

EVALUATION OF VARIOUS METRICS TERMS: ANALYSIS OF HISTORICAL BACKGROUND

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Abstract

In recent year the terms librmetry, bibliometrics, Scientometrics, informetrics, cybermetrics, and webometrics refer to fields related to the study of the dynamics of disciplines as reflected in the production of their literature. Areas of study range from charting changes in the output of a scholarly field through time and across countries, to the library collection problem of maintaining control of the output, and to the low publication productivity of most researchers. These terms are used to describe similar and overlapping methodologies. The origins, historical survey, scope, application and development of each of these terms are presented in this paper.

Keywords: *librametry, bibliometrics, Scientometrics, informetrics, cybermetrics, webometrics*

Objectives

The main objective is to know the scope & definition of different terminologies such as, Librametrics, bibliometrics, Scientometrics, informetrics and webometrics, etc. used in the field and their relevance to the field of information as well as to science.

- Studies related to scattering of articles
- Geographical distribution, language-wise distribution, institution-wise distribution of articles
- Age distribution of documents
- Distribution of citations -- subject, author, language, type, journal etc.
- Use of information storage and retrieval
- Application, in the Library Use Studies.
- To study the trends in research, and identifying the growth of literature.
- To identify authorship trends in documents on various subjects.
- to measure the utility of library services
- To evaluate the library collection, etc.

Librametry

In 1948 at the Aslib's conference in Lamington Spa, Ranganathan introduced the term Librametry for the first time. He suggested developing librametry on the lines of biometry, econometry, and psychometrics. His suggestions were avidly welcomed at the conference by Bernal and others. The term Librametrics has two roots: Libra and Metry. The word „Libra' connotes „library“ and „metrics' means measurement. Further, as the librarian of the Madras University Library, he practiced various librametric techniques way back in 1925, in order to solve day today library problems and to streamline the day-to-day library activities, services for their clientele and also for the betterment of library professional as a whole. The scope of the library is limited to the quantitative study of books, readers and staff. Here the books, readers and staff are the three constituent elements or factors of the library. The absence of any one of the three will make the library cease to exist. Each has its own potentiality and it is only a sum of the three that makes a library. Thus we can measure all the Characteristics of books, readers and staff.

The library book selection, acquisition, accessioning, classification, cataloguing, stack arrangement, publicity, reference service, circulation activities can be measured. The library reader's book use behaviour can be quantifiable. The library staff-their satisfaction, dissatisfaction-also can be measured.

Bibliometrics

The term bibliometrics was first coined by Prichard (25) in 1969 in preference to existing terminology „statistical bibliography“. The word “Bibliometrics” has two roots: ‘biblio’ and „metrics. The term „biblio“ is derived from the combination of Latin and Greek word „biblion“ equivalent to Bylos, meaning book, paper which in turn was derived from the word Bylos, a city of Phenonicia, a noted city for export trade in paper.

These definitions of librametry and bibliometrics show that librametry primarily aims at the quantitative analysis of the management of libraries and bibliometrics is limited to recorded knowledge. The publication in both the fields suggests that in librametry and bibliometrics, one examines the statistical distributions of the processes relating to the utilization of documents, Library staff, and Library users, to establish a theory for the structural aspects of library. Bibliometrics and librametry may therefore be commonly defined as areas in which one studies „information processes and information handling in libraries and information centers by quantitatively analyzing the characteristics and behavior of documents, library staff, and library users.“ (28)

Scientometrics

In the 1960s, particularly in Eastern Europe, the term “scientometrics” was used to denote “measurement of informatics process.” The term informatics was then widely used

to mean “documentation / information handling activities;” obviously, there is not much difference between bibliometrics of the West and the scientometrics of the East Europe. The term Scientometrics originated as a Russian term for the application of quantitative methods to the history of science, which studies the quantitative aspects of science. It was suggested by Dolrov and Kormoni (11), often used with same meaning as the bibliometrics to mean, “the application of quantitative methods to history of science”.

