Bibliometric Analysis for Literature: An Overview

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ABSTRACT

Bibliometric is an strategy utilized for investigate the information about any area. It is a quantitative study which covers the different-different parts of literature on a point, which is useful to distinguish the example of distribution, authorship, and auxiliary journal etc. this is best way for understanding the strong and weak concept of any area. This can prompt better association of information resources, which is basic for successful and productive use. Bibliometrics has accomplished refinement and intricacy with a national, global, and interdisciplinary character.

KEYWORDS: Bibliometric Study, Bibliometric Analysis, Bibliometric Indicators, Bibliometric Techniques, Bibliometric Theory.

1. INTRODUCTION

Bibliometrics is generally another subject and a part of Information Science. Bibliometrics is a built up information space which joins its own arrangement of laws, hypotheses, approaches, advancements, particular diaries, gatherings, etc. It is a standard strategy for data or information investigation and move designs inside a given field, for example a group of writing, an association, a situation inside and between disciplines controls. It uses quantitative examination, measurements and information perception to research

(a) the design in the information data learning move process;

(b) at the procedural, relevant and theoretical levels;

(c) within relationship among client, media, and message.

It is additionally an essential apparatus for investigation of researchers/specialists (reference choice procedures, user needs and so forth.) Bibliometrics is a choice help strategy utilized by Library and Information researchers, experts in and crosswise over for all intents and purposes each order, including Computer Science, Telecommunication, Political Science, Education, Business and Industry. It is utilized in pure, applied and action researches.

2. CONCEPT OF BIBLIOMETRIC

The expression "bibliometrics" was instituted by Allan Pritchard in 1969 however it becomes progressively well-known during 1980s. Bibliometrics is practically equivalent to "Ranganathan's librametrics, the Russian idea scientometrics, infometrics, and subdisciplines like econometrics, psychometrics, sociometrics, biometrics, technometrics, chemometrics, and climetrics", where arithmetic and measurements are connected to think about and take care of issues in their individual fields. Scientometrics is currently utilized for the utilization of quantitative techniques to the historical backdrop of science and covers with bibliometrics to a significant degree.

It is a science which lies between the outskirt regions of Social and Physical Sciences. The fundamental units of Bibliometrics are for the most part aspects of composed interchanges, for example, essential and auxiliary periodicals, articles and edited compositions distributed in them, reference indices of papers, books, proceedings and other media of correspondences. Step by step it is achieving advancement & intricacy having at national and worldwide, and between disciplinary characters. This has set up itself as a practical and unmistakable study procedure for examining scientific based bibliographical and reference information.

2.1 Criteria of Bibliometric writing

The bibliometric writing uncovers that every one of the models created depend on either of the accompanying sorts of information -

(1)   Library study information overviews are normally led for a brief timeframe.

(2)   Periodical information from reference indices with the end goal of reference checks and estimating journal efficiency.

(3)   Recorded information – dissemination information, Inter library advance information, and so on.

(4)   Data from reference indices indicating number of distributions per author in a subject field.

2.2 High level used area

The vast majority of the bibliometric models are tried and utilized fundamentally at the nearby level, and institutional level with the end goal of

(i)   describing logical profitability and development of distributions;

(ii)   identification of center journals and patterns of library use.

2.3 Importance of bibliometric study

The bibliometric study other than its hypothetical substance has different down to earth applications in library the board and in choosing science strategy on looks into. A portion of the practical applications are as per the following:

(i)   The Bibliometric study intends that develop the control on bibliographic.

(ii)   It decides insights of writing identifying with the nation of inception, subject, and structure and language distribution of records just as their occurrence of interpretation.

(iii)   Bibliometric study infers the different-different subject relationship which proposes attractive general patterns of optional administration inclusion.

(iv)   The reference information study and the volumeof production in a year insightful, which can be utilized in arranging review catalogs.

(v)   The bibliometric examination is used for evaluation of the secondary services, especially when identified with by and large number of literature available.

(vi)   Thebibliometric information used for taking some management decision.

(vii)   Citation investigation discovers subject connections which prompts recommending titles of journal important to a given control in a specific library.

