

The association between Mendeley early readership and later citations in library and information science journals

Lambodara Parabhoi *
Damodar Parabhoi †
Indian Institute of Advanced
Study
Rashtrapati Nivas
Shimla 171005
Himachal Pradesh
India

* suresh19871987@gmail11.com
† damodarparabhoi@gmail.com

Ramani Ranjan Sahu §
Senior Library Information
Assistant (SLIA)
Central Library
IIT Kharagpur
India
§ sahu.ramaniranjano@gmail.com

Manoj Kumar Verma ‡
Department of Library &
Information Science
Mizoram University
Aizawl 796004
India
‡ manojdlis@mzu.edu.in

Rebecca Susan Dewey @
University of Nottingham
Nottingham
NG7 2RD
U. K.
@rebecca.dewey@nottingham.ac.uk

* (Corresponding Author)

Lambodara Parabhoi
Damodar Parabhoi
Ramani Ranjan Sahu
Manoj Kumar Verma
Rebecca Susan Dewey

Altmetrics indicators are useful for assessing the impact of research and have been increasingly used alongside traditional citations in recent years. Mendeley provides readership statistics which give an early indicator of the impact of research outputs. This study aimed to investigate how Mendeley early readership indicator was associated with later citations across nine selected library and information science (LIS) journals. This study examined bibliographic data of 9 LIS journals extracted from the Scopus database over a 17 months period from June 2019 to November 2020. Data were extracted using Webometric Analyst. Spearman's rank correlation coefficient was used to characterize the relationship between these two variables. The number of readers per paper, and of each journal are described using mean, standard deviation, frequency, and geometric mean. Readership growth was increased in all selected journals, but citation growth was unstable in most of the journals. Early readership statistics positively correlated with early citation analysis in all journals except the Journal of Educational Media and Library Science, which had a weaker positive correlation. The correlation between early readership and later citation numbers varied, with some journals being moderately positive and some weakly positive.

Keywords: LIS Journals, Mendeley, Citations, Altmetrics.

Introduction

Research evaluation is a continuous and significant process involving the meticulous assessment of published research using several indicators. Research evaluation has become increasingly important to policymakers, decision-makers, publishers, and research managers [1]. The practice started in the late 1960s [2], and today there are many ways to evaluate research performance. One method comprises using the citation count as a measure of research impact by publishers and researchers, as well as both formally and informally by government or non-government organizations (private companies). Citation analysis can be used to characterize the impact of work that others have cited, identify the seminal works in a given discipline, and measure the total number of citations by country. Further analyses represent more valuable knowledge of the work done in a given field to measure the frequency of citations, the impact of an author or article, or citation of a work in other fields. It is possible to use citation counts to understand what factors are associated with more highly cited papers. The study of citation counts contributes to a better understanding of library usage and provides a helpful tool for evaluating collections and subject literature (Heinzkill, 2006). Governments, organizations, departments, and individuals regularly use citation counts to support formal and informal research impact evaluations [3]. However, citation counts have several drawbacks, including that they take years to accumulate and are too slow for some applications [4]. Conversely, Altmetrics, indices of interest in academic articles derived from social media mentions, have gained popularity in recent years (Priem, Taraborelli, Groth, & Neylon, 2010) and have been used by publishers since early 2014 [5]. Altmetrics have now formed a new academic field in which social media is used as a data source to quantify the scholarly impact. Altmetrics have since grown in popularity, prompting many questions to be asked about their possible benefits and drawbacks [6]. Numerous online indicators have been utilized to characterize an individual's research output. When evidence of early influence is required, reader counts captured by social reference-sharing platforms such as Mendeley may provide a viable alternative to citation counts. This is possible as people use platforms such as Mendeley to read an article from the moment an article is published. As Mendeley's readership count increases faster than the citation count of an article, readership statistics from the social reference-sharing platform Mendeley represent a more rapidly moving metric of article impact [7].

