

INNOVATIVE TECHNOLOGY AND APPLICATIONS FOR SUSTAINABLE LIBRARY SERVICES

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Beyond Citations: Unveiling The Influence of Indian Library and Information Science Journals Through Altmetric Analysis

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ABSTRACT

This study investigates the altmetric visibility of Indian journals within the field of Library and Information Science (LIS). The research focuses on scholarly articles published in Indian LIS journals indexed on the Web of Science. The Web of Science database was used to retrieve the citations of scholarly articles and Altmetric Explorer was used to get the Altmetric Attention Score. Four Indian LIS journals were currently indexed on the Web of Science with the aggregate total of 1602 scholarly articles having Digital Object Identifier. Out of 1602 scholarly articles, 206 (12.86 %) had an Altmetric Attention Score. The findings of this study revealed that the year-wise growth of altmetric attentions to Indian LIS journals was not constant. X previously known as Twitter (92.64 %) was the popular altmetric data source where scholarly articles from Indian LIS journals were mentioned. 'Journal of Scientometric Research' received highest 382 (67.73 %) Altmetric Attention Score with the highest number of 139 (67.47 %) mentioned outputs as scholarly articles. Altmetric Attention Score and citations of scholarly articles have a weakly positive correlation (< 0.2) across all four Indian LIS journals. 'Journal of Scientometric Research' got the highest number 2439 (50.52 %) of Mendeley readers and has received the highest 570 (47.62 %) dimensions citations.

Keywords: Altmetrics, Indian LIS Journals, Scholarly Articles, Web of Science

Introduction

In the contemporary digital era, scholarly communication has undergone rapid and substantial changes. Traditional metrics used to assess the impact of academic research, such as citation counts and journal impact factors, have become inadequate. The proliferation of online platforms and increased accessibility to diverse research outputs has expanded the landscape of scholarly communication. This expansion necessitates alternative methods for evaluating the visibility and influence of scholarly products. In response to this evolution, alternative metrics, commonly referred to as altmetrics, have emerged as a new and complementary approach to assess the broader influence and impact of scholarly work in a more dynamic and comprehensive manner. Altmetrics take into account various social media engagements and online activities within the scholarly community.

Altmetrics encompass a range of metrics designed to gauge and analyze both the societal and academic impact of online attention received by research outputs. In contrast to traditional citation-based metrics, which primarily focus on the academic research impact of scholarly publications, altmetrics provide a broader perspective by incorporating the societal impact as well. "Many advantages of altmetrics over traditional citation-based metrics are there including providing real-time data, broader and more diverse audiences, speed, transparency, greater level of openness and ease of data collection using APIs" (Erfanmanesh, 2017)¹. Altmetrics track and measure the range of activities which includes downloads, saves, discussions, mentions, bookmarks, media coverage, etc. "Altmetrics offers a potential impact on diverse audiences including scholars, practitioners, clinicians, educators and the general public" (Piwowar, 2013)². Priem (2014)³ defined altmetric as the "study and use of scholarly impact measures based on activity in online tools and environments." Bornmann (2014)⁴ stated, "altmetric is a term to describe web-based metrics for the impact of publications and other scholarly material by using data from social media platforms."

Review of Related Literature

Priem, Groth & Taraborelli (2012)⁵ explained the need and importance of citation based filters in measuring research impact in their article 'The Altmetric Collection'. Alperin (2013)⁶ in his informative paper mentioned the benefits of using altmetrics by developing countries as well as the common researcher. Traditional citation counting mechanism of counting scholarly impact unfairly and undoubtedly supports those from North America and Europe and ignores the developing world. Roemer and Borchardt (2015)⁷ elaborated some important issues, including controversies and opportunities for altmetrics. The foundation of altmetrics is undoubtedly the gathering of online data, which may involve interactions between the scholarly impact and academic impact. Tattersall (2017)⁸ explored the opportunities altmetrics offer to library and information professionals as part of their research support provision. This paper examined what altmetrics are and how they can offer another useful metric to help academics engage with a variety of interested parties over the web. Ezema & Ugwu (2019)⁹ studied the research impact of Library and Information Science (LIS) journals using Web of Science (WoS), Scopus and Google Scholar (GS) and then examined whether there is a correlation between their citations and altmetric attention. Sankar and Sarangapani (2020)¹⁰ explored the coverage of LIS literature published in 2019. Altmetrics Technique is used to identify the trends in the subject with the primary objective as to know the scholarly communication of LIS Literature on social media and to evaluate the Altmetric Attention Score.