(viii)   The reference information likewise decides the rundown of profoundly referred to journal or books.

2.4 Sub-orders of Bibliometric Considers

(a)   Statistics (sampling, testing, regression and relationship, correlation and so on.).

(b)   Operation Research (linear programming, decision and so on.).

(c)   Bibliometric laws (Zipf, Lotka, Bradford and so forth.).

(d)   Citation investigation (reference parameters, organize, science arrangement, out of date quality, and so forth.).

(e)   Circulation theory (models determined by Morse, Burnell, and so on.).

(f)   Information theory (Shannon-Weaven).

(g)   Theoretical parts of data recovery (assessment procedure, thesaurus, development, programmed ordering etc.)

Sen makes the expression that Bibliometrics incorporate the studies of correspondence of science as well as different subject matters, which is obvious from late bibliometric analysis of sociology and humanities by Yitzaki and Heisey. As a correspondence, it has had the option to include researchers from a large number of the controls since its initiation. Bibliometric systems have been acknowledged as an examination territory that gives us extra understanding of the structure and structure of logical correspondence.

It can't be questioned that bibliometics is in full improvement now, yet we are as yet faraway from "Grand Bibliometric Theory". Things will go quicker and quicker anyway since Bibliometrics is an exceptionally famous subject now-a-days.

The review of literature in this analysis is sorted out under the accompanying heads.

(i)   Research Collaboration

    a.   Scientific effort: General studies

    b.   Collaborative research identified with different controls.

    c.   Collaborative research and creation design.

    d.   Collaborative research and logical efficiency.

(ii)   Gender and Collaboration

(iii)   Bibliometrics and Social Sciences

3. BIBLIOMETRIC INDICATORS

Bibliometric indicators can give signals about what is going on in the research system, but results have to be inferred to the complexity of the studied environment. Indicators make a distinction on quantity, quality, and visibility of research implemented by various individuals or institutions.

3.1 Sources

The collection of necessary data (publications or patents) is the basis for the construction of bibliometric indicators. The data could be obtained by making one"s own data base (by using CD-ROM, etc) or by(commercial) database such as Scopus, Web of Science, Google Scholar, Chemical abstracts. Science Citation Index, Medline, Derwent for patents etc (Al-Jaradat, 2008).

3.2 Publications

Publication counts provide a rough measure of the quantity of work produced by a research team or faculty.

3.3 Citations

Authors refer to every others' papers for some reasons, however investigators by and large accept that paces of citation give some proportion of the quality, importance or premium, the effect of the cited to paper. Along these lines, citation counts are a pointer of the impact a research has had on the bigger academic community.

3.4 Mapping (Clustering)

Bibliometric maps give an instrument which can be utilized ideally in an electronic domain. In addition, there is a lot of point by point data 'behind the maps'. Subsequently it is vital that this basic data, especially about research execution, can be recovered in a productive manner, to furnish the user with a probability of investigating the fields and of making a decision about the utility of maps against the user's own skill. Propelled web based interface facilities are basic to empower this further investigation of the maps and of the information 'behind the maps' (Noyons, 1999), along these lines bibliometric maps and their web based user facilities will empower users to compare the logical presentation of gatherings/foundations with other 'benchmark' organizations. From this time forward, the maps can be utilized for the determination of benchmark organizations, for example, establishments picked by the specialists. Co-citation analysis gives an elective kind of mapping, however it certainly relies upon the accessibility of citation (reference) information and thus its appropriateness is less broad than concept closeness mapping. Co-citation maps depend on the occasions as two specific articles are cited to together in different articles. The improvement of this basic system depends on the pioneering work of Small (1973). At the point when amassed to bigger arrangements of productions, co-citation maps features bunches of connected logical work (for example in view of similar productions, to the extent reflected by the cited to literature). These groups can frequently be recognized as 'inquire about claims to fame's (McCain, 1990).Their highlights may, be that as it may, be of an alternate kind compared with co-word based bunches; since they depend on citation practices they may feature cognitive just as informal organizations and relations (Braam, Moed, and Van, 1991). Also, citations just feature a piece of the scholarly structure, and they are liable to certain, frequently field explicit, time constraint. Mapping is utilized to envision the structure of research fields or strengths (subfields) of science, and connections countries in the worldwide field. Following are a portion of the approaches, which empower mapping or grouping of a structure (Al-Jaradat, 2008).

