

Open Access advantage?

An altmetric analysis of Finnish research publications

Introduction

Altmetrics generally rely on openly available data about mentions of research products, such as scientific articles identified by DOIs. This would suggest that an open access advantage would be inherent in altmetrics. An open access advantage has indeed been discovered in earlier research. Wang et al. (2015) found that open access articles in a specific hybrid journal received more social media attention. Alhoori et al. (2015) came to similar conclusions, however, the open access advantage they discovered was lower when factors such as journal, publication year, and citation counts were taken into account. This research in progress investigates the open access advantage of the altmetrics of Finnish research publications and examines disciplinary differences in that advantage.

Data and methods

Data about Finnish research publications was retrieved from the Juuli database. The data in Juuli is collected annually from Finnish research organizations. Information from a total of 114,496 publications published from 2012-2014 by authors at 14 Finnish universities was retrieved from Juuli. CrossRef was queried through their API in an effort to add missing DOIs to the data, after which a total of 38,819 publications had a DOI attached to them. These DOIs were used to search the altmetric data provided from Altmetric.com and to retrieve Mendeley readership counts from the Mendeley API. A total of 12,438 Finnish research publications from 2012-2014 had at least one altmetric event. It was discovered that some publications were collaborative between Finnish universities; in our analysis these publications were counted for each participating university, thus resulting in a total of 13,301 Finnish research publications from 2012-2014 with at least one altmetric event captured by Altmetric.com or one Mendeley reader.

A breakdown by university showed that University of Helsinki had published about 30% of these articles and University of Turku had published about 13% of the articles, while the other universities had published less than 10% of the articles each. Yearly, roughly 27% of articles were published in 2012, 36% in 2013, and 37% in 2014.

About 80% of articles in both open access journals (as listed in the DOAJ) and non-open access journals were indexed by Web of Science. Of the articles published in open access journals, 9.2% were on the Publication Forum¹ level 3, 42.4% were on level 2, 44.1% on level 1, and 4.3% had no level (level 0). Significantly more articles in the journals that were not open access were listed higher: 34.3% were on level 3, 33% on level 2, 31.6% on level 1, and 1.1% had no level assigned.

Results

In our analysis we focused on the top 10th percentile of each type of event as captured by Altmetric.com. A comparison of the average number of events that the top articles had received showed how the open access advantage varies between platforms monitored by Altmetric.com and also between fields of research. In Social Sciences and Humanities a clear advantage for open access journals could only be detected in the number of tweets on Twitter that the Finnish research articles

¹ Publication Forum is a classification of publication channels to support the assessment of Finnish research, ranging from 3 (highest level) to 1 (basic level).

attracted (Figure 1). A clear opposite influence was detected for Mendeley readership, with on average about 71 readers for articles in open access journals against about 109 readers for articles in subscription based journals.

