Gender Differences in Mendeley Readership Altmetrics

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Introduction

- The web has provided new opportunities for academics to disseminate their research results, and the impact of scientific publications that can now be measured in social media (Wouters and Costas, 2012; Bar-Ilan and van der Weijden, 2015).
- Given the democratic nature of the digital world, it is expected that the web will provide a sexually-neutral milieu, where both genders benefit from the increase in their recognition with regards to web citations (Kretschmer and Aguillo, 2005), event counts from Twitter, blogs, and profile views (Thelwall and Kousha, 2015).

Objectives

- To examine the relationship between the number of readership counts and proportion of female authors per paper.
- To investigate the relationship between gender composition of authorship teams (for which the proxy was male-male, female-female, male-female authorship teams) and the number of readerships received per paper.

Methods

1. Data Collection

The dataset comprised 1,007 articles in the field of neuroscience indexed in the Web of Science database in 2009-2013 (using stratified random sampling).

Table 1. The total number of publications and the stratified sample size by year, 2009-2013

Year	Total number of publications (%)	Stratified sample size
2009	28.819 (18.81)	199
2010	30,154 (19.69)	208
2011	31,030 (20.26)	214
2012	31,265 (20.41)	218
2013	31,914 (20.83)	221
Total	153,182	1,060

Note: 53 (5%) of papers were eliminated as we could not detect the gender. Therefore, our resulting data set comprised 1007 papers.

- To get the Mendeley readership data, we used Webometric Analyst (lexiurl.wlv.ac.uk) to automatically extract Mendeley readership counts for the downloaded articles from WoS via the Mendeley API.
- The search was conducted on 11th of June 2015 using a query containing the title, authors, publication year and DOI.

2. Data Analysis

Pierson correlation and ANOVA were used in order to analyse the objectives of the study.

Results

- Regarding the results indicated a weak negative correlation [r (1007) = -0.06, p =0.048].
- The papers with the largest mean of readership counts were those written by male-male authorship teams followed by female-female and male-female teams.
- An analysis of variance (One-way ANOVA) showed no effect of gender composition of authorship teams on the number of readership counts received per paper, [F (2, 1004) =1.747, P=0.175].

Table2. Descriptive statistics on authorship teams

Authorship teams	N	M (sd)
Male-male	230	27.12 (40.25)
Female-female	41	24.24 (29.91)
Female-male	736	22.46 (30.69)
Total	1007	23.59 (33.11)

Table 3. One-way analysis of variance of readership counts by authorship team composition

Source	df	SS	MS	F	p
Between groups	2	3827.15	1913.57	1.74	.175
Within groups	1004	1099485.91	1095.10		
Total	1006	1103313.09			

Conclusions

- This paper provides an insight into the research impact of female and male scholars in a social reference site, Mendeley.
- The results indicated a slight bias in the number of received readership per paper in favour of men. In other words, an increase in the proportion of female authors per paper was slightly correlated with a decrease in the number of readership counts received.
- However, the gender composition of authorship teams did not show any bias in terms of Mendely readership altmetrics.

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