ABOUT THE BOOK

Due to a shift in concept from print to online, restricted to open access, learning to e-learning, classroom learning to interactive learning, and globalization of information, ICT and web-based environments have changed the dimension and definition of earlier librarianship practices over the last three decades. Because of the emergence of web-based Information and Communication Technologies (ICT) and globalization of networks, as well as the rapid growth of new information, the usage of traditional resources in information management has decreased, and automation of information centers has become essential. The use of web-based library services is growing in popularity. The primary aim is to assist and inform users about how to find, analyze, and use materials effectively. To overcome their problems, librarians can take the lead in offering better web-based library services to their tech-savvy clients. The book's content will help library and information professionals appreciate different web based library services as well as new digital technologies and how they can be used to modernize library facilities by offering a lot of insight into the topics covered.

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Web Based Services in Library and Information Science

Ksh Krishna Devi, Sur Chandra Singha, Manoj Kumar Verma

SHREE

Web Based Services in Library and Information Science

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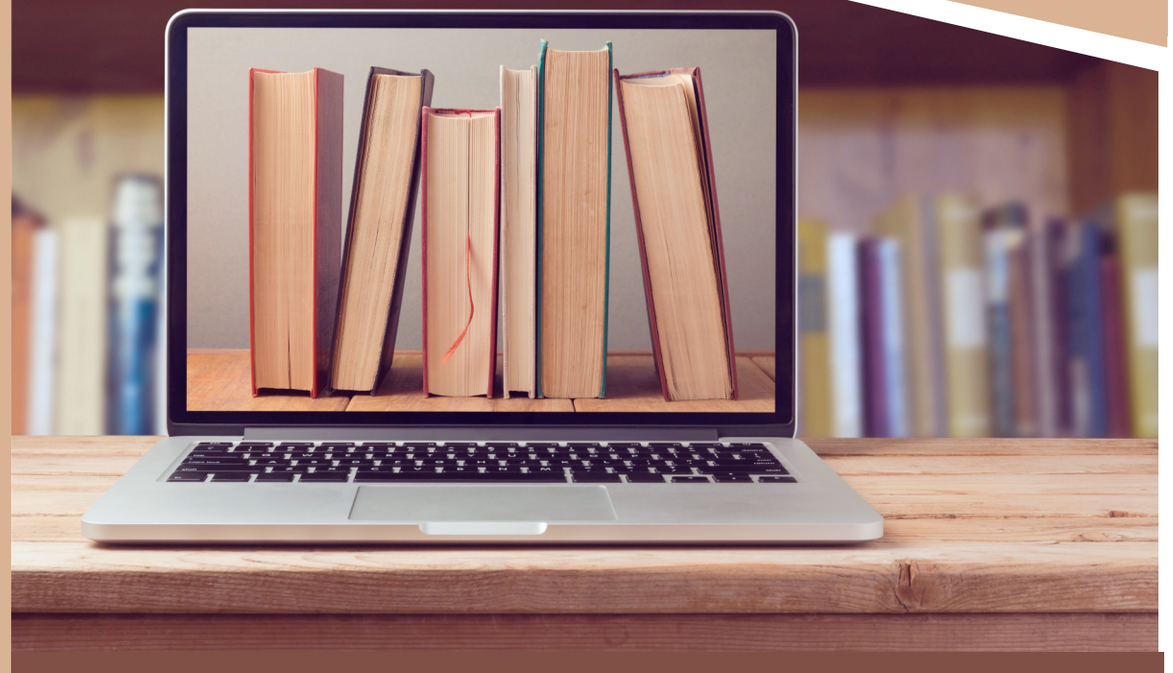

Web Based Services in Library and Information Science

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Preface

The use of conventional resources in information management has been reduced as a result of the advent of web-based Information and Communication Technologies (ICT) and globalisation of networks, as well as the rapid growth of new information, and automation of information centres has become imperative. Eventually, the role of librarians has expanded to include information management and the application of cutting-edge tools and technology to provide better information services in a web-based environment. Library services refer to the services offered by a library for the use of books and the distribution of information to meet the needs and requirements of its users.

