

Any Publicity Good Publicity? The Effect of Satirical Bias on Twitter and the Altmetrics Attention Score

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Introduction

Altmetrics emerges from three important trends regarding the relation between society and academia: the rise of social media in society, business, and academia (Caers et al., 2013; Manca & Ranieri, 2017), the importance of societal impact of research (Bornmann, 2013; Miettinen, Tuunainen, & Esko, 2015), and the increased indicator-based quantification of research outputs (Smith, 2012; Tourish & Willmott, 2015; Waltman, 2016). Although altmetric measures, especially the Altmetrics Attention Score, have become the most prominent metric for the impact of research on the internet, researchers failed to provide evidence on what altmetric scores actually measure (see, e.g., Bornmann, 2016; Ke, Ahn & Sugimoto, 2017). Hence the call for more in-depth and content-based analyses regarding altmetric indicators (Bornmann, 2016). Surprisingly, scholars have conducted very little research on the social activities behind the altmetrics scores so far. Altmetrics are inherently linked to the communication process of the social media platforms. Are altmetrics scores rather a result of marginal activist groups or individuals, or are they a reflection of a larger societal impact of research?

We address this research gap with an empirical study of how a single Twitter account may contribute to two important altmetric indicators, Twitter and the Altmetric Attention Score. We particularly focus on the Twitter account “New Real Peer Review (@RealPeerReview)”, an account that constantly picks up research articles, mostly concerning gender studies. The account questions not only the research results in its posts, but also uses satire to undermine the whole premise of such research.

We address the following research questions: (1) Can a single social media account influence significantly altmetric measures? And (2) can satire rather than serious research uptake be a driver of altmetric scores?

Data and Methods

The two research questions we address in this paper are closely related. The first question, whether a single Twitter account can significantly influence the altmetric scores of an article it tweets, is of descriptive nature. We simply investigate how dependent altmetrics scores for articles can be on the activity of a single account. The second question is content-related. It reflects about reasons for altmetric activity and how non-scientific content can influence altmetrics scores.

We use a data set containing all tweets from February 2016 until November 2017 linked to the Twitter account @RealPeerReview (@RPR) for our analysis. The data was delivered by Altmetrics.com upon request and was fetched in early 2018. The data contains several variables on the article level, i.e. mention type, twitter source, altmetrics attention score, type of publication, publication title, the publication's doi, tweet date etc. It contains 2353 tweets on publications related to the @RPR account. After cleaning for duplicate publications by retaining only the first mention of an article by @RPR, the data contained 1879 publications. This set was further reduced to 1694 articles by retaining only items of publication type "article". We then randomly selected 99 articles from this set for which we manually fetched the data we need to address our research questions from both Twitter and altmetrics.com: The total numbers of tweets and the total number of @RPR-related tweets fetched by Twitter, as well as the Altmetrics Attention Score, total number of tweets and total number of @RPR-related tweets fetched by Altmetrics. Furthermore, we also fetched the number of tweets an article received before it was first mentioned by @RPR.

To address our first research question, i.e. whether a single social media account can influence significantly altmetric measures, we calculate several indicators, such as the percentage of @RPR-related Tweets of total Tweets, the variance of Tweets explained by @RPR-related Tweets or the number of Tweets an article received before @RPR intervention.

To address our second research question, i.e. whether satire rather than research uptake can drive the altmetrics indicators, we identify four groups of articles based on the number of Tweets before and after @RPR intervention and investigate how the @RPR account can influence the AAS using the context data provided by altmetrics.com, i.e. in which percentile the article falls regarding the attention score.

Preliminary results

While this is a work-in-progress paper, we can already present first results. Our Twitter analysis shows that articles having "enjoyed" an @RPR intervention receive quite some Twitter attention and have relatively high AAS scores. Regarding the question whether this is due to the fact that @RPR picks up articles already highly discussed on Twitter or whether Twitter attention rather kickstarts after @RPR intervention, we identify four categories of papers: 1) Papers for which @RealPeerReview is solely responsible for its AAS (20%), 2) Papers for which the @RPR constitutes to a significant portion of its AAS (40%), 3) Papers whose attention has been amplified by @RPR (20%), and 4) Papers that have received attention regardless of @RPR (20%).

Discussion

Analysing the effect of a single Twitter account (@RPR) on the Twitter and the Altmetrics Attention Score (AAS) of a randomized sample of 99 papers mentioned on the Twitter feed of this account, reveals that a single account can significantly bias Twitter scores and the AAS. It also shows that purely satirical content can push articles from zero attention to extremely high AAS scores (5th percentile). This suggests that the AAS is portrayed as an indicator of impact, but not necessarily impact in any meaningful variation of the word.

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