Objectives

1. To analyze year-wise growth of the altmetric attentions that Indian LIS journals received.
2. To identify the highly used altmetric data sources to share research published in Indian LIS Journals.
3. To find out the number of Mendeley readers and number of Dimensions citations that Indian LIS journals received.
4. To examine the correlation between Altmetric Attention Score (AAS) and Citations of scholarly articles published in Indian LIS Journals.

Scope and Limitations of The Study:

The study's focus was confined to journals within the field of Library and Information Science originating from India, specifically those indexed in the Web of Science (WoS) core collection within the Emerging Sources Citation Index (ESCI). Within the Web of Science, the search query was constrained to articles published between 2005 and 2023, each equipped with a Digital Object Identifier (DOI)

Materials and Methods:

1. Data Sources:

"Web of Science (WoS) is the world's most trusted publisher-independent global citation database. Guided by the legacy of Dr. Eugene Garfield, inventor of the world's first citation index, the Web of Science is the most powerful research engine, delivering best-in-class publication and citation data for confident discovery, access and assessment".¹¹

"Altmetric.com is a London-based digital science company with a vision to track and analyze the online activity around scholarly research outputs".¹²

2 Data Collection:

Data were collected in two types i.e. primary data and secondary data.

2.1 Primary Data:

The primary bibliographic data of scholarly articles published in the field of Library and Information Science particularly from India were retrieved from Web of Science core collection by using Emerging Sources Citation Index (ESCI) as the related journals are indexed in ESCI. To retrieve the primary data, a structured query was run in Web of Science with the following fields with tags:

- DOI (DO): 10.*
- Document Type (DT): Article

- Date of Publication (DOP): 01-01-2005 to 25-12-2023
- Publication Title (SO): Collnet Journal of Scientometrics and Information Management or DESIDOC Journal of Library and Information Technology or Journal of Scientometric Research or Annals of Library and Information Studies

Web of Science database was thoroughly searched and found four journals which are originally published from India and are currently indexed in Web of Science have taken into account for this research.

((DO=(10.*)) AND DT=(Article)) AND DOP=(2005-01-01/2023-12-25) AND (SO==("COLLNET JOURNAL OF SCIENTOMETRICS AND INFORMATION MANAGEMENT" OR "DESIDOC JOURNAL OF LIBRARY INFORMATION TECHNOLOGY" OR "JOURNAL OF SCIENTOMETRIC RESEARCH" OR "ANNALS OF LIBRARY AND INFORMATION STUDIES"))

1602 bibliographic records of scholarly articles were retrieved by executing the above query in the advanced search option of Web of Science. (Image 1) The above query was run on 25th December 2023 and all the data was collected on the same date.

Journal Title	Count of Scholarly Articles	Percentage
Annals of Library and Information Studies	252	15.73 %
COLLNET Journal of Scientometrics and Information Management	317	19.78 %
DESIDOC Journal of Library and Information Technology	717	44.76 %
Journal of Scientometric Research	316	19.73 %
Total	1602	100 %

