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Bibliometrics, Scientometrics, Webometrics/ Cybermetrics, Informetrics and Altmetrics - An Emerging Field in Library and Information Science Research

Dr.P.Chellappandi

*Ph.D. Assistant Professor, Department of Library & Information Science
Madurai Kamaraj University, Madurai, Tamil Nadu, India*

C.S.Vijayakumar

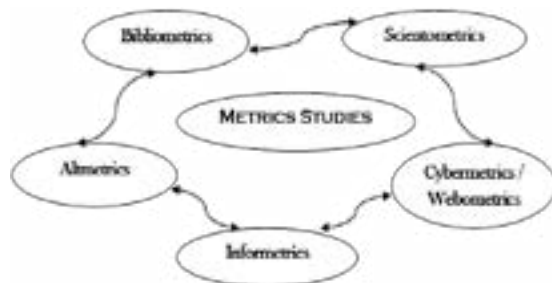
*Librarian, Sourashtra College, Ph.D Scholar
Department of Library & Information Science
Madurai Kamaraj University, Madurai, Tamil Nadu, India*

Abstract

This Article discusses the features and the use of Metrics such as Bibliometrics, Scientometrics, Webometrics, Informetrics and Altmetrics in the field of Library and Information Science Research at present.

Introduction

The contemporary research thrust areas of Library and information science based on measurement process. Present developments of Bibliometrics, Scientometrics, Webometrics and Informetrics in Library and Information Science have the capacity to understand relevant ideas from different fields of knowledge. The Scientometric study of library and information science to standardize the techniques to understand the productive pattern of authors. Scientometrics is related to and has overlapping interests with bibliometrics, Informetrics and webometrics.



Bibliometrics is a study of relationship of numbers and patterns in bibliographic data and use i.e. number of papers, growth of literature and patterns of library and data base usage. Webometrics is a quantitative analysis of web phenomena, which includes link analysis, web citation analysis, search engines etc. These terms refer to component fields related to the study of dynamics of disciplines as reflected in the production of their Literature.

Bibliometrics

Bibliometrics is a study or measurement of format aspects of texts, documents, books and information. The term Bibliometrics was first used by Pritchard in 1969, as the application of mathematical and statistical methods to books and other media of communication. It included relationship among number of papers growth of literature and patterns of library database usage. Bibliographic databases are representative samples of publication activity in the field of knowledge. Bibliometrics methods are most often used in the field of library and information science: many research fields use bibliometrics methods to explore the impact of their field. Bibliometrics has changed out all recognition since 1958.

Scientometrics

Scientometrics analyses the quantitative aspects of the production, dissemination and use of scientific information with the aim of achieving a better understanding of the mechanisms of scientific research as a social activity.

Webometrics/Cybermetrics

It is the study of quantitative aspect of web / website. Scientometrics is the study of quantitative aspect of science as a discipline or economic activity and informatics is the study of quantitative aspect of information in any form. All are interlinked and same but differ according to the subject in which it is dealt with World Wide Web.

In the information science field 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 bibliometrics and Informetrics approaches” or, more generally, “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:.

According to Thelwall, “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.

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 Bjerneborn 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 Bibliometrics and Informetrics approaches. “The term Webometrics was first coined by Almind and Ingwersen) 1997).

Informetrics

Informetrics is a sub discipline of information sciences and is defined as the application of mathematical methods to the content of information science

It is a study of qualitative aspects of information. The term informative (Informetrie- was coined by Nacke in 1979. This includes the production, dissemination, and use of all forms of information, regardless of its form or origin, Informetrics encompasses the following fields.

- Bibliometrics which studies quantitative aspects of recorded information
- Scientometric, which studies quantitative aspects of science
- Webometrics, which studies quantitative aspects of the World Wide Web
- Cybermetrics, which is similar to webometrics but broadens its definition to include electronic resources
- Informetrics deals with electronic media and thus includes topics such as the statistical analysis of the scientific text and hypertext systems, library circulations, information measures in electronic libraries, models for Information Production Processes and quantitative aspects of information retrieval.

Altmetrics

It is alternative methods of measuring the resources through social networking sites. It is the

new method of analyzing and measuring the social web resources. The digital acts of disseminating and sharing scholarly and academic production leave traces of impact, in things like download and view counts, links and mentions in citation management tools, and content sharing across a suite of social networks. These traces are being collected, examined, and considered under the umbrella term “Altmetrics” defined as “the creation and study of new metrics based on the Social Web for analyzing, and information scholarship.” Altmetrics demonstrate one aspect of the changing landscape of scholarly and academic production, dialogue, and use. Altmetrics also illustrate the changing methods of both Bibliometrics and Scientometrics. Through new tools that enable comments, and measure downloads and shares, the process of and engagement in scholarly communication and research becomes more visibly conversational between public consumers of information, peer scholars, and institutions

The five categories of metrics. Such as

- Usage e.g., downloads
- Captures, e.g., bookmarks,
- Mentions, e.g., blogs,
- Social Media, e.g., tweets, and
- Citations, e.g., Scopus

Altmetrics Tools Measure and Data Collected From

- Tweets
- Blog mentions
- Face book
- Presentations
- News articles
- Shared citations and
- Data uploads

Future of Altmetrics

- Due to growing use of Social media to share research outputs, Altmetrics will continue gaining prominence in measuring impact
- Aggregators and users will continue collaborating to refine Altmetrics web apps and develop more group and institutions reporting tools

- Standards need to be developed on collection and use of Altmetrics
- Altmetrics need to be incorporated into a systems approach to tracking and recording research impact.

System approach to Altmetrics

- Altmetrics can be harvested by third party system
- Institutional repositories
- Research information management systems
- Research profiling systems
- Open Access and commercial publishers

Advantages of Altmetrics

- Monitor social engagement with digital research output
- Competitive advantages for grant and promotion applications
- Provide evidence of social impact for performance reviews
- Provide evaluation data for reviewing social media strategy
- Provide evidence of public impact for open access artefacts
- Complement other impact data and add to impact narrative
- Open source data that is harvestable by third party systems

Conclusion

Libraries and library schools in India have been carrying out research activities on varied topics of library and information science. Dr.S.R.Ranganathan, the father of library science, laid down the foundation of research in India with his pioneering efforts. Bibliometrics study of research output is the most commonly used research method in India. Bibliometrics techniques such as citation analysis to analysis library and information science research. One of the well known relational Bibliometrics methods is co-word analyses, which projects a specific visual representation of the data its results have produced a great deal more than statistical artefact indicating that there is high interest in Bibliometrics / Scientometrics / Informetrics library system university libraries. The future of research to Library and Information Science depends

upon the web analysis and Information analysis with the recent development in metric analysis of informatics, Scientometric, webometrics and Altmetrics. The scientific approach to prove the results of productivity to enhance the research and development with qualitative analysis is possible by library professionals encourage the faculty members and research scholars through the results and impact factor of their work in all the disciplines of the study in the higher academic institutions

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