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Indexing: History, Concept and Practice

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ABSTRACT

Indexing is as crucial an aspect in research as the content and its methodical approach guides scholars to find desired content efficiently. This article comprises an overview on indexing and various aspects the process entails from start to publication. Regarding the process, this article shares the rich history of indexing, the role of indexing agencies, indexing parameters and the different types of review methods most often used.

Keywords: Indexing, Review Methods, Indexing Agencies, Indexing Parameters

In present understanding, indexing is a list or an arrangement of words in a certain order. Indexing is a methodical arrangement of names, definition or titles, typically, in an alphabetical order to assist or guide researchers to find desired content with as less time as possible.

Modern printing had emerged in the 1440, which resulted in a wide array of medical texts being published. In the 1460, printed book indexes emerged and this first bible concordance in the year 1544. Among all the versions of concordances, "Complete concordance of the Holy Scriptures" published in 1737 by Alexander Cruden is still available today. The first ever index in English Language was printed in 1755 in "A dictionary of the English Language" by Samuel Johnson.

In 1877, the Index Society was created in London with the intention of creating a general index which of universal literature. With the assistance of Dr Henry Wheatley, the society continued into 1890. Eventually, women starting contributing to the codifying of indexes resulting in the Society of Indexers being formed in Great Britain in the year 1957.

While Britain was advancing on this front, William Frederick Poole began his index in the United Stated which was published under H.W. Wilson Company and others. It was during this time that Paul Otlet started a universal index called the Universal Bibliographic Repertory. This was the only index that contained over eleven million entries. Paul Otlet also anticipated the emergence of the internet in which he described that an individual would be able to access knowledge through a screen.

Since the conception of computers and internet, it has assisted in creating huge databases of indexes. It has assisted in making a paramount of information accessible to researchers and scholars making the profession of indexing crucial. There are various types of indexing that have emerged over time, in a way of sharing knowledge and information, at the same time acknowledging the work of another individual. This is

commonly known as citation and it was first witness in the New Testament in the bible, where the New Testament cites the Old Testament.

The profound impact of citation was made by the effort of Eugene Garfield between 1951 – 1955, where he established the Institute of Scientific Information (ISI) which enhanced learning, acknowledged the authors and created a space for interconnections.

Indexing Agencies

Indexing Agencies provide citation indexing services and the most trusted are as follows:

Scopus

Scopus (Elsevier) is a bibliographic database that contains abstracts and citations for academic journal articles. Currently, it covers 21,000 titles from over 5000 publishers.

Scopus has their own independent review board and follows a transparent process. When it comes to selecting a Journal, it needs to follow certain criteria, as follows:

- It must consist of peer-reviewed content and the peer review process must be publicly available.
- The articles of the journal must be published on a regular basis and must mandatorily have an International Standard Serial Number (ISSN) under the registration with the ISSN International Centre.
- The Journal must have content that is of significance, simple and accessible to the international audience, with references in the Roman script and have suitable English language abstracts and titles.
- The articles of the journal must also maintain a publicly suitable publication ethics as well as a publication malpractice statement.

The Content Selection and Advisory Board (CSAB) at Scopus are committed to find and maintain the standards of the research community. Typically, the journals eligible for review are evaluated on five categories, as follows:

- Journal Policy
- Content
- Journal Standing
- Publishing Regularity
- Online Availability

Index Copernicus

For a journal to fulfill indexation standards in the ICI Journals Master List database it should possess:

Scientific character

To ensure scientific character of the work, the articles must present results of original empirical, theoretical, technical or analytical research, with the title of publication, authors' names and surnames along with their affiliation and articles that present the current state of knowledge, research methodology, tenor of research process, research results and conclusions along with cited sources (bibliography).

Minimum number of published research papers

It depends on the number of articles published by a particular journal.

ISSN number

A journal may be in paper form with ISSN number, in electronic form with eISSN number or in both forms.

Scientific journal was published the whole evaluated year

This condition means that the Editorial office should publish as many issues as it stems from a journal frequency. If a journal was established in evaluated year, it is a quarterly journal and only 2 issues have been published so far, the evaluation will be possible in the next indexation year.

Active and up-to-date website

If a journal does not have separate website, the website of the Publisher, university with a special section dedicated to the journal may be provided.

Published review procedure of research papers

Non-compliance with one of the above-mentioned condition shall result in refusal of indexation. Journals

that do not meet formal or preliminary requirements, do not have enumerated current ICV index will remain rightful owners of the Passport in the ICI World of Journals database. Editorial offices are able to regularly update the data about the journal, enter published articles or submit for evaluation in the following year.