Mendeley

Mendeley is a reference management tool that stores and captures references from the Internet and local storage. Beyond being a reference management tool, it provides a platform to create groups for sharing research publications between group members. Mendeley is also a social network platform where users access and read publications. Mendeley can be used for capturing research impact [8], [9]. It was introduced in 2007, has been owned by Elsevier since 2013 and has now been referred to as the largest social reference manager [10]-[12]. It facilitates convenient referencing, provides efficient and error-free handling of references, and allows professionals to submit their papers using

an online form in order to make them available to the wider academic community [13]. Mendeley provides helpful services such as a web import plugin service to allow users to add articles to their library and refer to them on demand [14], [15]. Other services include handling the citation formats Bibtex, RIS (Research Information System), Endnote XML, and Zotero Library Files. Mendeley supports each professional in building a unique social network profile on the website, where they can list their articles. Each article record in the library is annotated with its readership count, and the Mendeley readership count of an article has been associated with its impact [16], [17]. Mendeley has a wide coverage of scientific publications, representing as many as over 80% of those indexed by the Web of Science, depending on the field [18]. Mendeley reference management software was described as an altmetric source with more than 4 million users worldwide in 2014, which has since increased [18]. Users access Mendeley using their login identifier and accrue a list of articles they have read or intend to read, but there is no way of determining the level or authenticity of a user's interest in available articles [19].

Literature Review

Altmetrics have the potential to be used in evaluating the influence of a given scientific publication outside the academic community. Further, this can be achieved over relatively short periods of time. However, altmetrics are only available for recent articles, and there is insufficient evidence for them being predictive of long-term influence [20].

In a study comparing the altmetrics and citations of 383 Korean research articles published in international journals, the frequency of users saving articles in Mendeley was higher in social science and the arts and humanities than in medical science and engineering. Further, they reported a positive correlation between traditional citations and altmetric scores [21]. A study analyzing readership data in the form of Mendeley readership data for 30 Economics and Business Studies journals listed in the German *Handelsblatt* found moderate relationships between journal readership and impact factor. The authors reported Mendeley's coverage of research publications in the field of Economics and Business Studies to be relatively good [22]. An analysis of user interaction statistics of an online physics e-print archive revealed that accesses, downloads, and mentions of articles correlated with citations. The effect was robust across the disciplines of physics (0.462), mathematics (0.347), and astrophysics (0.447) [23].

A more significant association was found between the number of early Mendeley readers and the number of later citations than between earlier and later citations. Further, the number of people who viewed a paper within a month of its release was strongly correlated with the number who cited it 20 months later, and it was also concluded that the number of Mendeley subscribers as a predictor of future citation count [24]. Articles published in five Chinese medical journals between 2005 and 2009, exhibited an association between downloads and citations. However, some fields, such as educational evaluation showed a higher download frequency than citation frequency, termed the download-citation deviation phenomenon [25].

In the Web of Science Medline records of 7,961 publications in Life sciences and Biomedicine between 2014 and 2016, the number of tweets received positively correlated with later citation counts [26]. Further, in a gender analysis of citations, citations of articles with male first and last authors (5.5 %) were more numerous than those with female first and last authors (4.7 %).

A regression analysis of altmetric data and Scopus citations showed that the number of Mendeley readers was a good predictor of future citation impact and that this predictive power was more significant for some fields than for others, with fields such as social science having the strongest relationship [27]. Of 533 papers and 1,315 citations in the field of Medical Sciences, 98% of the publications were covered by ResearchGate, while 92% were indexed in Mendeley and had each received at least one view. There was also a positive correlation between the number of views and the number of citations the article received [28]. Across 378 papers published in the Electronic Journal of Information Systems in Developing Countries (EJISDC) between 2000 and 2013, all 378 articles had been accessed on Mendeley at least once, and 359 (94.97%) papers had accrued Google Scholar citations. The mean number of downloads was 7440.69, the mean number of Mendeley readers was 19.30, and the mean number of Google Scholar citations was 27.36. The top 20 publications in the EJISDC were ranked and compared for downloads, Mendeley viewership, and Google Scholar citations. Google Scholar citations were highly correlated with downloads, while Google Scholar citations were only weakly correlated with Mendeley readership [29].

In a study of 1.2 million documents published across four fields, the percentage of papers that had received at least one read on Mendeley was 65.9%, with a mean of 9.6 readers per document. This was deemed to be a relatively high level of activity compared to other social media platforms. The majority of users were reportedly PhD students and postdoctoral researchers. Overall, there was a positive correlation between social media activity and citations, with the behaviors of PhD students and postdoctoral researchers being more closely related to citation patterns than those of other academics and librarians [10]. Mendeley readership statistics and citations have been compared across social science and humanities journals. The two metrics were highly correlated in the social sciences than in the humanities. Mendeley bookmark counts and citation counts were weakly to moderately correlated in both fields, suggesting distinct factors influencing the association [30]. In an analysis of conference papers and journal articles published between 1996 and 2018 across 11 sub-disciplines of computing, there were few Mendeley readers and few Scopus citations for new conference papers and journal articles compared to older outputs. Mendeley readership counts outperform citation counts for recently published conference papers but were non-existent for older conference papers [31].