The first generation of information retrieval tools was designed with bibliographic databases. As an automation feature, the second generation of tools tries to collect and index resources. The third generation is obsessed with meta search engines on the World Wide Web. The fourth generation includes new concepts such as search agent technology, which is currently being developed to locate knowledge on the internet.

Web-based library services are predominantly delivered through the library portal, which is a specific form of portal to web-based library resources. It allows for seamless access to the metadata of a library's different databases. It compiles a range of useful information resources into a single website, enabling users to personalise their information resources by choosing and accessing information that is important to them.

Web-based library services are becoming increasingly popular. The primary objective is to serve and teach users how to effectively locate, evaluate and use materials. The librarians should take the lead in delivering improved web-based library facility to their tech-savvy clientele to resolve their issues. The librarians must assist the users in evaluating the accuracy and utility of the knowledge they encounter. The book deals with the opportunity, strategy and new trends of web based library services in the present scenario.

—Editors

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Contents

Databases and Research Metrics

Yogita Talwar*, D.D. LAL**

ABSTRACT

Citation metrics are one of the most widely used tool for evaluating journals for submission. Academic evaluations around the world are based on publications in journals indexed in Scopus databases or Web of Science or in journals with impact factors more than a specific no. In the1961 publication of the Science Citation Index (SCI), Eugene Garfield and Irving Sher invented the Impact Factor, than developed it from an author-level metric into a journal-level metric, before entering large scale utilization with the publication of JCR in 1975. In order to help them determine subscriptions, this metric provided a short-hand way for librarians to measure the amount of use a journal is expected to receive. Conditions for inclusion in these databases vary depending on various factors. With the least articles indexed, then Scopus, the main collection of databases of Web of Science have the strictest conditions or standards. Technological infrastructure and interoperability between other systems, Editorial policies, ethical policies and conduct, presentation of websites and standards of editorial process are the main criteria followed to assess journals by both these databases. Indexing criteria in Google Scholar has not any strict standards like editorial and citation profiling criteria. It depends on data-mining and web-crawling of technological accessibility. These metrics can help to reassure the standards with which your submission will be treated as best.

Keywords: *Web of Science, Scopus, Citation Based Metrics, PubMed, Impact Factor, CiteScore, SNIP, SJR.*

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INTRODUCTION

Research metrics can help to recognize journals for publication, to track research in a specific field and to recognize partners of potential research i.e. Scopus, Web of Science and Google Scholar etc. Citation tracking may be helpful to know a specific article how many times others have cited. Web of science offers large number of databases. Scopus is the most widely used citation database at present. Citation indexes help to access academic literature and track the progress of subject's debates. Conditions or standards of Scopus (The main collection of databases of Web of Science) are very strict, whereas, strict standards like editorial and citation profiling criteria aren't followed by Google Scholar.

WEB OF SCIENCE

Web of Science is an online subscription-based citation indexing service. Web of science offers numerous databases that reference cross-disciplinary research and which take into consideration exhaustive citation search. It's related to the scientific discipline and depth investigation of particular sub-fields. It comprises of six core databases and various specific collections. It presently contains over 160 million records, more than 1.7 billion cited references and regional databases. The Conference Proceedings Citation Index (CPCI), the *Emerging Sources Citation Index* (ESCI) and the *Science Citation Index Expanded* (SCIE) are the examples of Clarivate Analytics' Web of Science databases.

SCOPUS

Elsevier's Scopus is the major abstract and citation database of world. It includes Peer-reviewed scientific journals, conference proceedings and books which cover all research subjects related to scientific, technical and medical disciplines. The databases as of now contain in excess of 75 million records and more than 1.4 billion cited to references. Analyze and visualize research, a variety of smart tools and metrics to track are additionally offered by Scopus.