Table 1: Bibliographic Records with Journal Titles

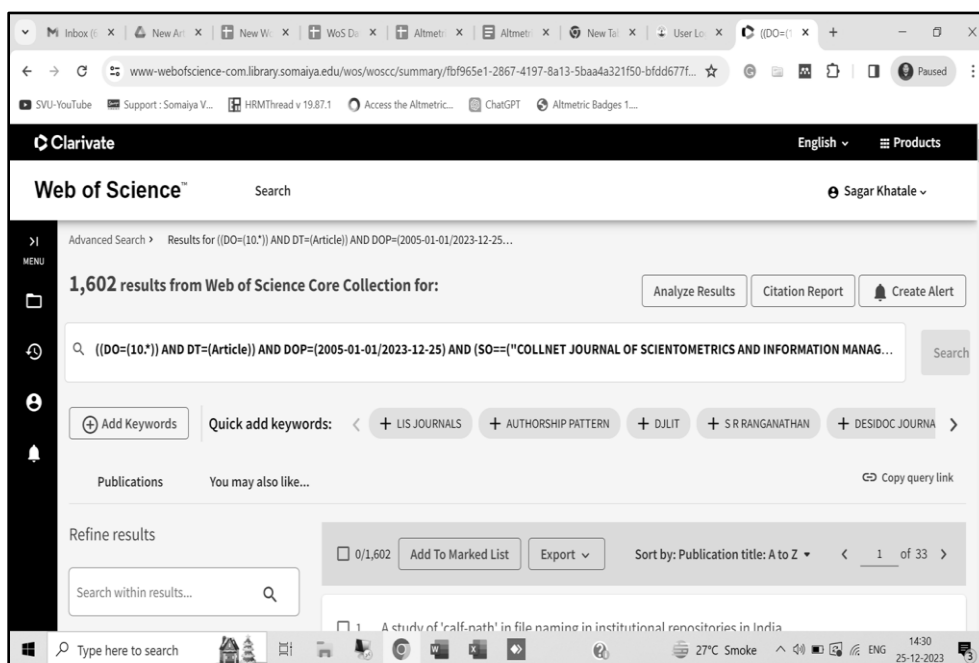


Image 1: Web of Science Search Results

2.2 Secondary Data:

The retrieved primary bibliographic data of 1602 scholarly articles from Web of Science were checked in the Altmetric Explorer. All the DOI's of scholarly articles were added in 'scholarly identifiers' search box available in the 'advanced search' option of altmetric explorer to retrieve the details of scholarly articles tracked by altmetric.com. Out of 1602 scholarly articles retrieved from Web of Science, 246

articles (15.35 %) are tracked by altmetric.com out of those 206 articles (12.86 %) received at least one Altmetric Attention Score. All the details of the 206 articles tracked by altmetric.com were saved in excel file for further analysis.

Scholarly Articles from Web of Science	Scholarly Articles Tracked by Altmetric	Scholarly Articles with Attention
1602	246 (15.35 %)	206 (12.86 %)

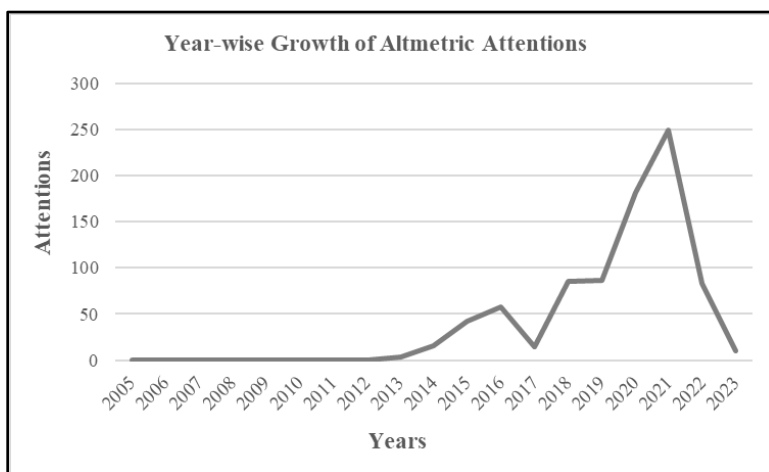
Table 2: Altmetric Tracking Details

Data Analysis:

Data retrieved from Web of Science and Altmetric Explorer was further analyzed to get the results of the research.