In the indexing policies mentioned above, it can be observed there are certain common themes that prevail among the indexing agencies. It is of utmost importance that the work be original and be scientific in nature. The content must be presented on a public platform to gain support to be refuted, with the intention of enhancing the work of the author. It is preferable if the journal had an International Standard Serial Number and ensured certain number of publications, consistently.

Google Scholar

In order to improve its ranking, various versions of the article are put together

In many research areas, versions of an article may appear as preprints and conference papers before being published as a journal article. These versions are often cited in the main journal version. To determine its rank in Google Scholar, the number of citations for an article plays an important role, hence, grouping all versions of the work becomes essential.

Publisher's full-text, if indexed, is the primary version

When multiple versions of a work are indexed, the full and authoritative text from the publisher as the primary version will be chosen by Google Scholar.

Publishers have control over access to their articles

Once the primary version is been given to Google Scholar, the publishers have all access over the content.

Google users must see at least the complete abstract or the first full page

This is a necessary component of their indexing program. For papers with access restrictions, all users clicking on search results must see at least the full author-written abstract or the first full page of the article without requiring to login or click on additional links.

Indexing Parameters

Indexation of journals has been given more prominence as it implies the quality of the articles published. Along with finding suitable content, it also creates visibility among researchers as it considers being of higher scientific quality as compared to other scholarly articles. There are many indexing parameters introduced to authenticate and rank the quality of work of researchers across different disciples.

H index or Hirsch Index was developed by Jorge E. Hirsch in 2003 as he had observed that the authors of the article were not given due recognition. According to the h-index, "h" is referred to the *h* number of articles being cited *h* number of times. (Cleveland & Cleveland, 2013). For example: if the h-index is 10, then the individual would have 10 articles cited 10 or more times.

The advantages of h-index include due recognition given to the researcher. It also emphasizes on the quantity as well as the quality or impact of the articles published by the researcher and easy to calculate (Costas & Bordons, 2007) The contribution made by the researcher can be viewed objectively based on the number of citations by the researcher (Costas & Bordons, 2007). It can assist in making decisions like promotion or awarding prizes based on their work.

Limitations of the h-index could include that the productivity and practice of citations could differ across disciplines making comparison unfair (Hirsch, 2005). In order to get h-index, the article by the researcher needs to be cited "h" number of times, though other articles of the researcher gets cited, the h-index of the researcher does not increase as the articles may not be cited "h" number of times (Egghe, 2006). Since, the h-index is easy to obtain, many other authors may be quick to generalize the credibility of the author in a single factor, however, a successful research is multifaceted. The possibility of self citations in h-index is high which may provide an incorrect impression of the researcher. Lastly, it could difficult to obtain the correct scientific output of a researcher if their names are too similar (Hirsch, 2005).

Eigenfactor Score was developed by Jevin West and Carl Bergstrom in the University of Washington and considered to measure the journal quality that represents the number of times a researcher has been directed to a particular journal (Sugimoto & Larivière, 2013). For example: If the Eigenfactor score for a certain journal is 5, it indicates that the researcher spends 5% of his or her time on that particular journal. This indicates that higher the Eigenfactor score of a journal, higher is the impact of its publications on the scientific community.

Some of its advantages include that it reduces the occurrences of self-citations. The Eigenfactor algorithm decreases disciplinary distortions by relying on proportions rather than definite citations (Sugimoto & Larivière, 2013), it attempts to reflect the prestige of the journals in the academic setting. This index parameter included a built-in evaluation of five years and can be used for free. It seeks to provide an accurate representation of the merit of citations. (Cornell University Library, 2019). A few disadvantages include that the Eigenfactor score provided scores to a single category which increases difficulty for comparison among disciplines. (Cornell University Library, 2019). The Eigenfactor method has a higher incidence for manipulation and also brings a comparison between the larger journals with the smaller journals (Ding, Rousseau, & Wolfram, 2014).

Journal Impact Factor is yet another measure that indicates the quality of journal publications. The Impact factor measures the frequency with which an article has been cited in a particular year. It helps provide the ranking or the importance of a journal based on the number of times it has been cited. The impact factor is an objective measure that indicates evidence regarding to the ranking of journals with regard to competition. It assists in managing library journals by researchers (Penava & Kust, 2015).

Though the Impact Factor provides a gross approximation of prestige the journal has achieved, it can also be observed that the impact factor of the journal does not necessary indicate the quality of every journal publication. The journals are ranked on a global basis, which includes other languages (Penava & Kust, 2015). Not all content has been translated to English creating an obstacle of researchers. It reflects more on the journal which is popular rather than its true reputation. This may pressurize authors to publish papers in a journal with a high impact factor and due to this factor, tend to avoid the domestic journals (Penava & Kust, 2015).