MEDLINE

Medline is the premier bibliographic database of U.S.National Library of medicine. Journal articles in life sciences with focuses on biomedicine over 25 million references are included in it. The subject extent of MEDLINE is biomedicine and wellbeing, extensively characterized to incorporate those zones of the chemical sciences, behavioral sciences life sciences and bioengineering required by health professionals as well as engaged in clinical care and basic research, activities related to education, public health and health policy development. Plant and animal science as well as biophysics and chemistry, environmental science, marine biology, researchers and

educators, including aspects of biology, biomedical practitioners are also covered by MEDLINE.

PUBMED CENTRAL (PMC)

PMC is a free full-text digital archive of biomedical and life sciences journal literature. NCBI, a division of NLM at the NIH has been developed and operated by PMC. Now, PMC contains over 5.9 million full-text articles spreading over a few centuries of life science research and biomedical. Publishers' participation in PMC is voluntary. Certain scientific and technical standards must be followed by the participating journals and content must be kept according to the NIH Public Access Policy.

DIRECTORY OF OPEN ACCESS JOURNALS (DOAJ)

DOAJ is an online directory of open access journals. Their objective is to be the beginning stage of all information searches for open access, peer -reviewed and quality material. As of now, DOAJ contains on excess of 14000 open access journals and over 4.6 million open access articles relating the fields of humanities, medicine, social science, science and technology. DOAJ has open access journals from 133 countries. Its main goal is to increase the perceivability, availability, use, reputation and effect of quality, peer-reviewed open access journals around the world, topography or language.

EI COMPENDEX

Engineering Index - COMPuterized ENgineering index (Elsevier's Ei Compendex) is the world's main engineering literature database. It contains more than 20 million records from 77 nations related to 190 engineering disciplines of holistic and worldwide perspective on peer-reviewed and indexed publications.

PUBMED

PubMed has been developed and operated by NCBI, a division of NLM at the NIH. It is a free search engine which gives access to references and abstracts from the field of life sciences and biomedical. PubMed includes in excess of 30 million references and abstracts, basically from MEDLINE yet additionally from PMC. Life science journals and books also cover the subjects of bioengineering, chemical sciences, behavioral sciences, life sciences and biomedicine and health. Numerous PubMed records additionally contain connections to full-text articles, some of which are freely accessible (in PMC).

PORTICO

ITHAKA's part the Portico digital preservation service a non profit organisation whose main objectives are to "help the academic community use

digital technologies to preserve the scholarly record and to advance research and teaching in sustainable ways". The Portico archive at present contains in excess of 88 million journal articles, over 1 million books and in excess of 4 million other digital material from 663 participating publishers. It provides permanent access to digital material (e-books, e-journals etc.) for students, scholars and researchers.

CHINA NATIONAL KNOWLEDGE INFRASTRUCTURE (CNKI)

CNKI is a major information access project developed by Tsinghua University and upheld by the PRC ministry of Science and Technology, PRC Ministry of Education, PRC Ministry of Propaganda and PRC General Administration of Press and Publication. It is the platform for worldwide dissemination and value added services. CNKI contains more than ninety percent of China information resources. The International DOI Foundation in 2013 was assigned CNKI as the second agent of DOI in China. A large portion of the Atlantis Press journals and proceedings content is indexed in CNKI.

WANFANG DATA

The Chinese Ministry of Science and Technology is associated with Wanfang Data. The access of wide range database resources is given by the Wanfang Data. It provides information related to engineering, science, business, medicine and Chinese culture etc. These e-resources include in excess 43 million journal articles, near to 5 million dissertations and theses, over 4 million conference papers and a wide assortment of Chinese statistical data, patents etc.