3.4.1 Co-citation analysis

Co-citation analysis screens the number of times (two) papers are cited to together in single articles or patents in a specific field of Science and Technology. The resultant co-citation bunches mirror the subject likeness and features the most significant works in that claim to fame (estimated by citation). This guide empowers one to envision how claims to fame (or sub-fields) advance over some stretch of time.

3.4.2 Co-word analysis

Co-word analysis screens the number of times keywords are cited together in distribution or patents in a specific field of science or innovation. A guide of these parings of co-words depicts the structure of an exploration field.

3.4.3 Interviews

Interviews monitor the numbers of times key words are mentioned by Interviewed scientists during an interview on a particular subject. A map of these key words describes the structure and sub-structure of a research field (Al-Jaradat, 2008).

4. Bibliometric Techniques

4.1 Citation Analysis

A scientific paper does not outshine but it is deep rooted in the "literature of the subject". The nature of this embedding is specified by the "use of foot notes and/or reference lists". The fact that a document is mentioned in a reference list indicates that in the authors mind, there is a relationship between a part of the "whole of the cited document and a part or the whole of the cited document". "Citation analysis is that arena of bibliometrics which highlights the study of these relationships. The basic instrument for this kind of study is a citation index, which is an ordered list of cited documents. There are mainly three application areas in citation analysis. ¬Qualitative and quantitative evaluation of scientists, publications and scientific institutions ¬Modeling of the historical development of science and technology ¬ Information search and retrieval".

4.2 Publication Counts

The basic technique of bibliometics is adding the total number of publication of a scientist or a group of them having the publication, while the publication count gives a quantitative measure of the total volume of research output, the qualitative 68 aspect of the publication work remains to be evaluated. The publication count, however, has its other limits also. The multiple authors, which have shown a rapid increase during past few decades owing to the availability of collaborative research, poses problems in the process of publication counts (Satpute, 2013).

4.3 Direct Citations

The direct citation count is a simple technique to determine the number of citations received by a given document or set of documents over a period of time from a particular set of citing documents, where from citation data for analysis was taken. The use of citation counts to rank journals was a technique used in the early part of the nineteenth century but the measurement of these links to rank authors and papers was mastered by Garfield at the Institute for Scientific Information.

4.4 Bibliographic Coupling

The concept of bibliographic coupling was first suggested by Fano but Kessler elaborated, tested and wined the term. "It is the number of common references cited in two documents that indicate the degree of similarity of content of the citing papers. Two source documents containing a large number of common references are said to have a high coupling strength and are likely to be on the same topic." It is observed that the concept of relationship has certain drawbacks and not seems to be valid of measurement because if two papers are citing the third paper"may or may not be citing an identical piece of information of 3rd paper being cited." The concept of Co-citation was for the first time suggested independently by Small and Marshakova almost simultaneously in 1973 and later developed by H. Small, "who proposed a new method of analyzing citations to generate the cluster of related papers." The number time two papers are cited together in the subsequent literature that determines the cogitations strength of two cited papers (Satpute, 2013).

4.5 Co-Citation Coupling

"Co-citation is a method adopted to establish a subject similarity between two documents. It papers A and B are both cited by paper C, they may be said to be related to one another, even though they don't directly cite one another If papers A 69 and B are both cited by many other papers, they have a stranger relationship. Two documents are said to be co-cited when they both appear in the reference list of a third document." The co-citation frequency is defined as the frequency with which two documents are cited together (Jahan, 2009).

CONCLUSION

This paper has useful for evaluating the potential benefits of applying bibliometrics in finding out more about scientometric usage. And information which discovered through the application of bibliometrics laws and techniques has the potential of saving time, money and other important resources which provide more appropriate programmes, and to meet more of the users and researchers required information resources collections. Scientometrics/Bibliometrics terms are best pattern for analysis the structure of literature using tools, counting, rank-frequency distribution in all disciplines.

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