A randomized control trial was conducted to investigate the association between the promotion of article links using a new online cross-publisher distribution channel (TrendMD) that affected Mendeley saves over four weeks. A sample of 400 articles were randomly assigned to either TrendMD (n = 200) or the control (n = 200) arm. Articles promoted through TrendMD had 77% more Mendeley saves than those in the control

group. Further, articles promoted on TrendMD had 2.7 times more Mendeley saves on average than control articles (95% CI = 2.63, 2.77; $p=0.01$). TrendMD-driven pageviews also correlated with Mendeley article saves (Spearman's $\rho = 0.60$) [32].

Research Gap

Very few articles have been published exploring the association between early Mendeley readership count and later citation count. As such, the current study aimed to address this research gap.

Scope: This article aims to assess 9 Library and Information Science (LIS) journals published in Asia.

Objective

The objectives of the article are to answer the following research questions (RQs):

RQ1: What proportion of papers have received no reads and no citations across the selected journals?

RQ2: What is the association between Mendeley early readership and later citations? Is this the same across all selected journals?

RQ3: Is early readership or early citations more predictive of later citations? Is this the same across all selected journals?

Methods

This study was conducted in articles published over a period of 17 months, between June 2019 and November 2020. Nine LIS journals were selected using non-probability [33] sampling. A search of raw data in the source tab of the Scopus database was used to retrieve data using the journal title, as follows: Annals of Library and Information Studies (ALIS), DESIDOC Journal of Library and Information Technology (DJLIT), Journal of Data and Information science (JDIS) formerly Chinese Journal of Library and Information Science, Journal of Educational Medical and Library Science (JoEMLS), Library and Information Science, Malaysian Journal of Library and Information Science, Pakistan Journal of Information management and Libraries (PJIML), Progress in Informatics, and Webology (Table 1). Bibliographical data were exported for each journal in CSV format. Mendeley readership data starting from 17th June 2019 were also retrieved. The same procedure was taken to retrieve later citation and Mendeley readership data from Scopus and Mendeley, respectively, between the 19th and 25th of November 2020. Spearman's correlation coefficient was used to assess the association between pairs of variables. The Spearman's correlation coefficients were calculated to characterize the associations between early readership counts and early citation counts and the associations between early citation counts and late citation counts, separately for each journal. Data analyses were conducted using SPSS and Webometric Analytics software. Spearman's correlation

Table 1
Summary of Journals

Name	Country	ISSN
ALIS	India	0975-2404
DJLIT	India	09764658
JDIS	China	2096157X
JoEMLS	Taiwan	1013090X
Library and Information Science	Japan	03734447
Malaysian Journal of Library and Information Science	Malaysia	13946234
PJIML	Pakistan	24097462
Progress in Informatics	Japan	13498614
Webology	Iran	1735188X

coefficient was selected as the assessment tool due to its reliability, validity, and due to its use in previous studies assessing the associations between early Mendeley readership and later citation counts (Thelwell et al., 2016, 2017, 2018a, 2018b, References No etc.).

Results

Summary of data

Table 2 shows the total number of early citations, early Mendeley readers, later citations and later Mendeley readers for all articles, whether or not they had any citations or readership. The number of articles with zero readership refers to those with no reads accrued on the Mendeley database. Articles published in DJLIT accounted for the highest numbers of early citations (421) and early Mendeley readers (269). Conversely, the Malaysian Journal of Library and Information Science journal accounted for the highest number of later citations (346) and Mendeley readers (387). A closer inspection of the table depicts that the highest number of papers with zero early readership ($n=182$) appeared in Library and Information Science, followed by DJLIT ($n=155$). The highest early citation count was DJLIT ($n=421$). The highest mean number of early citations and early reads of any journal was found in ALIS ($n=0.96$).

