

# Mendeley Readership Impact of Academic Articles of Iran

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## Introduction

By means of formal citation analysis, although scientific impact of research was measured, so far other influential aspects of research such as readership and educational impact was simply ignored. Now online reference management tools such as Mendeley allow creating collections of digital paper holdings, and collaborative filtering of scientific publications, whose data proved to predict future formal citations (Li, Thelwall & Giustini, 2012). Mendeley metric obtains credit by measuring readership, for majority of users who add papers to their Mendeley libraries to read, although they may save them to cite or use in professional, educational, or teaching activities (Mohammadi, Thelwall & Kousha, in press). Mendeley readership also has potentials to present knowledge flow across fields (Mohammadi & Thelwall, 2012), and popularity of papers among users from within various countries (Maflahi & Thelwall, 2014) and academic career stages (Haustein & Larivière, 2014). Although this metric is studied for patterns of impact in various fields, its application for research impact assessment practice in developing countries is less known. Therefore, this research assessed WoS (Web of Science of Thomson Scientific) publications of Iran (2000-2012) for users in Mendeley across four broader research areas. In addition, career stages and nationalities of Mendeley users are also analysed for patterns of interested users in papers. The results may help to understand how and to what extent Mendeley readership metric is applicable to assess publications of authors in Iran.

## Method

To assess the extent to which publications are included in Mendeley libraries of users a random sample of 31,629 WoS-indexed papers with Iranian authors in 2000-2012 were selected, which comprise about 31% of all publications with DOIs, including 11,030 (35%) in broader field of life science and biomedicine, 11,618 (32%) in physical sciences, 8,462 (27%) in technology, and 519 (20%) in social science. Mendeley readership counts are gathered by submitting DOIs to *ImpactStory.org*, in July 2013. Some articles were recorded in Mendeley with multiple variations, then to avoid duplicates the ones with higher readership counts were considered.

There is a limitation regarding the data available for analysing users' career stage and nationality, which is also observed in previous studies (Mohammadi & Thelwall, 2014; Haustein & Larivière, 2014). Statistics are suggested in Mendeley for top three countries and career stages of users. For this reason, although there is a 100% contribution of users in about 67% of publications, rest of the papers include nationalities or academic stages for 24% to 94% of total users. Therefore, although a high extent of users' career stage and nationality were available, findings are not a full reflection of user properties.