1 Year-wise Growth of Altmetric Attentions:

From the year 2005 to 2012, there was no significant attentions were received by Indian LIS journals however from the year 2013 the upward trend was seen till 2016. In the year 2017, there was a drastic downward trend was seen. However from the year 2018 till 2021 there was again an upward trend. In 2022 and 2023, Indian LIS journals are getting less altmetric attentions. According to the year-wise data, the growth of altmetric attentions to Indian LIS journals was not constant. (Figure 1)



(Source: altmetric.com)

Figure 1: Year-wise growth of Altmetric Attentions

Highly used Altmetric Data Sources:

‘Journal of Scientometric Research’ has got a decent number of altmetric attentions to its scholarly publications as out of 206 total publications, 139 (67.47 %) are from the same journal and has got 382 (67.73 %) Altmetric Attention Score. Altmetric tracked and got mentions to 33 (16.02 %) scholarly articles from ‘COLLNET Journal of Scientometrics and Information Management’ with 62 (10.99 %) Altmetric Attention Score. (Table 3)

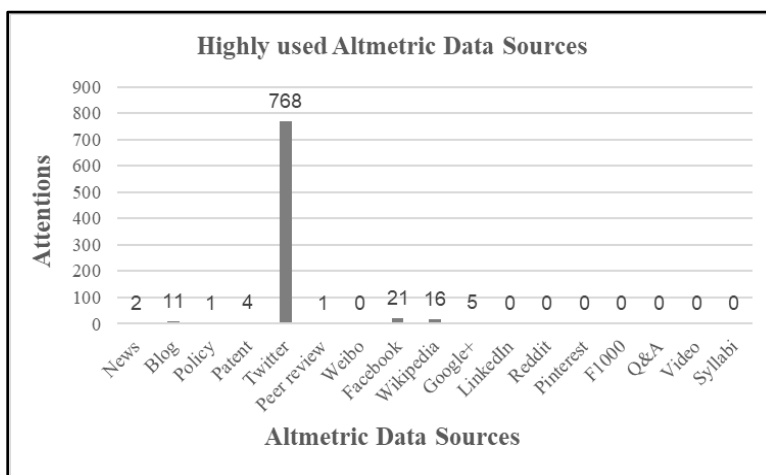
Journal Title	Annals of Library and Information Studies	COLLNET Journal of Scientometrics & Information Management	DESIDOC Journal of Library & Information Technology	Journal of Scientometric Research	Total
Altmetric Attention Score	7	62	113	382	564
Number of Mentioned Outputs	4	33	30	139	206

Altmetric Data Sources					
News mentions	0	0	0	2	2
Blog mentions	0	1	8	2	11
Policy mentions	0	1	0	0	1
Patent mentions	0	0	4	0	4
X (Twitter) mentions	4	58	47	659	768
Peer review mentions	0	0	1	0	1
Facebook mentions	0	10	0	11	21
Wikipedia mentions	1	1	11	3	16
Google+ mentions	0	1	3	1	5
Weibo mentions	0	0	0	0	0
LinkedIn mentions	0	0	0	0	0
Reddit mentions	0	0	0	0	0
Pinterest mentions	0	0	0	0	0
F1000 mentions	0	0	0	0	0
Q&A mentions	0	0	0	0	0
Video mentions	0	0	0	0	0
Syllabi mentions	0	0	0	0	0
Total Mentions	5	72	74	678	829

Source: altmetric.com

Table 3: Journalwise Altmetric Data Sources

Figure 2 and table 3 shows the highly used altmetric data sources to share the research published in Indian LIS journals. Altmetric tracked 17 different data sources to get the digital footprints of research published. Out of the total data sources, X (Twitter) (92.64 %) was the highly used altmetric data source to share research published in Indian LIS journals. The next highest data source was Facebook (2.53 %) followed by Wikipedia (1.93%), Blog (1.33 %), Google+ (0.60 %), Patent (0.48 %), News (0.24 %), Policy (0.12 %) and Peer review (0.12 %).