In the Malaysian Journal of Library and Information Science, the mean number of early citations was 0.87, with the mean number of later reads being 1.00. The mean number of later citations in the DJLIT was 0.99. These results show the overall growth in the mean number of early reads in relation to the mean number of reads of all selected journals. However, the most significant increase was seen in the Pakistan Journal of Information Management Libraries, where the mean readership increased from 0.40 to 1.00. The remarkable mean growth was seen in ALIS, increasing by 0.12 from 0.66 to 0.78. With the increase in the number of citations from early to later, different journals saw significant increases.

Table 2
Early and late citation and readership counts of all papers

Journal Name	Total Papers	Papers with early reads	Papers with zero early reads	Papers with early citations	Papers with zero early citations	Papers with later reads	Papers with zero later reads	Papers with later citations	Papers with no later citations	Mean number of early reads per paper	Mean number of early citations per paper	Mean number of later reads per paper (change)	Mean number of later citations per paper (change)
ALIS	267	256	11	176	91	262	5	209	58	0.96	0.66	0.98 Increase (0.02)	0.78 Increase (0.12)
DJLIT	424	269	155	421	3	419	5	324	100	0.63	0.99	0.99 Increase (0.35)	0.76 Decrease (0.23)
JDIS	55	19	36	36	19	29	26	26	29	0.35	0.65	0.53 Increase (0.18)	0.47 Decrease (0.18)
JoEMLS	257	225	32	127	130	228	29	134	123	0.88	0.49	0.89 Increase (0.01)	0.52 Increase (0.03)
Library and Information Science	318	136	182	78	240	195	123	81	237	0.43	0.25	0.61 Increase (0.19)	0.25 Stable (0.00)
Malaysian Journal of Library and Information Science	400	326	74	383	17	387	13	346	54	0.82	0.96	0.97 Increase (0.15)	0.87 Decrease (0.09)
PJIML raries	45	18	27	38	7	45	0	28	17	0.40	0.84	1.00 Increase (0.60)	0.62 Decrease (0.22)
Progress in Informatics	87	55	32	77	10	77	10	57	30	0.63	0.89	0.89 Increase (0.25)	0.66 Decrease (0.23)
Webology	156	118	38	150	6	154	2	130	26	0.76	0.96	0.99 Increase (0.23)	0.83 Decrease (0.13)

Citation counts and readership counts

Table 3 shows the mean, standard deviation, and geometric mean early and late citation counts and read counts of all journals, the mean number of early and late citations and reads in each field, and the geometric mean and standard deviation early and late reads and citations. DJLIT attracted the highest number of citations and reads. The highest mean citations per article was found in the Malaysian Journal of Library and Information Science and the highest number of late reads was higher in ALIS than in other journals. Notably, the highest standard deviation of later reads per journal was in ALIS (264.534). The highest geometric mean of late reads was found in the DJLIT (17.91).

Table 3
Early and late reads and citations: mean, standard deviation and geometric mean

	N	Mean	Std. Deviation	Geometric Mean
ALIS Early Reader	256	17.34	15.141	12.81
ALIS Early Citation	176	3.46	3.057	2.47
ALIS Later Citation	209	4.06	3.655	2.82
ALIS Later Reader	262	37.83	264.534	16.76
DJLIT Early Citation	269	2.91	2.299	2.24
DJLIT Early Reader	421	16.57	13.028	12.50
DJLIT Later Citation	324	3.58	3.008	2.63
DJLIT Later Reader	419	23.84	35.212	17.91
JDIS Early Citation	19	2.89	2.961	2.06
JDIS Early reader	36	5.0	4.611	3.56
JDIS Later Citation	26	4.81	4.00	3.51
JDIS Later Reader	29	7.90	6.073	5.89
Library and Information Science Early Citations	78	1.94	1.313	1.61
Library and Information Science Early reader	136	4.26	3.736	2.98
Library and Information Science later Citation	81	2.01	1.470	1.63
Library and Information Science later Reader	195	4.06	3.894	2.78
Malaysian Journal of Library and Information Science Early Citation	326	6.80	7.409	4.29
Malaysian Journal of Library and Information Science Early Reader	383	17.47	20.208	10.09

Contd...