DBLP COMPUTER SCIENCE BIBLIOGRAPHY

dblp is an an online reference beginning at the University of Trier in 1993 and claimed by the Leibniz-Zentrum für Informatik since 2018, it advanced from a little test web server into a famous open-data administration for the people of computer science field. It's aim is to support researchers by giving free access to best quality bibliographic metadata and links of publications in electronic form. The dblp as of now indexes by over 5.1 million publications, published by more than 2.5 million authors. All computer science journals of Atlantis Press are indexed in the dblp.

ULRICHSWEB

Ulrichsweb of ProQuest is the main online library directory and database for magazines, journals, newspapers and periodicals. All things considered, it is viewed as the worldwide authority for serials information and analysis which contains in excess of 383,000 serials from more than 90,000 publishers covering 977 subjects and 200 languages. TOCs, ISSN, title, publisher, online

accessibility, area of subject, language, prices list etc. are accessible through records.

GOOGLE SCHOLAR

Google scholar is a web search engine which is freely accessible. It indexes the full content or metadata of scholarly literature over a variety of publishing formats and different subject areas. Google scholar index contains peer-reviewed online journals and books, technical reports, theses and dissertations, conference papers, abstracts and other scholarly literature as well as court opinions and patents. It is assessed to contain in excess of 160 million documents and keeps on covering around 90% of all articles distributed in English.

RESEARCH METRICS

Research metrics are the key devices utilized over the publishing business to quantify performance, both at journal and creator level.

For quite a while, the Impact Factor was the main apparatus for evaluating journal performance– more on that in a moment. Different type of research metrics are available now. This "basket of metrics" is developing each day, from the conventional Impact Factor to Altmetrics, h-index, etc.

Many questions are in mind like, what do they all mean? How is every measurement determined? Which research measurements are the most pertinent to your journal? Also, how might you utilize these devices?

Continue perusing for a more top to bottom gander at what's in the "basket of metrics" and how to decipher it.

CITATION-BASED METRICS

Impact Factor

For assessing journal performance, the Impact Factor is likely the most notable measurement. Intended to assist library professionals with collection management during 1960s, it has since become a well-known way for journal quality.

It is a simple research metric. Impact Factor is the average number of citations got by articles in a particular journal within a two- year window. For Example:

The no. of times article published in 2017 and 2018 were cited by indexed journal during 2019= **400**

The total no. of "citable items" published in 2017 and 2018=**140**

Impact factor 2019= **400/140= 2.85**

Based on this method of calculation, the Web of Science Journal Citation Reports (JCR) publishes the official outcomes every year.

The Disadvantages of The Impact Factor

- **The Impact Factor is an arithmetic mean:** This implies that one highly cited to article can have a significant constructive outcome on the Impact Factor, skewing the outcome for the two years. Most journals have a highly-skewed citation distribution, with a handful of highly-cited articles and low- or zero-cited articles.
- **The journal citation report doesn't differentiate citation made to articles, reviews or editorials:** So the Impact Factor doesn't penalize journals that distribute once in a while cited to content like book reviews, editorials or new things, these substance types are not included in the denominator of the computation (the total no. of publications inside the two-year time frame).
- This creates two fundamental issues. (a)Not subjective classification of content is possible, content like as abstracts or creator editorials fall into an unusual gray area. (b) Also, if such articles are cited to, they increment the Impact Factor with no counterbalance in the denominator of the equation.
- **Only number of citations is considered by the Impact Factor:** An article might be highly cited for many positive and negative reasons. The research in a given journal is being cited to show a high impact factor. . It doesn't demonstrate the specific circumstance or the publication's quality citing the research.
- **You can't draw comparison between Impact Factors like-for-like across various fields of subject:** Distinctive areas of subject have diverse patterns of citation. These patterns reflect their Impact Factors. For example Cell science or general medication has higher impact factor and arithmetic or history has lower impact factor usually.
- The distinction in Impact Factor is just an impression of contrasting citation patterns, database inclusion, and journals' dominance between the all subject areas. A few subjects for the most part have longer reference records and publish more articles, so there's a bigger pool of references.
- **Annually shows significant changes by Impact Factors, particularly in smaller journals:** Impact factors vary annually due to irregular variances because of average values of Impact Factors. This variation is depending on journal size (how many articles published in a year). The smaller journal has larger expected variation and the bigger journal has smaller expected fluctuation.

