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A CORRELATION COMPARISON ANALYSIS OF TOP ARTICLES IN LIBRARY AND INFORMATION SCIENCE USING CITATION AND ALTMETRIC ATTENTION SCORES

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ABSTRACT

A comparative analysis of the top articles published in library and information science journals has been carried out the use of correlation comparison between the traditional citations v/s modern score derived by the approach of altmetrics score. The common approach points for the study are finding the most popular social media platform for Altmetric studies; the most popular LIS articles grabbed the social media attention; and conducting the correlation comparison of citation and altmetric attention scores. Top 10 LIS journals with the highest Google scholar metrics in terms of h5-index were selected. After analysis, the top ten articles were selected on the basis of highly cited articles, altmetrics attention score, country-wise twitting. The first article has got the highest citations and AAS with 1528 and 1972 respectively and also got highest online attentions from Mendeley with 1930 readers and featured in 31 tweets.Paper-9 has got the highest of 196 tweets, followed by paper 3 & 7 with 99 and 59 tweets respectively.Overall the AAA score, outscored the citations for all articles considered for the study. USA tops the list in the tweeting these top articles with 73, with 51 UK secured second position in twitting scholarly literature. The results found that a significant difference with a negative correlation at r (9) =-.106, p=.770. The study suggeststhat Indian scholars need to use social media sites such as Blogs, Tweets, Facebook, Wiki, Mendeley and others to enable the scholarly literature to reach the wider audience efficiently and effectively.

KEYWORDS: *Top LIS articles, Altmetrics, Tweets, Online attention score.*

INTRODUCTION

In the information and knowledge driven era social media platforms plays as dynamic channels for scholarly communication(Jaring & Bäck, 2017).Thesocial media platforms allowusersto make their own profiles, share thoughts, information and connecting people worldwide(Kietzmann et al., 2011). The popular social media are Facebookwith 2.23 billion users, YouTube with 2 billion users, WhatsApp 2.7 billion users and 330 million twitter users worldwide (Sebastian, 2020); (Lua, 2019); (J, 2019). Social media platforms provide researchers to market and globalize their ideas, share their invention/innovation and emotions(Schramm, 2017). Earlier, very few platforms were to publishing scholarly literature and alsofew metrics were to measure the scholarly impact of literature. Now, it is

possiblefor a researcher to publish their ideas through various social media platforms, andadvanced metrics are present to measure the scholarly literature and its impact. Jason Prime introduced Altmetricsin 2010. Altmetric is the most suitable metrics to measure all types of social media like Facebook, Tweets, Reader count, Downloading, Citation counts, Social networking count statistics(Jason et al., 2010).

Altmetrics is an emerging alternative metric for social media and other online platforms to provide immediate measures (Rosenkrantz et al., 2017). It promptly measures theimpact of an individual article's scorepaired withthe rise of social media for dissemination and discussionof scientific literature, makes it feasible to quantify thediscussion of an article posted on blogs, podcasts, social mediaplatforms, and news media(Trueger et al., 2015).As the traditional metricssuch as citation cannot completely measurethe societal impact (Wooldridge & King, 2019)of scholarly literature in total,the present study findings suggest altmetrics approach could be useful as an aid for assessing scholarly literature impact.Further, Delgado-López-Cózar & Cabezas-Clavijo, (2012) opined that a google scholar metric is an unreliable tool for assessing the scientific journals, upcoming days GSM as a serious competitor to the other existing products for evaluating scientific journals. Whereas altmetrics is an emerging powerful tool for evaluating the multi-dripline scholarly literature (HTOO & NA, 2015), (Hammarfelt, 2014); (Bornmann, 2014) and (Haustein et al., 2014).Social media platforms are playinga vital role in the discussion, sharing, and dissemination of the information.Infuture, blogs and wiki will be a major tool for interacting peer-group scholars (Phillips, 2010).Blogs helps in rapid sharing of research output ideas and reliablein discussing the emerging issues.Powell et al., (2012) suggests the tool to improve the teaching, learning and outreach services in higher education institutions. Tweets are considered as important potential indicators of the immediate social impact of scholarly articles (Sun et al., 2018). ~10% of PubMed articles find a mention in Twitter (Haustein et al., 2014).

In the scholarly communication, Bibliometrics, Informetrics, Scientometrics, Webometrics, Cybermetrics, Librametrics, Patentometrics, Altmetrics, Impact factor, SCImago Journal Rank, SNIP, CiteScore, h5-index, Immediacy Index, g-index, i10index, Google scholar citations are the metrics used to measure the journal, article and author quality and impact (UNESCO, 2015); (Enago, 2017). Altmetrics measures the article'sattention from social media (Wooldridge & King, 2019); (Trueger et al., 2015); (Altmetrics.com, 2019).