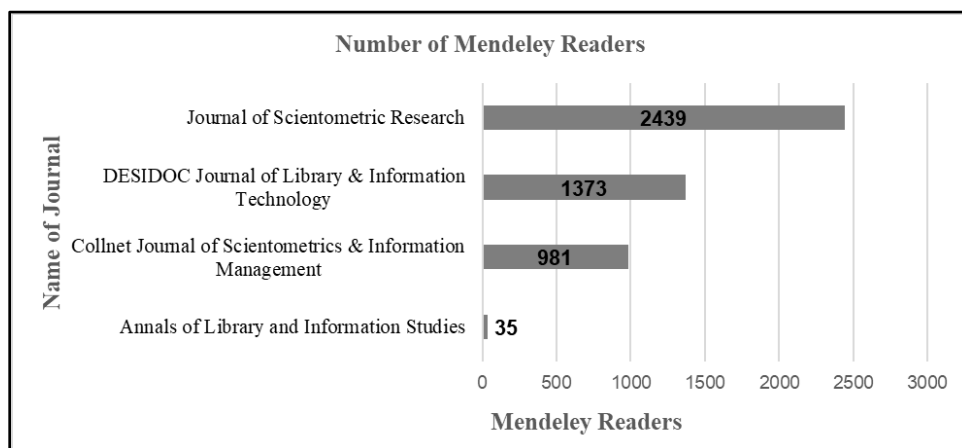


(Source: altmetric.com)

Figure 2: Highly used Altmetric Data Sources

Number of Mendeley Readers:

Out of the four Indian LIS journals, 'Journal of Scientometric Research' (50.52 %) got the highest number of mendeley readers. 'DESIDOC Journal of Library and Information Technology' stood second (28.44 %) followed by 'COLLNET Journal of Scientometrics and Information Management' (20.32 %). 'Annals of Library and Information Studies' (0.72 %) got very less readers as compared with other journals.

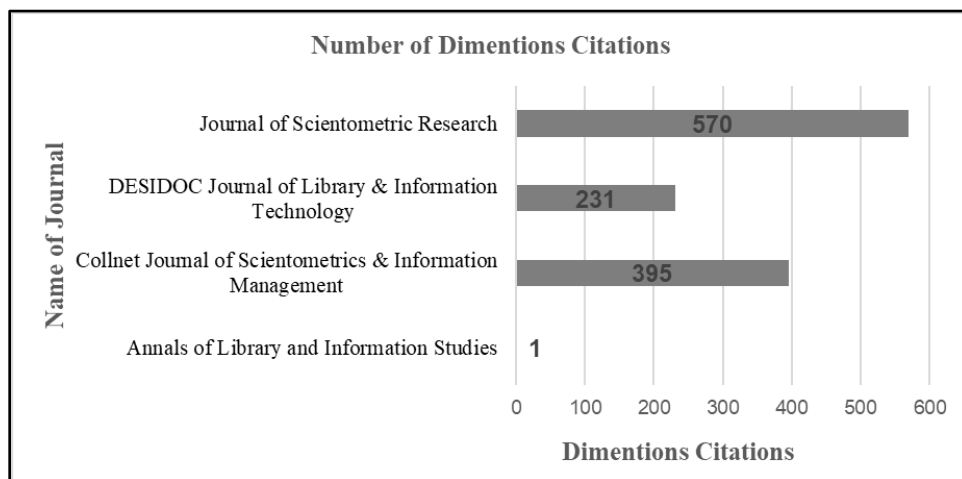


Source: altmetric.com

Figure 3: Number of Mendely Readers

Number of Dimensions Citations:

‘Journal of Scientometric Research’ (47.62 %) has got the highest number of dimensions citations. ‘DESIDOC Journal of Library and Information Technology’ stood second (33.00 %) followed by ‘COLLNET Journal of Scientometrics and Information Management’ (19.30 %). ‘Annals of Library and Information Studies’ has got only single digit dimensions citation (0.08 %) which was very less as compared with other journals.



