, 2015 and 2016 and for proposed quantification the data from 2012 to 2016 were used.

The three different queries know as "Simple Title Search", "Title in Inverted commas" and "Title" and "Principle Name" were performed

by using "Scholar Google" and "Scopus" scholarly search engines.(But Scopus did not indices the Dialogue therefore only Google Scholar was used).

The original formula of *Impact Factor* (issued in Journal Citation Report (JCR) were used), *Cite Score* for research journals and calculation of *h-Index/h5-index* was presented in the section of Quantification with it proper formulas. For calculation of Impact, instead of *Journal Citation Report* (JCR), the authors have used *Google Scholar Citation*.

The acquired data was entered to Microsoft Excel spread sheet for filtering. The data was further verified with printed issued of The Journal and search engine. The results were presented by using tables. The analysis was made according to formula of the respective quantification tool while frequency, percentage and cumulative percent were used for tabulated data.

Analysis of Data

Table 1: Article Published Per Year

Year	Numbers of Article	Percentage	Cumulative Percent
2014	30	31.58	**31.58**
2015	33	34.74	**66.32**
2016	32	33.68	**100**
Total	**95**	**100**	

The analysis of Table 1, shows the total of 95 articles have been published from 2014 to 2016. The highest number of articles was 33 (34.74 %) published in 2015 and lowest number of articles was 30 (31.58 %) in the year 2014.

Table 2: Articles citied per year

Year	Articles Published	Frequency	Percent	CumulativePercent
2014	30	17	53.13	**53.13**
2015	33	11	34.38	**87.50**
2016	32	4	12.50	**100**
Total	**95**	**32**	**100**	

The Analysis of Table 2 presents the frequency of article cited per year. It is showed that 32 out of 95 documents have been cited in the mentioned period. More than half of the articles were citied from the year 2014 with frequency of citation is 17 (53.13%) followed by 11 (34.38%). The analysis further reflects that citation of documents per year have a descending tendency. This may due to its recent publications.

Table 3: Articles citied in the year

Cited in the Year	Frequency	Percent	CumulativePercent
2015	9	28.13	**28.13**
2016	14	43.75	**71.88**

2017	9	28.13	**100**
Total	**32**	**100**	

Table 3 shows the analysis about the years in which the articles were cited from this Research Journal. In the year 2016, the Dialogue was cited 14 (43.75 %) times and 9 (28.13 %) each in the years i.e. 2015, 2017. Majid (1995) conducted a study on citation analysis of Pakistani journals. [21] It was found that 13.2 are the mean score of citations per article.

Table 4: Distribution of citations according to bibliographic forms

Type of citing Document	Frequency	Percent	Cumulative Percent
Journal	18	56.25	**59.25**
Reports	5	15.63	**71.88**
Thesis	5	15.63	**87.50**
Book	1	3.125	**90.63**
Essays	1	3.125	**93.75**
Academic Session	1	3.125	**96.87**
Conference	1	3.125	**100**
Total	**32**	**100**	

The Analysis of Table 4 shows the bibliographic forms of citing document. It is shown that majority 18 (56.25 %) of citations were made from the Journals, followed by Reports and Research Theses. The each books, essays, conferences and academic sessions were used for only one time as a citation source in *Dialogue*. Sharif, et.al[22] conducted a similar study related to citation analysis of two Pakistani Economic Journals. The findings of the study reflect that Monographs/book/government publications are the most cited documents contrary to the study in hand.

Table 5: year of publication and citation

Published in Year	Cited in the Year			Total	Percent
	2015	2016	2017		
2014	7	6	4	**17**	**53.13**
2015	2	5	4	**11**	**34.38**
2016	0	3	1	**4**	**12.50**
Total	**9**	**14**	**9**	**32**	**100**
Percent	**28.13**	**43.75**	**28.13**	**100**	

The Analysis of the table 5 shows year wise publication and citation of documents. The articles published in 2014 were more cited 17 (53.13 %) times in research journals. Low citation rate was observed in 2016.

Proposed Quantification of the Dialogue

(Calculation made by the authors as per original formula of Impact Factor by Thomson Router and Cite Score by Elsevier)

1. **Self-Calculated *Cite Score***

Formula: "Total Citation got by the Journal in the Current Year/ Documents or Articles Published by the Journal in Last Three Years".