Malaysian Journal of Library and Information Science later Citation	346	7.94	9.009	4.85
Malaysian Journal of Library and Information Science later Reader	387	37.19	225.173	13.75
PJIML Early Citation	18	1.72	0.958	1.51
PJIML Early Reader	38	7.61	4.475	6.39
PJIML Later Citation	28	2.68	1.657	2.21
PJIML Later Reader	45	11.33	7.535	9.18
Progress in Informatics Early Citation	55	8.16	14.455	4.23
Progress in Informatics Early Reder	77	11.51	20.580	5.68
Progress in Informatics Later Citation	57	8.53	16.278	4.25
Progress in Informatics Later Reader	77	12.31	22.600	6.14
Webology Early Citation	118	7.70	19.111	3.59
Webology Early Reader	150	18.29	32.364	9.55
Webology Later Citation	130	8.78	19.932	4.09
Webology Later Reader	154	22.95	37.968	12.25
JoEMLS Early Citation	118	7.70	19.111	3.59
JoEMLS Early Reader	150	6.56	21.246	0.00
JoEMLS Later Citation	130	8.78	19.932	4.09
JoEMLS Later Reader	154	8.33	25.368	0.00

Table 4 shows the correlations between early reads and early and late citation counts across all 9 selected journals using Spearman correlation statistics. The Spearman Rank Correlation was chosen for this purpose as it is based on a ranked value for each variable, whereas the Pearson correlation uses the raw data value. Correlations between early readership and early citation and those between early readership and late citations were positive and ranged from moderately strong to weak in strength, varying by the journal. Early Mendeley reads moderately correlated with later citation counts, and these relationships were robust across journals for the two variables. It is essential to calculate the correlation between early Mendeley reads and both early and late citations, as journals exhibiting extreme values of either, i.e., either uncharacteristically high or low citation counts, can represent inflated counts. This may present a bias in the data shown here as Mendeley readers are not necessarily representative of the entire population of academics reading and citing articles.

Table 4

Correlations between early and late reads and citation counts. ** represents a significant two-tailed correlation ($p<0.01$).

Journal Name	Country Name	Spearman correlation between early reads and early citations	Spearman correlation between early reads and late citations
ALIS	India	.518**	.532**
DJLIT	India	.389**	.386**
JDIS	China	.582**	.404**
JoEMLS	Taiwan	.197*	.266**
Library and Information Science	Japan	.405**	.420**
Malaysian Journal of Library and Information Science	Malaysia	.470**	.544**
PJIML	Pakistan	.406	.240
Progress in Informatics	Japan	.605**	.587**
Webology	Iran	.360**	.357**

Discussion and Conclusion

Data for this study were collected from Mendeley and Scopus databases covering a period of 18 months and a selected 9 LIS journals. The study examined the association between altmetrics and conventional citation counts, comparing Mendeley’s early readership data with early and later citation counts collected from the Scopus database. However, large samples can give approximate results depending on the slight variance within the sample [24]. This research explores how early Mendeley reads can be used to predict later citations. The study examined the reads accrued by each article using the descriptive statistics of mean, standard deviation, frequency, and geometric mean. In response to RQ1, we can use Table 2 to interpret that although readership growth was increased in all selected journals, the average growth in citations was not stable across all journals. The growth rate of citations showed a downward trend. To address RQ2 and RQ3, we can look at the correlations given in Table 4 and interpret that the majority of the selected journals show moderate correlation between early readership and both early and late citation counts. Few journals showed weak correlations between these variables, but all journals showed positive correlations in this regard (Thelwall, 2018b).

Based on the present study’s findings, it can be said that early Mendeley readership gives a useful early indicator for the later citations of published articles. While this study only examined nine journals in a specific research field, it would be interesting to see if future studies are able to confirm that these associations can be used more

generally in other fields and for other journals. Despite the limited data presented from nine journals in LIS, this study found that early Mendeley readership could predict later citations by virtue of the positive correlation between these variables for all journals. Previous studies [24] reported that Mendeley readership can be useful to quantify the early impact of an article and can be used for the evaluation of recently published research articles. Further, it has previously been noted [26] that early tweets positively correlated with later citations. The present study was able to confirm that the Mendeley readership count can be used to assess the early impact of articles within the scope of the study [24], [34] and that this may be valuable in future evaluations of peer-reviewed literature to supplement the use of traditional citations [1].