THE 5-YEAR IMPACT FACTOR

It is a modifed rendition of the Impact Factor, utilizing five years' data instead of two.

The 5-year Impact Factor is a changed rendition of the Impact Factor, utilizing five years' data instead of two. A diary must be secured by the JCR for a very long time or from Volume 1 preceding accepting a 5-year Impact Factor. According to this modified version JCR must cover a journal for five years or from Vol. 1 before receiving five years Impact Factor.

Calculation of the 5-Year Impact Factor

The 5-year Impact Factor is more helpful for subject areas where it takes more time for work to be cited, or where research has greater life span. Smaller titles have more stability as there are bigger no. of articles and citations included in the computation. It is actually facing the same problems as the conventional Impact Factor.

Eigenfactor

The Eigenfactor calculates the impact of a journal based on whether it is cited within more than 5 years in other journal. A citation from journal with few citations is worth less than from a highly cited journal. The length of reference list is also biased for calculating a citation, for subject area to adjust. The Eigenfactor is determined utilizing an algorithm to rank the impact of journals as indicat ined by the citations they get. A journal self-citation is excluded and utilized a 5 years window.

The Eigenfactor doesn't consider the size of journal. In this score Eigenfactor is higher of larger journal as they get more citations. Eigenfactors additionally will in general be minuscule numbers as scores are scaled so the total of all journal Eigenfactors in the JCR adds up to 100.

CiteScore

CiteScore is the proportion of citations to document published. It's right now accessible for series of book and journals which are indexed in Scopus. All content published in a journal is considered in CiteScore, not only reviews and articles.

In December 2016, Scopus produced CiteScore and everyone can simply imitate it through the Scopus database. A monthly CiteScore tracker and CiteScore percentile based on subject categories are also published by Scopus as additional rankings.

A lot of front matter is published in a journal (for example, peer-reviews and editorials) will perform worse by CiteScore comparatively to Impact Factor. For this reason, this front matter is rarely cited.

The no. of citations receives by journal in a year to document published in the previous 3 years

No. of documents indexed in Scopus published in same 3 years

Differentiate between CiteScore and Impact Factor

1. Instead of Web of Science, CiteScore is based on the Scopus. In certain subject fields, the no. of citations and journal coverage are outstandingly higher.
2. A three- year citation window is utilized by CiteScore, while a two-year citation window is utilized by Impact factor.
3. Whole content published in the journal is considered by the CiteScore denominator but only articles and reviews are considered by the Impact Factor denominator.
4. Every subject area is covered by the CiteScore, though the Impact factor is just accessible for indexed journals in the SSCI and SCIE.

Impact Factor and CiteScore are facing same issues: both are not comparable across disciplines and mean is determined from a skewed distribution.

SOURCE NORMALIZED IMPACT PER PAPER (SNIP)

It is a journal level metric. Exact subject-specific characteristics and comparable across disciplines between different journals are endeavored by SNIP. Using Scopus data, it calculates citation got against citations estimated for the subject area. SNIP is published two times every year and looks at a three-year term.

Cross-disciplinary comparison is possible through the sources standardizes by SNIP. According to this, a Citation measure from publication of any document with lengthy reference list has a lower value.

Only specific content types (Conference papers, articles and reviews) citations are considered by SNIP. Which citations are classified as "non-citing sources" by Scopus are not considered by SNIP. Numerous Arts and Humanities titles and trade journals are considered by SNIP.

SJR

The main objective of Scimago Journal Rank (SJR) is to estimate the effect of area of subject, prestige of a journal and quality on citation. SJR measures the reputation of a journal by including the values of sources that cite it, rather than equally counting all citations.