Several studies tried comparing altmetrics score with other matrices(Huang et al., 2018); (Vysakh & Babu, 2019); (HTOO & NA, 2015); (Nemati-Anaraki et al., 2017)and found apositive correlation between altmetrics attention score (AAA) and other traditional metrics.Heydari et al., (2019)study found negative correlationn the highly cited articles in surgery. Maggio et al., (2018); Barakat et al., (2018) andDonato, (2014) studies also indicateda negative correlation with altmetrics score.Similarly, Rangaswamy & Babu, (2020); Erfanmanesh, (2017) examine the highly alted article in LIS and top LIS journals and found that the Open Access Advantage by Considering Citation, Article Usage and Social Media Attention with 393 AAA Score.

In thepresent study we try to analyse correlation comparison between the traditional citations v/s modern score derived by the approach of altmetrics score of top articles selected from the world top 10 Library and Information science journals by discussingheterogeneity, inconsistent, lack of standards, quality issues, lack of conceptual framework and other aspects.

RESEARCH QUESTIONS

1. What is the most popular social media platform for Altmetric studies
2. What are the most popular LIS articles grabbing the social media attention
3. How to correlation comparison ofcitation and altmetric attention scores

METHODOLOGY

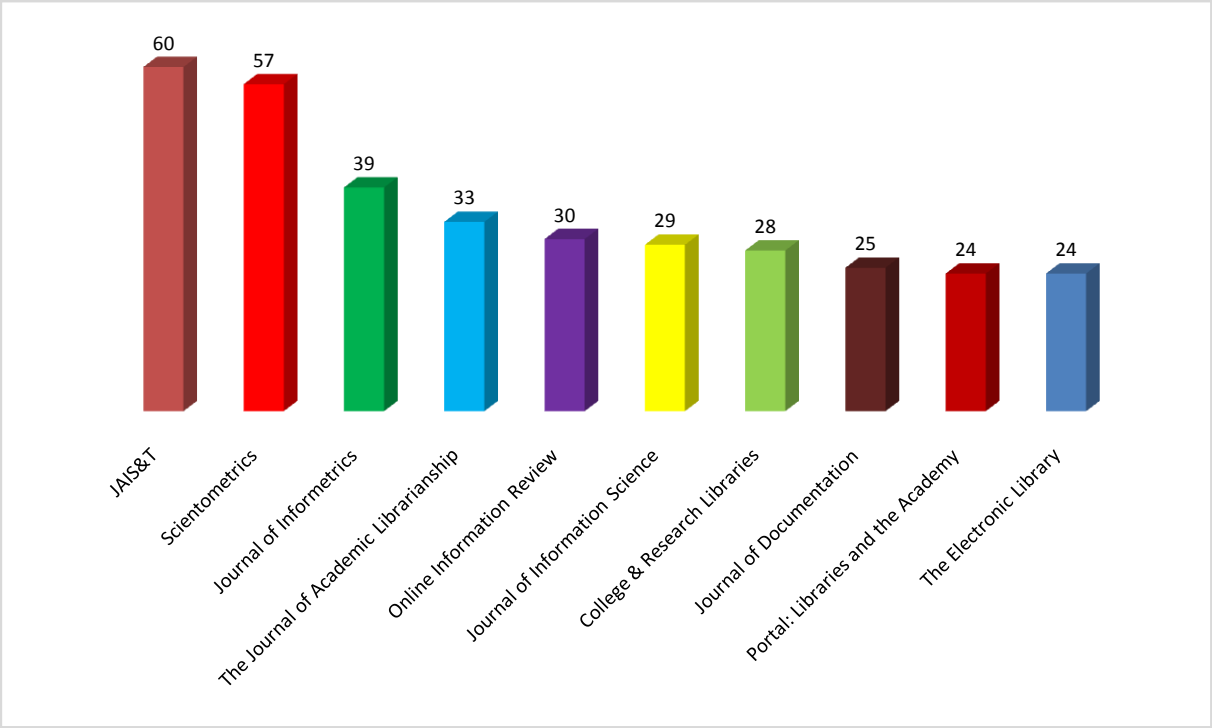
The data has been gathered from Google scholar metrics on top ten cited journals (based on h5 index for the past 10 years period i.e. 2011-2019) in the field of library and information science are Journal of the Association for Information Science and Technology, Scientometrics, Journal of

Informetrics, The Journal of Academic Librarianship, Online Information Review, Journal of Information Science, College & Research Libraries, Journal of Documentation, Portal: Libraries and the Academy, The Electronic Library. The top ten articles from each journal totaling to 100 articles were exported to MS-Excel format and sorting them from highest to lowest as per citations. After analysis, thetop ten articles were selected on the basis of highly cited articles, altmetrics attention score, country-wise twitting. Further to find the correlation between Citation Score and AAS.