References

- [1] Aslam, S., & Hameed, S. Correlation of Fnac and Histological Diagnosis in the Evaluation of Breast Lumps. *Journal of University Medical & Dental College*, 3(2), 1-7 (2012).
- [2] Batooli, Z., Ravandi, S. N., & Bidgoli, M. S., Evaluation of Scientific Outputs of Kashan University of Medical Sciences in Scopus Citation Database based on Scopus, Research-Gate, and Mendeley Scientometric Measures. *Electronic Physician*, 8(2), 2048-2056 (2016). <https://doi.org/10.19082/2048>.
- [3] Brody, T., Harnad, S., & Carr, L., Earlier Web Usage Statistics as Predictors of Later Citation Impact. *Journal of the American Society for Information Science and Technology*, 57(8), 1060-1072 (2006). <https://doi.org/10.1002/asi>
- [4] Byaynko, B., Elsevier Acquires Mendeley. *Information Today*, May, 11 (2013).
- [5] Cho, J., A comparative study of the impact of Korean research articles in four academic fields using altmetrics. *Performance Measurement and Metrics*, 18(1), 38-51 (2017). <https://doi.org/10.1108/PMM-02-2016-0005>.
- [6] D'Angelo, C. A., & Di Russo, S., Testing for universality of Mendeley readership distributions. *Journal of Informetrics*, 13(2), 726-737 (2019). <https://doi.org/10.1016/j.joi.2019.03.011>.
- [7] Dehdarirad, T., Could early tweet counts predict later citation counts? A gender study in Life Sciences and Biomedicine (2014-2016). *PLoS ONE*, 15(11), 1-16 (2020). <https://doi.org/10.1371/journal.pone.0241723>.
- [8] Elsevier. Mendeley Manual for librarians. In *Elsevier* (2017). https://www.elsevier.com/__data/assets/pdf_file/0011/117992/Mendeley-Manual-for-Librarians_2017.pdf.
- [9] Haustein, S., & Larivière, V., Mendeley as a source of global readership by students and postdocs? Evaluating article usage by academic status. In *35th International Association of Technological University Libraries (IATUL)*, 2-5 June 2014, Aalto University, Helsinki, Finland. Helsinki, 1-10 (2014). <http://docs.lib.purdue.edu/iatul/2014/altmetrics/2%0AThis%0Ahttp://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=97787053&site=ehost-live>.

- [10] Jeng, W., He, D., Jiang, J., & Zhang, Y., Groups in Mendeley: Owners' descriptions and group outcomes. *Proceedings of the ASIST Annual Meeting*, 49(1), 1-4 (2012). <https://doi.org/10.1002/meet.14504901256>.
- [11] Kudlow, P., Cockerill, M., & Toccalino, D., Online distribution channel increases article usage on Mendeley : a randomized controlled trial. *Scientometrics*, 112(3), 1537-1556 (2017). <https://doi.org/10.1007/s11192-017-2438-3>.
- [12] Li, X., & Thelwall, M., F1000, Mendeley and Traditional Bibliometric Indicators. *Proceedings of 17th International Conference on Science and Technology Indicators*, 3, 541-551 (2012).
- [13] Liu, X., Full-Text Citation Analysis : A New Method to Enhance. *Journal of the American Society for Information Science and Technology*, 64(July), 1852-1863 (2013). <https://doi.org/10.1002/asi>
- [14] Maflahi, N., & Thelwall, M., When Are Readership Counts as Useful as Citation Counts ? Scopus Versus Mendeley for LIS Journals. *Journal of the Association for Information Science and Technology*, 67(1), 191-199 (2016). <https://doi.org/10.1002/asi>.
- [15] Maflahi, N., & Thelwall, M., How quickly do publications get read? The evolution of mendeley reader counts for new articles. *Journal of the Association for Information Science and Technology*, 69(1), 158-167 (2018). <https://doi.org/10.1002/asi.23909>.
- [16] Mohammadi, E., & Thelwall, M., Mendeley Readership Altmetrics for the Social Sciences and Humanities : Research Evaluation and Knowledge Flows. *Journal of the Association for Information Science and Technology*, 65(8), 1627-1638 (2014). <https://doi.org/10.1002/asi>.
- [17] Mohammadi, E., Thelwall, M., & Haustein, S., Who Reads Research Articles ? An Altmetrics Analysis of Mendeley User Categories. *Journal of the Association for Information Science and Technology*, 66(9), 1832-1846 (2015). <https://doi.org/10.1002/asi>
- [18] Naudé, F., Comparing downloads, mendeley readership and google scholar citations as indicators of article performance. *Electronic Journal of Information Systems in Developing Countries*, 78(1) (2017). <https://doi.org/10.1002/j.1681-4835.2017.tb00572.x>
- [19] Nuredini, K., & Peters, I., Economic and Business Studies Journals and Readership Information from Mendeley. *14th International Symposium on Information Science, Zadar/Croatia, 19th–21st May 2015*, 380-392 (2015).
- [20] Ortega, J. L., Altmetrics data providers: A meta-analysis review of the coverage of metrics and publication. *Profesional de La Informacion*, 29(1), 1-24 (2020). <https://doi.org/10.3145/epi.2020.ene.07>.
- [21] Parabhoi, L., How Mendeley Helps to Your Research Work? *National Conference of Agricultural Libraries & User Community (NCALUC-2017) on Libraries Beyond Borders: Navigating Towards Global Dissemination*, 64-70 (2017).
- [22] Parabhoi, L., Borgohain, T., & Sahu, R. R., Mendeley Readership Count: An Investigation of Sambalpur University Publications from 1971-2018. *Library Philosophy & Practice (e-Journal)* (2020). <https://digitalcommons.unl.edu/libphilprac/4335/>.

