Review Article

Assessing Information Seeking Behavior of Researchers with Altmetrics

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I N F O

A B S T R A C T

Information and communication technology's growing significance in research and publication areas added a broader view with multiple dimensions to assess the research output. Traditional methods like H-index, impact factor, citations and other metrics like Scientometrics and Bibliometrics are extended to the Altmetrics, i.e., alternative metrics. Altmetrics helps assess the social impact of published research work. The volume of downloads and the number of views and reads are used to measure the impact of research outputs. The Altmetrics helps to understand the social implications of research work and increases visibility in the scholarly community. The present paper is the authors' attempt to study the information-seeking behaviour of researchers through alternative metrics. The analysis is based on the studies available in the library and information science field.

Keywords: Altmetrics, Information Seeking Behavior, Research Visibility, Research Data, Research Metrics, Altmetrics

Introduction

In the last two decades, there have been discussions on the growth of various research metrics and its impact on researchers' behaviour. The open access movement and philosophy of sharing knowledge gave birth to an assessment of research impact among the scholarly community. Research metrics have become important tools for assessing the quality and utilisation of research output from society's point of view. Different kinds of research metrics and their usage by researchers reflect researchers' information-seeking behaviour. Library and information science research is not excluded from this. Technologies like Web 2.0 and later versions of it have changed the face of traditional librarianship. With this technology, libraries have become providers and hubs for research information. The role of librarians became more instrumental in bridging the gap between researchers and their information needs. The inclusion of social media platforms in libraries accelerates the process of fulfilling end-user information needs. Researchers also found this place beneficial to showcase and share their research work. This is the place where they can share their work freely with the entire world, and then the introduction of different metrics became impactful and influential for the research community. The open access publications, institutional repositories, and Creative Commons are some of the avenues that impact authors and researchers to publish and share good quality work. At the same time, the traditional methods like H-index, impact factor, citations and other metrics like Scientometrics and Bibliometrics are extended to the Altmetrics, i.e., alternative metrics. These metrics help readers to understand the impact of published research work on the user community. These metrics have become one of the quality indicators in the

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journal publication business. The quality and standard of the journals are measured and analysed with the metrics they have. Researchers' decision of publication is majorly dependent on the journal metrics. The present study is an attempt to study the impact of research metrics on the research publication. How the information-seeking behaviour of researchers is reflected in different social media platforms. However, the study is purely conceptual and based on the data available in the existing published literature; it can be explored more with the help of pure research.

For the present study, the data is collected from the research articles published in journals, meeting reports and book chapters covering information on Altmerics. The author has tried to establish a connection between alternative metrics of articles and researchers' information behaviour.

Objective

To analyse the information-seeking behaviour of researchers with the help of Altmetrics

Information Seeking Behavior

The user and usage studies in LIS are always valued as a significant part of system development and design. It is imperative to understand users' behaviour and needs while designing a research management system. Information-seeking behaviour is one of the research areas which is always in demand. The reason behind this is that every user group seeks information differently in different information systems. They have different patterns and aim to seek information from the library or information system. Numerous types of research have been done in the field of information-seeking behaviour or information behaviour of users. All these studies have special importance in the field of user studies. Some studies discussed the cognitive approach of users; some are focused on phenomenological factors, and some are concerned with the social, cultural and research needs of users. For instance, Wilson (2000, 2011, 1997, 1999) describes information behaviour as the purposive seeking of information as a consequence of a need to satisfy some goal. In the course of seeking, the individual may interact with manual information systems or with computer-based information systems. Certain factors design information-seeking patterns in individuals, such as specialisation of study, years of experience, and area of study. Ellis2 (1989) identified actions that are involved in an individual's information-seeking process, i.e., starting, chaining (following citation linkages), browsing, differentiating, monitoring, extracting, verifying, and ending. The model focused on satisfaction of affective needs rather than cognitive needs.

Research publication is one of the areas where users seek information from different directions, such as journal quality, publication process, frequency, scope and the metrics it carries. Journal metrics play a significant role in determining publication quality and the decision-making process of research publications. It also helps to understand researcher behaviour and inclination towards the acceptance of journals for publications. The article views, citations of a particular research article, impact factor, PDF download or purchase indicate researcher preferences for research article publications.

Research Metrics

Research metrics are methods or tools used to measure performance, both at the journal- and author-level, usually done by the publishing industry. Traditionally only impact factors were considered as research tools to assess the performance of journals. Gradually new methods were introduced and added for the quality assessment of journals. Researchers also became more vigilant and critical while deciding on a journal for their research work. Their information behaviour while searching good journals for publication became more sceptical and inquisitive. The metrics, such as journals cite score, eigenvectors, article influence score, and source normalised impact per paper (SNIP), SJR - Scimago journal rank, h-index and alternative metrics or altmetrics, became significant parameters in the process of journal selection for publication due to their presence on social media sites. These metrics also help to determine or study the information-seeking behaviour of researchers while selecting a journal for publication. The present paper analyses the information-seeking behaviour of researchers in the light of 'Altmetrics'.

Altmetrics

It is an alternative metric that calculates the number of downloads, views and the presence of research articles on social networking sites. It helps to understand the societal impact of research articles on one side and, on another side, it determines the researchers' information behaviour (Dutta3, B. 2016). Altmetrics is a term to describe web-based metrics for the impact of publications and other scholarly material by using data from social media platforms e.g. Twitter or Mendeley (Bornmann4, L. 2017). It helps researchers to understand the societal impact of their research output, viz., how many times it is downloaded, who are the readers or users of research articles, increase networking with like-minded people and interested funding agencies, increase the reach of research work and manage the scholarly reputation of researchers. The University of Pittsburgh defines Altmetric "as a tool that measures and monitors the reach and impact of scholarship and research

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through online interactions. It helps the researcher to understand how their research is being communicated to their readers, government, policymakers and the general public.". It helps to explore the societal impact of their scholarly work. Holmberg, K., Haustein, S., & Beucke, D. (2016) mentioned that various Altmetrics, or social media metrics as a particular subset, are useful to measure the visibility of contents on social media and bookmarking platforms, complementing download and citation metrics.