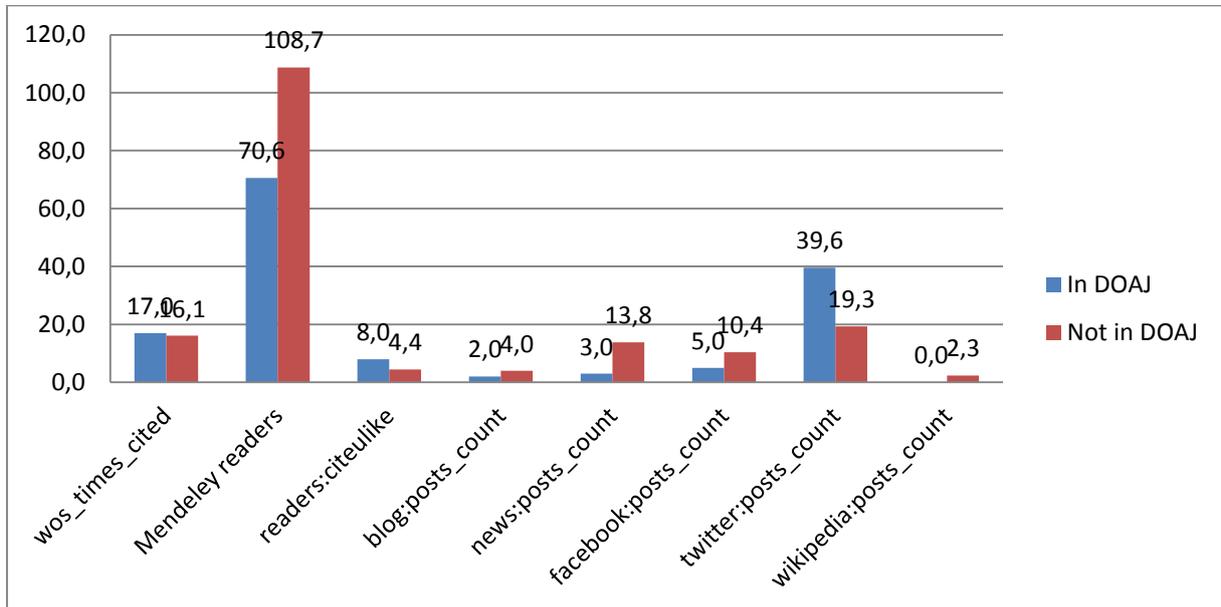


Figure 1. Average number of altmetric events for Finnish research articles in Social Sciences and Humanities published in journals listed in the DOAJ and not listed in the DOAJ.

In Natural Sciences a clear open access advantage was detected for citations, Mendeley, and Twitter, and to a lesser degree even for blogs and Facebook (Figure 2).

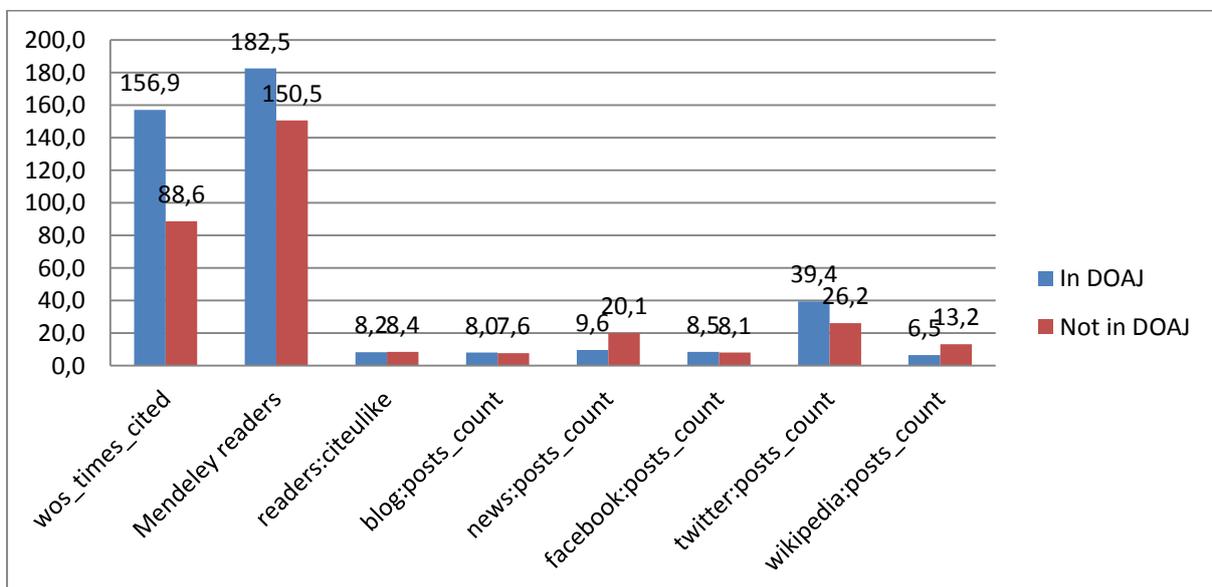


Figure 2. Average number of altmetric events for Finnish research articles in Natural Sciences published in journals listed in the DOAJ and not listed in the DOAJ.

In Medical and Health Sciences a slight open access advantage was detected for CiteULike, while no open access advantage for any of the other platforms were detected for Agricultural Sciences, Engineering and Technology.

Discussion

The results show great disciplinary differences in the accumulated altmetric events of Finnish research publications, with Twitter and Mendeley being most prominent sources of altmetrics overall. Future research will include a control group of randomly selected international publications and comparisons between other national research outputs.

References

Alhoori, H., Choudhury, S., Kanan, T., Fox, E., Furuta, R., & Giles, L.C. (2015). On the relationship between open access and altmetrics. In *iConference 2015 Proceedings*.

Wang, X., Liu, C., Mao, W., & Fang, Z. (2015). The open access advantage considering citation, articles usage and social media attention. *Scientometrics*, 103:555-564.