- [23] Parabhoi, L., & Verma, M. K., Mendeley Readership Counts: An investigation of DESIDOC Journal of Library & Information Technology. *Journal of Science and Technology Metrics*, 1(2), 1-8 (2020).
- [24] Sadik Batcha, M., Do citations make impact on social media?: An altmetric analysis of top cited articles of University of Madras. *Library Philosophy and Practice*, 2018, 1-14 (2018).
- [25] Shrivastava, R., & Mahajan, P., Relationship between citation counts and Mendeley readership metrics. *New Library World*, 117(3), 229-238 (2016). <https://doi.org/10.1108/NLW-09-2015-0064>.
- [26] Thelwall, M., Do Mendeley reader counts indicate the value of arts and humanities research ? *Journal of Librarianship and Information Science*, 00(0), 1-8 (2017). <https://doi.org/10.1177/0961000617732381>.
- [27] Thelwall, M., Differences between journals and years in the proportions of students , researchers and faculty registering Mendeley articles. *Scientometrics*, 115(2), 717-729 (2018a). <https://doi.org/10.1007/s11192-018-2689-7>.
- [28] Thelwall, M., Early Mendeley readers correlate with later citation counts. *Scientometrics*, 115(3), 1231-1240 (2018b). <https://doi.org/10.1007/s11192-018-2715-9>.
- [29] Thelwall, M., Mendeley Reader Counts for US Computer Science Conference Papers and Journal articles. *Quantitative Science Studies*, 1(1), 1-16 (2019). https://doi.org/10.1162/qss_a_00010.
- [30] Thelwall, M., & Nevill, T., Could scientists use Altmetric . com scores to predict longer term citation counts ? *Journal of Informetrics*, 12(1), 237-248 (2018). <https://doi.org/10.1016/j.joi.2018.01.008>.
- [31] Thelwall, M., & Sud, P., Mendeley Readership Counts : An Investigation of Temporal and Disciplinary Differences. *Journal of the Association for Information Science and Technology*, 67(12), 3036-3050 (2016). <https://doi.org/10.1002/asi>.
- [32] Thelwall, M., & Wilson, P., Mendeley Readership Altmetrics for Medical Articles : An Analysis of 45 Fields. *Journal of the Association for Information Science and Technology*, 67(8), 1962-1972 (2016). <https://doi.org/10.1002/asi>.
- [33] Xue-li, L., Hong-ling, F., & Mei-ying, W., Correlation between Download and Citation and Download-citation Deviation Phenomenon for Some Papers in Chinese Medical Journals. *Serials Review*, 37(3), 157-161 (2011). <https://doi.org/10.1016/j.serrev.2011.02.001>.
- [34] Yamakawa, E. K., Kubota, F. I., Beuren, F. H., Scalvenzi, L., & Cauchick Miguel, P. A., Comparing the bibliographic management softwares: Mendeley, EndNote and Zotero. *Transinformacao*, 26(2), 167-176 (2014). <https://doi.org/10.1590/0103-37862014000200006>.
- [35] Zahedi, Z., Costas, R., & Wouters, P., Mendeley readership as a filtering tool to identify highly cited publications. *Journal of the Association for Information Science and Technology*, 68(10), 2511-2521 (2017). <https://doi.org/10.1002/asi.23883>.