Research Metrics and Information Seeking

Several types of research have been done to determine the impact of Altmetrics on researchers' readership and their information behaviour. Bornmann, L. (2017) described developments and problems in scientific publications' impact measurement and discussed how the impact of scientific publications was generally measured and what effects it has and the problems associated with impact measurement. The author mentioned that scientometricians are the producers of impact scores, and they are very well aware of these issues related to scientific publications. Then Riahinia, N., Rahimi, F., Jahangiri, M. and Mirhaghjoo, S. (2018) investigated the relationship between traditional citation methods for the articles and their bookmarking and readership in the Mendeley software. The result indicated a significant positive correlation between the articles tagged in Mendeley software and citation indexes in both ESI and WoS. The study found that the most frequently cited articles in the Web of Science and ESI databases attracted more readers in Mendeley. The study claimed that research metrics could be a good source to understand the information retrieval behaviour of researchers from such kinds of databases. Shekhawat, K. S., & Chauhan, A. (2018) evaluated the performance of social media in academics. They found that Altmetrics utilises various social media platforms to determine the impact of research work. The study considered blogs, Twitter, and Facebook avenues to study researchers' information behaviour and the impact of research publications. Aghassibake, N., Beard, L., Belanger, J., Louden, D., Roemer, R. C., Hiller, S., & Faber, M. (2021) studied researchers information needs and challenges faced by them while selecting publication avenues. They identified how researchers measure impact and explored their priorities for research impact support. The study tried to explore the extent to which publications have been read, downloaded and used inside and outside of academia. Latifi, M., Rahimi, F., & Alishan Karami, N. (2024) investigated the social impact of research publications on the topic of COVID–19 vaccines through social media. The authors used Scientometrics and Altmetrics indicators to complete the study. The findings indicated that Twitter and Mendeley had maximum social attention for open-access articles. The researchers were observed to be more active on social media to improve their visibility in the scientific community. The findings confirmed a significant positive correlation between the Altmetrics score and the number of citations.

Conclusion

Research metrics are considered new methods and resources through which researchers understand the impact of their research work. The social networking provided opportunities to create new metrics for the impact or use of scholarly publications. These metrics could help scholars to find important articles of their interest and also help to evaluate the impact of their research work. The social networking sites like Facebook, Mendeley blogs and Twitter offer more opportunities to explore the research impact of the research work as well as to share the research work on a large scale. The sites which are offering Altmetrics scores are becoming popular among the researchers, to search for quality research, publication places and to connect with like-minded people. It has been evident from the existing research that Mendeley has been the preferred place for researchers to disseminate their work. Therefore, there is a possibility that in the near future, Altmetrics scores will become a more essential and easy tool to evaluate research impact. The present study is a microscopic view of this important area; therefore, generalisation of conclusions is not possible. However, the study recommends a detailed analysis of social networking sites to understand researchers information behaviour through Altmetrics score.

Reference

1. Wilson, T.D. (2000). Human information behaviour. Informing Science, 3 (2), 49-56.
2. Wilson TD. Information behaviour: an interdisciplinary perspective. Information processing & management. 1997 Jul 1;33(4):551-72.
3. Wilson TD. Models in information behaviour research. Journal of documentation. 1999 Aug 1;55(3):249-70.
4. Wilson TD. Revisiting user studies and information needs. Journal of documentation. 2006 Nov 1;62(6):680-4.
5. Ellis, D. (2008). Ellis's model of information-seeking behaviour, In Fisher, K.E., Erdelez, S. and McKechnie, L. (Eds.), Theories of Information behavior (pp.138-142). New Delhi, Ess Ess publication.
6. Dutta B. Altmetric manifesto completes five years (2010-2015). Current Science (00113891). 2016 Jan 10;110(1).
7. Bornmann L. Measuring impact in research evaluations: a thorough discussion of methods for, effects of and problems with impact measurements. Higher Education. 2017 May;73:775-87.

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8. Guides: Altmetrics: What are Altmetrics? 2015. Libguidescom. [accessed 2024 April 13]. https://pitt.libguides.com/altmetrics.

9. Holmberg K, Haustein S, Beucke D. 14 Social Media Metrics as Indicators of Repository Impact. Making institutional repositories work. 2015 Nov 15:235 -48.

10. Riahinia N, Rahimi F, Jahangiri M, Mirhaghjoo S, Alinezhad F. Traditional citation indexes and alternative metrics of readership. International Journal of Information Science and Management (IJISM). 2018 Jul 1;16(2).

11. Shekhawat KS, Chauhan A. Can altmetrics be used to evaluate research?. Current Science (00113891). 2018 Jan 25;114(2):261–262.

12. Aghassibake, Negeen, et al. Library Impact Research Report: Understanding and Communicating Research Impact: The Needs of STEM and Health Sciences Faculty and Postdoctoral Researchers. Association of Research Libraries, 2021. JSTOR, http://www.jstor.org/stable/resrep51155. Accessed 13 Mar. 2024.

13. Latifi M, Rahimi F, Alishan Karami N. Analyzing the Impacts of COVID-19 Vaccine Research Outputs: An Altmetric Approach. International Journal of Information Science and Management (IJISM). 2024 Oct 1;22(4):39-55.