## Results

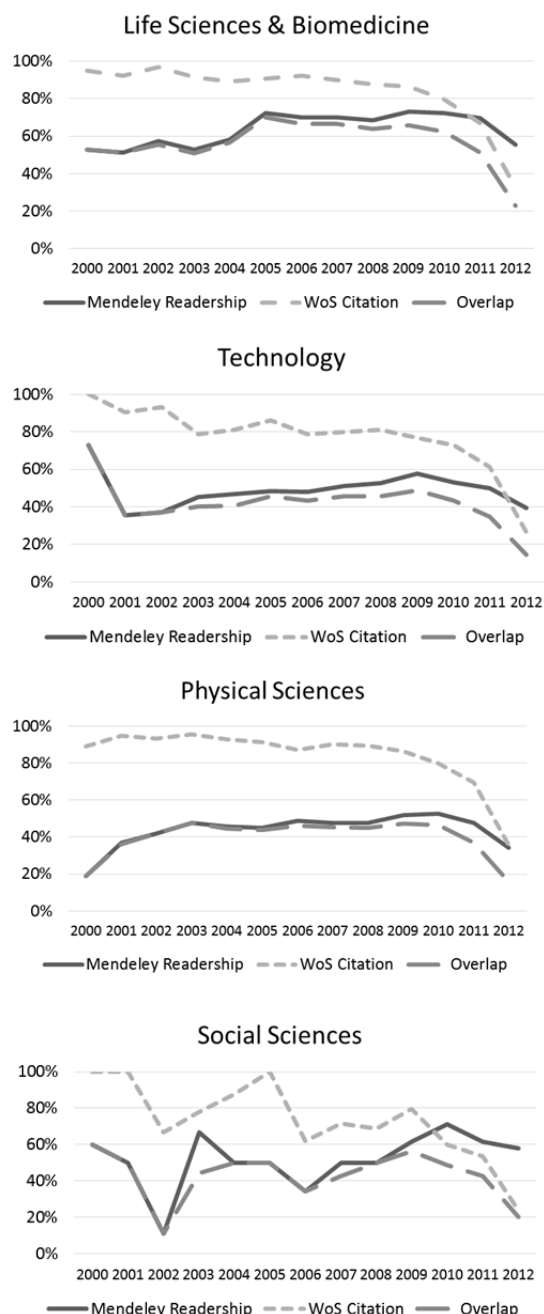
Overall results suggest that about 53% of papers (16,667) had at least one user in Mendeley. The field of life science and biomedicine (65%) had the highest coverage in terms of the papers included in Mendeley libraries; and it is followed by social sciences (50%), technology (48%) and physical sciences (44%). The figures 1 to 4 over years show proportion of publications with WoS citations, Mendeley readerships, and both of them (overlap) in four broader research areas. They show that although there are relatively less papers in recent years with WoS citations for the natural publication delay, readership uptake of publications follow a slighter decrease, where in the most recent years there are more papers read than cited. The findings suggest that 21% of publications in social sciences in 2012 only have readers whereas they do not receive citations; and this proportion is higher than the extent of publications which only receive citations (16%). By contrast, in other three fields the extent of papers only with citations are higher in proportion than the ones only with readers - 19% vs. 15% in life sciences and biomedicine, 27% vs. 14% in technology, and 36% vs. 8% in physical sciences. Therefore, uptake of publications highly vary in the most recent papers by the two metrics.

### *Career stages and nationalities of Mendeley users*

Results suggest that 31,629 readerships are mainly associated with the engagement of 30% (9,641) Ph.D students, 17% (5,233) master students, 9% (2,895) post docs, and 7% (2,325) researcher at academic institutions, whereas professors (4%), lecturers (2%), and senior lecturers (1%) are in minority.

Further results suggest that 79% of articles had at least one Mendeley user in the top 10 countries

whereas other users are in 118 other countries. The papers with US readers are in majority (3,974 articles, 24%) in all fields except in technology where papers with Indian readers are high (3,025 articles mainly in physical sciences and technology, 18%). Also, UK readers include more papers (2,840 papers mainly in life science and biomedicine, 17%) than Iranian readers (11%, 1,897 papers with higher proportions in physical sciences).



**Figures 1-4. Trend of relative proportion of publication uptake via formal WoS citations, Mendeley readerships and both of them (overlap) across four broader research areas- Y-axis shows percent of publications in each year.**

## Discussions and Conclusions

The main findings of study suggested that trend of publications' online readership is not only faster than WoS citations, but also is different from it. Many of the papers with Mendeley readers exclude WoS citations. They are often papers that might be read rather than cited, mostly in social sciences. This seems to be the advantage of online readership metric for evaluation of research in social sciences, and seems to be applicable for publications of Iran. However, in other field a considerable extent of papers also seem to get readers faster than citations, often in life sciences and biomedicine.

The results about career stages of the users are in line with previous observations in Haustein and Larivière (2014) and Zahedi, Costas and Wouters (2014) as they also found the highest inclusion of papers by Ph.D. students and the lowest by the lecturers and librarians. However the results about nationality of the readers differ from Thelwall and Maflahi (2014), since Iranian users of Mendeley are not excessively adding publications to their libraries but US, India and UK readers, which may reflect distribution of Mendeley users in various countries, than potential readers worldwide. Ultimately, it seems that Mendeley readership metric may help to assess impact of the publications, especially in fields, which tend to receive citations late.

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