Data Analysis and Interpretation

The collected data were presented in the form of simple tables and graphs with suitable interpretation.

Figure-1:Top 10 LIS Publications (h5 Index)



Data in the figure-1 shows the top 10 LIS journals with the highest Google scholar metrics in terms of h5-index.The highest h5-index presence was forthe Journal of the Association for Information Science and Technology publication with 60 h5-index, followed by Scientometrics journal with 57 h5-index, a h5-index score of 39 forthe Journal of Informetrics, Academic Librarianship got 33 h5-index, Online Information Review with 30 h5-index and a least h5-index score forthe emerald publication 'Electric Library'journalwith 24 h5-index.

Table-1: Highly cited articles in LIS

Rank	Title	Author	Citations	AAS	Publisher
1	The sharing economy: Why people participate in collaborative consumption	Hamari et al., 2016	1528	1972	ASIS&T
2	Growth rates of modern science: A bibliometric analysis based on number of publications and cited references	Bornmann, 2014	449	427	ASIS&T
3	Do "altmetrics" correlate with citations? Extensive comparison of altmetric indicators with citations from a multidisciplinary perspective	Costas et al., 2015	419	629	ASIS&T
4	The journal coverage of Web of Science and Scopus: a comparative analysis	Mongeon & Paul-Hus, 2016	362	629	Springer
5	A review of the literature on citation impact indicators	Waltman, 2016	324	449	Elsevier
6	Google Scholar, Scopus and the Web of Science: a longitudinal and cross-disciplinary comparison	Anne Kennan, 2011	312	626	Springer
7	How well developed are altmetrics? A cross-disciplinary analysis of the presence of 'alternative metrics' in scientific publications	Costas et al., 2015	308	450	Springer
8	Do altmetrics point to the broader impact of research? An overview of benefits and disadvantages of altmetrics	Bornmann, 2014	278	522	Elsevier
9	Tweeting biomedicine: An analysis of tweets & citations in biomed. literature	Haustein et al., 2014	273	491	ASIS&T
10	Research Gate: Disseminating, comm., & measuring Scholarship?	Thelwall & Kousha, 2015	273	283	ASIS&T

The top10 highly cited papers with their corresponding citations and altmetric attention (Google scholar metrics) scores are tabled above. The sharing economy: Why people participate in collaborative consumptionis high-performance authored by JuhoHamari etal. got the highest citations and AAS with 1528 and 1972 respectively.The second highest altmetric attention score got for the article titled 'Do "altmetrics" correlate with citations? Extensive comparison of altmetric indicators with citations from a multi-disciplinary perspective' by Lutz Bornmann, Rüdiger Mutz with 419 citation and 629 AA Score. The least citations among the top ten articles was byMike Thelwall, KayvanKoushaarticle titled 'Research Gate: Disseminating, communicating and measuring Scholarship' with 283 attention score and 273 citations.

Table-2: Highly Cited and Altmetrics Attention Score Articles

Paper	Blogs	Tweets	Fb	Wiki	Mendeley	Others	Total	AAS
1	-	31	2	2	1930	7	**1972**	56
2	5	2	2	-	415	3	**427**	44
3	12	99	2	-	509	7	**629**	140
4	3	63	-	1	561	1	**629**	63
5	-	20	-	-	428	1	**449**	14

6	3	25	3	1	593	1	**626**	45
7	4	59	-	-	378	9	**450**	69
8	5	11	-	-	501	5	**522**	37
9	11	196	2	2	265	15	**491**	273
10	2	5	-	2	272	2	**283**	24
Total	**45**	**480**	**9**	**6**	**3922**	**44**	**4506**	**709**

Data in the table-2 shows thatHighly Cited Online and Altmetrics Attention Score Articles, out of 10 high-alted articles based on altmetric score in various social media sites, the study results reveal that paper-1 got highest online attentions from Mendeley with 1930 readers and featured in 31 tweets. Paper-9 got the highest tweets with 196, but in Mendeley it has the lowest reader rate with 265 compare to paper-1.