This term came into prominence with the founding of the journal named, “Scientometrics” by T. Braun in 1977, originally published in Hungary and currently from Amsterdam, The Netherlands. Scientometrics used to mean communication process in science including socio-cultural aspects, and appears to be almost synonymous with science of science with more stress on its quantitative aspects. It is also used as a generic term for a system of knowledge, which endeavours to study the scientific (and technological) system by using a variety of approaches within the area of science and technology studies. Scientometrics is concerned with the quantitative features and characteristics of science and scientific research. Emphasis is placed on investigations in which the development and mechanism of science are studied by statistical mathematical methods. Scientometrics is now considered as a part of the sociology of science and is applied to science policy making.

Informetrics

Information, in its most restricted technical sense, is a sequence of symbols that can be interpreted as a message. Information can be recorded as signs, or transmitted as signals. Information is any kind of event that affects the state of a dynamic system. Conceptually, information is the message being conveyed. The English word was apparently derived from the Latin stem (information-) of the nominative (information): this noun is in its turn derived from the verb “informare” (to inform) in the sense of “to give form to the mind”, “to discipline”, “instruct”, “teach”. Metrics means measuring. Informetrics is the study of quantitative aspects of information.

This includes the production, dissemination and use of all forms of information, regardless of its form or origin.

According to Brookes (9) the word “Informetrics” was first proposed by Otto Nacke of West Germany in 1979. FID constituted a committee with this name and Nacke was its first Chairman. Rajan, the next Chairman of the Committee, reformulated the objectives of informetrics as to

- Provide reliable data for research and development, policy-making, planning;
- To Evaluate Institutions, Projects, Articles, Products, And Other Academic Activities, And

- To identify or to develop the techniques to trace the origins and development of concepts.
- Third International conference on Informetrics was held in Bangalore in 1991.

In a short communication on “Informetrics vis-à- vis Bibliometrics: Scope and its Development”, Ravichandra Rao, mentioned that it is a field wherein the flow of information and behavior of information are analyzed, measured and quantitative relationships are established. It is a scientific field wherein the developments of measurement of impact of information are assessed continuously. Bibliometrics may therefore be treated as synonymous to informetrics having a scope to analyze quantitative characteristics of information. An FID Committee constituted with broadly defined objectives in the provision of research and technical data subsequently gave this name.

Informetrics“ was used as a generic term to mean “The use and development of a variety of measures to study and analyse several properties of information in general and documents in particular the study of the quantitative aspects of information in any form, not just records or bibliographies. Informetrics is the study of quantitative aspects of information. This includes the production, dissemination and use of all forms of information, regardless of its form or origin. As such, informetrics encompasses the fields of which studies quantitative aspects of science. It is mostly concerned with development of models to explain and identify the various characteristics of the literature. It also discusses scientific productivity, collaborative research, etc.

Webometrics

The science of webometrics (also cybermetrics) tries to measure the World Wide Web to get knowledge about the number and types of hyperlinks, structure of the World Wide Web and usage patterns. According to Björneborn and Ingwersen (2004), the definition of webometrics is "the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the Web drawing on bibliometric and informetric approaches."

The term webometrics was first coined by Almind and Ingwersen

(1). A second definition of webometrics has also been introduced, "the study of web-based content with primarily quantitative methods for social science research goals using techniques that are not specific to one field of study" which emphasizes the development of applied methods for use in the wider social sciences. The purpose of this alternative definition was to help publicize appropriate methods outside of the information science discipline rather than to replace the original definition within information science. Cybermetrics is one of the recently emerged fields in the line of metric studies. It has

gained much popularity since the mid-1990 with the advent of Information Technology. As it is mainly concerned with the computer-science-based approaches,

Conclusion

Above said metric term is concerned with theoretical and philosophical foundations of Library and information Science in the area. Metric studies are mostly dependent on data from databases such as Web of Science, SCOPUS, etc. which cover only a limited number of journals and its coverage does not remain constant since new journals are added regularly and some are dropped,

A primary objective of bibliometric research is the development of a general and systematic set of the theories from which hypotheses can be generated and tested. Scientometric studies vary from each other from several points of view.

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