The SJR of the citing journal is weight based for a journal to receive every citation. In this way, a journal's citation with high SJR value is worth in excess than a journal's citation with low SJR value.

SNIP, CiteScore and SJR, all are determined through utilizing Scopus data.

IMPACT PER PUBLICATION

IPP also referred to as RIP (raw impact per publication), The SNIP is based on the IPP.

IPP:

No. of current year citations to papers from the previous three years

The total number of papers in the three previous years

H-INDEX

It is attempt to calculate researcher's productivity and the impact of their publications on citations. For example (a) you will have a h-index of 15 if you have published at least 15 articles, each of which has been cited15 times or more.

For example (b) Prepare a list of all publications, arrange papers in descending order, based on the no. of times articles have been cited.

In list find out at what point the no. of times a publication has been cited is equal to or greater than the article's line number.

Articles	1	2	3	4	5	**6**	7	8
Number of Citation	29	27	25	14	8	**6**	3	2
h-index	=	**6**						

Definition: According to Hirsch in 2005 "The *h*-index is An Author-Level Research Metric"

Advantages of h-index:

- **Results don't skewed:** The key benefit of the h-index is that a small number of highly- cited papers are not skewed upwards. A long tail of poorly-cited work is also not skewed downwards.

  The h-index rewards researchers who have regularly well cited their work. It can have a big impact on a handful of well-placed citations.

Drawbacks of h-index:

- **Results may not be reliable:** The basic calculation of the h-index is well defined, various databases or time framers can also be used to measure it, providing different results. Usually, the bigger the database, the higher the h-index measured from it. A h-index received from Web of Science, Scopus, or PubMed always be lesser than from h-index taken from Google Scholar. It should be noted here that Google Scholar can contain duplicate records of same publication, so Google Scholar is not a reliable dataset.

- **Self-citations may skew the outcomes:** To boost their h-index, writers should cite their own work because some self-citation is legitimate.
- **Results across disciplines are not comparable:** Subject varies widely the h-index, but in the life sciences an average h-index will still be higher than a social sciences' good h-index. H-indices cannot be benchmark because they are uniformly measured using the same approach for large populations of researchers.
- **Results among researchers cannot be compared:** Researchers' h-index with long history of publications, considering review papers may not be compared fairly in the similar field of post-doctoral researcher neither with seniors from another field. Numerous review articles published by researchers will generally have good higher citation receives than other researchers.

ALTMETRICS

"Altmetrics" also known as Alternative metrics. By watching at the social activity it helps to measure the impact of a journal. In addition to conventional citation-and usage-based metrics, they use quantitative and qualitative data to provide an impact of academic research.

Attention and influence. The Altmetric Attention Score is the most popular method of reporting on altmetrics. According to the discussions happening around academic research, this approach tracks different type of online sources.

Researchers measure their impact from papers, data sets, websites, blog posts, and more with the help of Altmetrics.

How to Measure the Altmetric Attention Score?

Every online mention research piece and volume, sources, and authors based weights the mention is monitored by Altmetric. A cite in an international newspaper leads to a greater score than a research tweet.

Merits of the Altmetric Attention Score

- **Receive immediate track able feedback:** When academic research published and is online mentioned, Altmetric start tracking. It means that to get feedback on research piece there is no need to wait for citations.
- **Attention, impact and influence related view provide clearly:** The data collected by Atmetric gives a more all-encompassing, impact, Complex view of attention and influence of a research piece than conventional citation-based metrics. Altmetric Attention Score will show not just the online mentioned nature and volume no. but also providing who is discussing about the research, where these discussions are taking place in the world and what type of online channels they are using for this purpose.