Figure 2: Country wise tweets

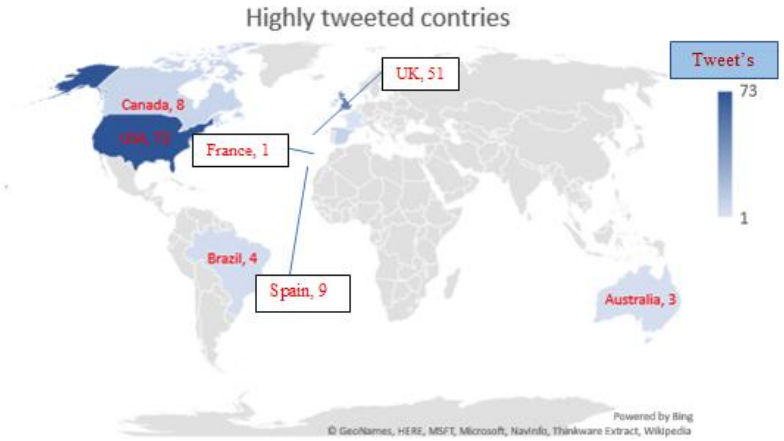
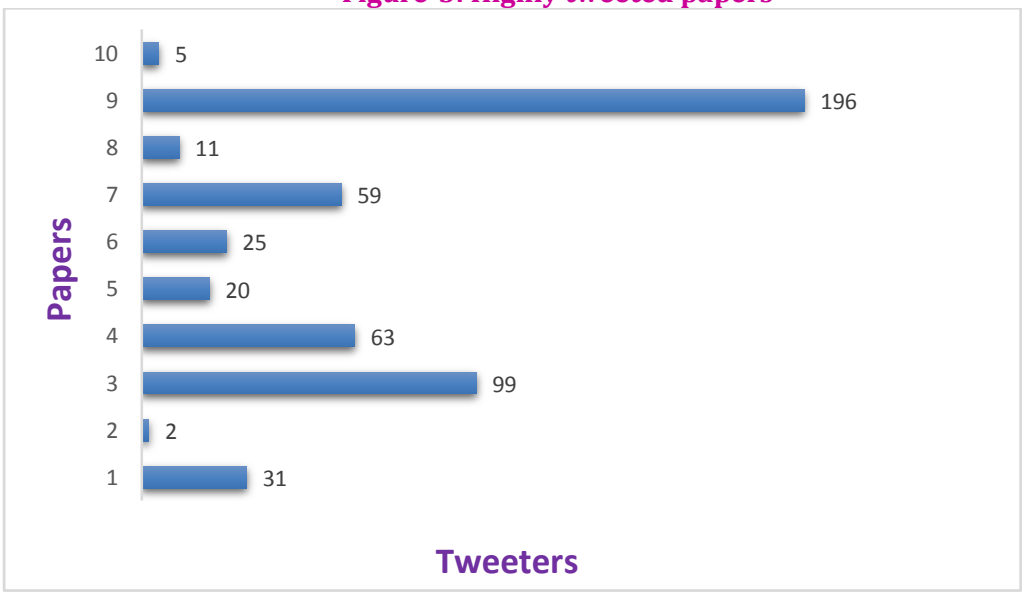


Figure-2 shows the top LIS articles tweeted by different countries worldwide.USA tops the list in the tweeting articles with 73, with 51UK secured second position in twitting scholarly literature. No Indian scholar did a mention of these top articles.

Figure-3: Highly tweeted papers



Above the figure-3 indicates highly tweeted papers in the field of library and information science, paper-9"Tweeting biomedicine: An analysis of tweets and citations in the biomedical literature"

got the highest (196) tweets, followed by paper 3& 7 with 99 and 59 tweets respectively, whereas Paper 2 got least number of tweets.

Table-3: Correlations between Citations and AAS

Correlations			
		Citations	AAS
Citations	Pearson Correlation	1	-.106
	Sig. (2-tailed)		.770
	N	10	10
AAS	Pearson Correlation	-.106	1
	Sig. (2-tailed)	.770	
	N	10	10

To prove the assumption of the study that highly cited papers have a high altmetrics attention score, Pearson correlation test was applied and the results showa negative correlationr (9) =-.106, p=.770.

DISCUSSION AND CONCLUSION

Statista, (2019) report claims USA stands atop in number of twitter user accounts with 48.35 million users. UK got second position with 51 in twitting scholarly literature. India has 6.7 million twitter user accounts, but the study found that none of the papers managed to get any tweets. It indicates Indian scholars may have failed to use social networks for their academic purpose effectively. It was to find out significancefor citations and altmetric attention score, Pearson correlation test results shows significant difference for the highly cited papers that have a high altmetrics attention score. The"Journal of the Association for Information Science and Technology" got the top position in the LIS journal list across the world and shows the quality of the journal.Further, 'the sharing economy: Why people participate in collaborative consumption' by JuhoHamari et.al paper stands first place with 1528 citation and 1972 AAS. It can be noted that Indian scholars need to use social media sites such as Blogs, Tweets, Facebook, Wiki, Mendeley and others effectively to enable the scholarly literature to reach the wider audience to increase the efficiency and effectiveness of Indian research.

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