



BIBLIOMETRIC ANALYSIS OF SCIENTIFIC PRODUCTIVITY

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Abstract:

“Libraries have shown a considerable degree of momentum in the collection of building and readership. Programme activities involving considerable expenditure of funds. This rapid development of libraries has, as a consequence, generated several evaluator studies on the usefulness of libraries to society.”

Keyword : Bibliometric, Analysis, Scientific, Productivity

Introduction :

During the last two decade libraries have shown a considerable degree of momentum in the collection of building and readership. Program activities involving considerable expenditure of funds. This rapid development of libraries has, as a consequence, generated several evaluator studies on the usefulness of libraries to society.

Bibliometric studies of subject literatures, especially in science and technology and social science have provided very useful data and information to our understanding of a few characteristics of information as maintained above literature of such studies is getting richer year of year.

Until recently evaluation were subjective based purely on opinion expressed by an individual or group of individuals. However, developments in the fields of social sciences and system Analysis have lead to a minimization of this subjectivity in evaluation.

Definition:

“Scientific productivity is measured in terms of publication in various forms”.

The research productivity of an institution is generally considered as the sum of the productivity in term of the number of publication contributed by individuals affiliated to the institution during a specified period of time. The contributions may be either individual or collective and they re taken as the longible output for the investment made by the institution.

Bibliometric:

The application of quantitative technique to libraries was until recently know as statistical bibliography. It was coined by Hulme in 1923.

Pritcherd used the term bibliometrics in 1969 to describe all studies which seek to quantify the press of written communication. He defined bibliometrics as “The application of Mathematics and Statistical method to books and other media of communication”.

Fairthorne defined bibliometrics as, “The quantitative treatment of the properties of recorded discourse and behavior pertaining to it”.

These definitions shows that bibliometrics aims at the examiner of the statistical distribution of the processes relating to:

- The utilization of documents.

- Library staff and
- Library users.

In order to establish theory for structural aspects of a library. It helps to evaluate Information processes and information handling in libraries and information centers by quantitatively analyzing the characteristics and behavior of documents library staff and users.

The British standards institution defines Bibliometrics as “The study of the use of documents and patterns of publication in which mathematical and statistical methods have been applied”.

Howkins interpreted Bibliometric of “Quantitative analysis of the Bibliographic feature a body of literature”.

Potter defined as “The study and measurement of the publication patterns of all forms of written communication and their authors”.

According to Sengupta Bibliometrics is “The organization classification and quantitative evaluation of publication patterns of all macro and micro communication along with their authorship by mathematical and statistical calculation”. Schradun looks upon bibliometric as the “

Scope and purpose:

The main purpose and scope of bibliometric study are following:

- The scope of Bibliometrics includes studying the relationship within a literature (citation studies) or describing a literature.
Typically this description focuses on consistent patterns involving authors, monograph, journals or subject/ language.
- It is quantitative science and it is divided into two basic categories :
 - a. Descriptive bibliometric(Productivity count)
 - b. Evaluative bibliometrics(Literature usage count)
- It sheds light on the purpose of written communication and of the nature and course of development of a descriptive means of counting and analyzing the various facts of written communication.
- It provides information about the structure of knowledge and how it is communication.
- Bibliometrics is classified as:
 - a. Descriptive bibliometrics and
 - b. Behavioral bibliometrics.

The former describes the characteristics of features of a literature; while the latter examines the relationship formed between components of a literature.

Five major bibliometric techniques:

These techniques are following:

- ZIPF’S LAW (Ranking word frequency in a particular set of document).
- LOTKA’S LAW (Number of authors contributing in a discipline of other fields.)
- BRADFORD’S LAW of Scattering
- CONTENT Analysis.
- CITATION Analysis.

ZIPF’S LAW:

Zipf’s had started his work when he was a graduate student in the 1920 . He was studying phonetic change in language. Zipf’s law deals with the frequency of occurrence at word in a text.

LOTKA’S LAW:

The original statement of what has come to be known as Lotka’s Law was made in Lotka’s journal article in 1926. The frequency distribution of scientific productivity

Mr. Manoj S. Dongardive

Lotka's Laws deals with productivity of authors in terms of scientific papers. It is also called as inverse square law.

BRADFORD'S LAW:

Bradford's observation regarding distribution of articles on a subject in different periodicals which was come to be referred as the law of scattering. Bradford published his observation first in an articles is Engineering in 1934.

Content analysis :

Content analysis aims at a quantitative classification of a given body of content is terms of system of categories divided to yield data relevant to specific hypothesis concerning that context.

Berelson defines content analysis " as a research technique for the objective systematic and qualitative description of the manifest content of communication. Thus content is an attempt to convert, symbolic behavior into scientific data.

Citation analysis :

Citation analysis is a branch of bibliometrics. It is an important research tool for understanding of science analysis.

The structure and direction of science measuring the utility of documents and relationship between documents field as well as measuring the performance of scientist. The word citation is used not only to indicate the fact that scientific paper has been cited in reference but also for a description of scientific paper. In this sense citation and reference are frequently used inter changeable to mean the location or identification of scientific paper in question.

The bibliometric literature reveals that all the models developed are based on one or the other of the followed types of data.

1. Library survey data surveys are usually conducted for a short period of time.
 2. Periodical data from bibliometric for this purpose of citation counts and for the purpose of measuring journal productivity.
 3. Recorded data circulation data, inter-library loan data etc.
 4. Data from bibliographies showing number of publication per author in a subject field.
- Most of the bibliometric models are tested and used primarily at the local level (institutional level) for the purpose of-
- a. Describing scientific productivity.
 - b. Describing the growth of publication.
 - c. Identification of core journals.
 - d. Identification the patterns of library use.

Descriptive bibliometric (Productivity count):

Descriptive bibliometric Productivity or count is divided into:

- A. Geographic
- B. Time period
- C. Disciplines.

Evaluative bibliometrics (Literature usage count):

Evaluative bibliometric of the literature usage count is bifurcated into:

- Reference count
- Citation count

Bibliometric distribution:

Bibliometric distributions are used to study:

- Frequency occurrence of words in a text (Zipf's Law)
- Productivity of authors in terms of scientific papers (Lotka's Law)
- Scattering of articles over different journals (Bradford's Law)

Mr. Manoj S. Dongardive

Bibliometric: it's application:

The techniques of bibliometrics have extensive application equally in sociological studies of science, information management, librarianship, history of science including science policy, study of science and scientists and also in different branches of social scientists.

Conclusion:

In this study the investigator have examined number of aspects related with scientific productivity.

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