Demerits of the Altmetric Attention Score

- **Data biases which Altmetric collects:** Concentration on sources of English speaking is now in propensity (according to Juan Pablo alperin's thinking). Bias related to science, technology and medicine (STM) are also there. But that is partially a result of online activity surrounding research.
- **Limited to online attention tracking:** For the purpose of tracking digital discussions, The Altmetric Attention Score was constructed. This ensures that sources with little direct online presence (such as a sculpture or a concert) are not considered in this approach. Altmetric can only detect mentions even for online discussions when the source either references the DOI of the article or uses two pieces of information i.e. title of the article and author's name.

  Journal Metrics, such as Impact Factor, can help track citation patterns within journals and determine which journals are highly-cited.

  Author Metrics measure the impact and productivity of a researcher.

  Article Metrics, or citation tracking, can be used to determine if an article, book, journal, or particular author has been cited by another work.

  Altmetrics help researchers measure their impact from papers, data sets, websites, blog posts, and more.

  Institution Metrics measure an institution›s overall impact based on the publications of its authors and the number of times they have been cited.

Identification of the Right Metrics for Journal

To track the success of your journal, you first determine which research metrics are the most relevant. For this purpose, keep in mind the main objectives of your journal. It can help to organize few key questions:

Who is Your Target Audience?

Academic citations may be less valuable for journals with a practitioner's emphasi s than those listed in policy documents (according to Altmetric). Traditional citation metrics i.e. Impact Factor are appropriate if the journal is merely for academicians. Geographical usage might be significant if the journal has a regional attention.

What are you Trying to Achieve?

If target is to publish high-impact authors, more high-quality, take evaluating the authors' h-indices in latest volumes to determine whether this is achieved. If your intention is to boost your profile of journal within the larger community then taking Altmetrics makes sense. If your target to create more

citations within your field from high-profile publications, so it would be helpful to look at Eigenfactor rather than Impact Factor.

What Subject Area are you Working in?

Appropriateness of various research metrics differ immensely across disciplines. Impact Factor is relevant? Is the 5-year Impact Factor envoy of your subject's citation patterns? What metrics do your rivals use? Instead of taking particular metrics in isolation, it may be more useful to think about the ranking of your journal within its field.

What Business Model Does Your Journal Use?

Utilization can be specifically crucial for journals adopting a conventional subscription model. For library professionals, it is a crucial concern when it comes to renewals.

How to Interpret Research Metrics?

Think less about "what" to accurately view your metrics and use their metrics as a starting point to research deeper into "who", "how", and "why":

- Who is the reader of journal? Where do they base themselves, what's their position and how do they access it?
- Who are your field's main authors? Where are they now publishing?
- How do users respond to your article? Are users citing it in journals, listing it in documents of policy, discussing on Twitter about this content?
- How is developing your field? What are the current burning topics, new subject areas and the major discussions?
- Why was a particular content successful? What was the reason of taking specific content by media, what recently received citations from other journals and who was conversating related to this topic?

CONCLUSION

Research papers are published in journals. Impact and metric of an article is determined on the basis of the no. of times it has been cited. Everyone can track who cited a book or a research paper etc. Searching for citations is helpful in assessing the impact of a publication, book or author. It can be helped to recognize journals for publication, to track research in a specific field and to recognize partners of potential research i.e. Scopus, Web of Science and Google Scholar etc. Citation tracking may be helpful to know a specific article how many times others have cited. In citation count, articles indexed in a particular database just count the no. of times article cited. Higher citation no. is provided by Google Scholar because a citation for one article may be counted more than once, or links from Wikipedia and other websites may be counted. Citation indexes help to access academic literature

and track the progress of subject's debates. It helps to identify the best articles on a specific topic and the leading scholars or academicians. Response to a particular topics, criticisms, corrections, and retractions to specific publication are recognized by citation tracking. It is a way of assessing trends of research and gives information related to emerging areas of research. Citation metrics and their databases may provide useful assurance of the journal's quality and give few insights into the viewers and probable impact of an article might have.

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