      Now Putting Values in the Formula:

- Citation got by *The Dialogue* in the year 2016
  - = **14**
- Articles published by *The Dialogue* from 2013 to 2015
  - = **98**
  - = **14/98**
  - = **0.14**

The proposed personal calculated Cite Score **of the Dialogue is**   =   **0.14**

2. **Self-Calculated proposed Impact Factor for *The Dialogue*-2016**

The journal Impact Factor is the average number of times articles from the journal published in the past two years have been cited in the Journal Citation Report (JCR) year. The Impact Factor is calculated by dividing the number of citations in the JCR year by the total number of articles published in the two previous years.

Formula: Number of citations in the Google Scholar Citation year divided by total number of articles published in the two previous years. Now Putting Values in the Formula:

- Citation got by *The Dialogue* in the year 2016
  - = **14**
- Articles published by *The Dialogue* from 2014 to 2015
  - = **63**
  - = **14/63**
  - =**0.22**

    Proposed Impact Factor for the Dialogue-2016   *= 0.22*

Note: Formula for Calculation Proposed/Self Impact Factor. Instead of Journal Citation Report (JCR), the authors have used Google Scholar Citation.

3. ***h-Index&h5-Index* Matrices by Scholar Google**

i. *h-index (For Scholar)*

The h-index is an author-level metric that attempts to measure both the productivity and citation impact of the publications of a scientist or scholar. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications. The h-index of a publication is the largest number h such that at least h articles in that publication were cited at least h times each. For example,

a publication with five articles cited by, respectively, 17, 9, 6, 3, and 2, has the h-index of 3.

The h-core of a publication is a set of top cited h articles from the publication. These are the articles that the h-index is based on. For example, the publication above has the h-core with three articles, those cited by 17, 9, and 6.

The h-median of a publication is the median of the citation counts in its h-core. For example, the h-median of the publication above is 9. The h-median is a measure of the distribution of citations to the articles in the h-core.

ii. h5-index (For Research Journals)

The h5-index, h5-core, and h5-median of a publication are, respectively, the h-index, h-core, and h-median of only those of its articles that were published in the last five complete calendar years.

h5-index & h5-median of the "*Dialogue*" is originally calculated by Google Scholar/Metrics (2017)[23] is given below.

  h5-index of *Dialogue*   = 5   h5-median of *Dialogue*   = 6

Declaration: Dates and citation counts are estimated and are determined automatically by a computer program (Google Scholar).

Finding of the Study

The major findings of the study are summarized as:

- It is found that 33 articles have been published in the year 2015.
- It is evident from the analysis of data that 32 documents have been cited in different journals during the years 2015, 2016 and 2017.
- *Journals* proved to be the more cited document followed by *Reports* and *Research theses*. The citation o*f books*, *conference papers*, *academic sessions and web sources were next to nil.*
- The analysis depicts that *Dialogue* publications of 2014 were cited more as compared to the rest of the published documents.
- An effort was made by the authors to calculate the *CiteScore* of the *Dialogue* using the original formula. It was recorded that the proposed personal calculated CiteScore of the *Dialogue* is= 0.14
- The proposed self Impact Factor of the *Dialogue* was made applying the original formula of Thomson Reuter. It was observed that the proposed Impact Factor for the *Dialogue*-2016 is = 0.22
- Using of Google Scholar Metrics for the journal. The original h5-index of the Dialogue is 5 and h5-median is 6.

Conclusion

The current century has witnessed dramatic changes in each and every aspect of human life. New trends in research emerged. Citation analysis is one of the emerging trends in the bibliometric study of a scientific and research documents. Citation analysis of the Higher Education Commission recognized "Y" category journal *Dialogue*, is an effort towards improvement in quality of research. This study will be helpful for the Journal Editors, researchers and readers.

The main theme of the study was to assess the citation patterns, their international recognition and quantification of the esteemed Journal *Dialogue*. The analysis of the Journal revealed that 0.14 is the proposed calculated CiteScore of *Dialogue*. It is also evident that the proposed Impact factor of the Journal is 0.22. *Journal* was the most cited document of research publications published in this reputed Journal from 2014 to 2016. The documents published in the year 2014 were more cited as compared to the rest of the publications. It should be indexed in reputed and leading databases of the world for the enhancement of its citation rate. The contributors should be motivated and encouraged to cite more and more published documents of the *Dialogue* in their scholarly documents. Efforts should be made to register *Dialogue* in Social Science Citation Index (SSCI) [24] to become the part of Journal Citation Report of Thomson Reuter. The Dialogue may also make as Open Access journal. This way it could be cited by researchers globally.

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