Among the many parameters, the impact factor and i-10 index stand out. Not only are they most prominently used but they are simple and aim to be as precise as possible. Google Scholar developed a tool called the i-10 index in July 2011 which signifies the number of publications by the researcher that has been cited 10 times. It not only assists the researcher in keeping track of their citations but also produces the h-index and the i-10 index. Some of the advantages of i-10 index include that it is user friendly and straightforward. This service provided by Google is free of cost. However, this service is limited only to Google Scholar.

REVIEW METHODS

Peer Review in the context of publishing, is the process of intense scrutiny and evaluation on the scholarly works of a researcher/author by experts in the field to authorise publication. There are essentially two main types of Peer Review. They are as follows:

Closed Peer Review

Single Blind: This refers to a method of reviewing where the reviewers are aware of the author; however, the authors are unaware of their reviewers. Though it ensures anonymity of the reviewer, it could result in personal bias during review of the paper/article.

Journals that follow the single blind review process include Clinical Psychology Review and Psychology Research and Behaviour Management.

Double Blind: This closed review method ensures that both, author and reviewer are unaware of each other. Though the reviewer or author could have an idea of who the other could be, it still reduces personal bias.

Journals that include the double blind process include International Journal of Clinical and Health Psychology and International Journal of Psychological Studies.

Triple Blind: This closed review method ensures that the author, reviewer and handing editor is mutually

anonymous. Journals that use this type of review process are Cultural Trends and Journal of Applied Behavior Analysis.

Open Peer Review

In this review process, both the author and the reviewer are aware of each other. This ensures transparency between both parties. However, it could result in a certain amount of fear of the reviewer.

The Journals that use this type of review process include Behavioral Sciences, The Open Psychology Journal and European Journal of Investigation in Health.

The concept of Open Journals

Open access journals were created with an aim of creating a safe platform that could provide unrestricted access to scientific literature to researchers without any cost, be able to view scientific knowledge as per their interest.

Researchers are also able to submit their contributions in the form of original manuscript which will undergo certain quality checks before approved for publication, Once approved, the article will be available through different social media which follows open access regulations.

Need for Index

Indexation of journals has been given more prominence as it implies the quality of the articles published. Along with finding suitable content, it also creates visibility among researchers as it considers being of higher scientific quality as compared to other scholarly articles. There are many indexing parameters introduced to authenticate and rank the quality of work of researchers across different disciples.

The main value of an index is the manner in which it is organized. If the index contains an elaborate list of words but it is not arranged systematically, the index has low value (Mulvany, 2009). In an ideal setting, an index must be simple and transparent to the reader with the sole purpose of enhancing the work of the researcher.

The job of a researcher becomes tedious without an index. With a wide array and depth of publications available on a global platform, it helps bring the attention of various publications to the researcher, based on their area of interest and specialization. The information available can be a paramount in itself which can often demotivate the researcher. Thus, another essential function of an index is that it helps the researcher to discriminate between relevant and irrelevant information. Not only does the index assist in understanding relevancy of the information from irrelevant information but it also helps researchers to identify relevant information that has elaborated on a certain content rather than briefly mentioning it (Mulvany, 2009). On several occasions, researchers may stumble upon content that may be of relevance but often, it is only a brief mention. With indexing, this function can also help not wasting the time of the researcher (Mulvany, 2009).

In most articles, it introduces new concepts which may or may not be familiar to the reader. In such cases, index helps define a certain terminologies and even provide synonyms that could be further analysed. It has the ability of retrospective bibliography, which means it can search the entire length of literature to find specific articles of relevance for the researcher (Leong & Austin, 2006).

The index entry creates a network of interconnections between the headings and subheadings eliciting a relationship among concepts. It is essential for researchers to understand that most concepts can be understood better when we view them outside linearity. It helps the researcher to understand the networking among the concepts.

There are instances when related information can be scattered across the book and that can leave the reader feel a lack of confidence which can be overwhelming. Indexing helps group together interconnected material that maybe scattered in the entire arrangement of the content (Mulvany, 2009). Indexing synthesizes main headings and subheadings into entries which helps bring all the conceptual elements into a whole in a systematic and helpful order which can be easily understood by the reader (Mulvany, 2009).

In the digital age, Indexing can be in the form of printed publication as well as in an electronic format. It can also help the researcher find significant and relevant material based on the term being looked upon, on an electronic platform.

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