Source: altmetric.com

Figure 4: Number of Dimentions Citations

Correlation between Altmetric Attention Score and Citations of scholarly articles:

Table 4 gives a comparative analysis of four scholarly journals in the field of Library and Information Science in India. The focus is on examining the correlation between the Altmetric Attention Score and citations of articles published in these journals. The correlation values indicate the strength and direction of the relationship of the variables. The Pearson correlation of the two variables i.e. Altmetric Attention Score and citations of scholarly articles was found to be < 0.2 for all four Indian LIS journals. There was a weakly positive correlation between both variables. Researchers and stakeholders in the field of LIS can use this information to assess the impact and attention gathered by scholarly articles in these journals.

Journal Title	Annals of Library and Information Studies	COLLNET Journal of Scientometrics & Information Management	DESIDOC Journal of Library & Information Technology	Journal of Scientometric Research
Number of Mentioned Scholarly Articles	4	33	30	139
Citations of Scholarly Articles	5	216	128	358
Altmetric Attention Score	7	62	113	382
Correlation	0.169322933	0.281052853	0.273663	0.2682525
P value	0.146429441	1.02687E-05	1.45E-05	2.537E-05

Source: *altmetric.com*

Table 4: Correlation between Altmetric Attention Score and Citations of Scholarly Articles

Findings

This study investigated the altmetric presence in Library and Information Science journals currently indexed in Web of Science and published from India. Out of the four Indian journals considered in this study, 'DESIDOC Journal of Library and Information Technology' (44.76 %) has got the highest number of scholarly articles indexed in Web of Science followed by 'COLLNET Journal of Scientometrics and Information Management' (19.78 %). 'Journal of Scientometric Research' (67.47 %) followed by 'COLLNET Journal of Scientometrics and Information Management' (16.02 %) has got highest altmetric attentions to their scholarly publications. It was observed that there is no altmetric attention for the scholarly articles before the year 2012 and the year-wise growth in the altmetric attentions was not constant. LIS journals published from India have received attentions from 09 different altmetric data sources. 206 from a total 1602 scholarly articles from all four Indian LIS journals received a minimum one mention on altmetric data sources. X (Twitter) provided the most altmetric data for Indian LIS journals followed by facebook mentions. Except for X (Twitter) 92.64 %, the results showcased the existence of altmetric data on other data sources was very low as all other data sources which includes facebook, Wikipedia, Blog, Google+, Patent, News, Policy and Peer review contributed only remaining 7.36 %. Altmetric data sources like Weibo, LinkedIn, Reddit, Pinterest, F1000, Q&A, Video and Syllabi does not received even one altmetric attention for all the 206 scholarly articles from four Indian LIS journals tracked by altmetric.com.

Mendeley is also an important source of altmetric data. This study examined the Mendeley readership of scholarly articles published in Indian LIS journals. The majority of Mendeley readers referred scholarly publications from the 'Journal of Scientometric Research' as this journal got 50.52 % of the total readership. Dimensions.ai is a platform that provides access to abstracts and citations of a varied range of scholarly research, its data and analytics. Altmetric.com tracks citations data alongwith various data sources however these citations are not a part of Altmetric Attention Score. 'Journal of Scientometric Research' (47.62 %) has got almost half of the dimensions citations selected for the study. All four Indian LIS journals have weakly positive correlation (< 0.2) between Altmetric Attention Score and citations of scholarly articles.

Conclusion

Altmetrics play a crucial role in examining both academic and societal impact on information and knowledge, offering a means to assess the impact of information shared across diverse digital media platforms. Academic scholars should familiarize themselves with the role of altmetrics in research fraternity and incorporate this innovative technique into the research evaluation process. Exploring the Altmetric technique is essential in the current context to analyze the impact of research, not only within the academic community but also in the realm of social engagements.

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