The Quest for Better Filters

The scientometrics community has not been blind to the limitations of citation measures, and has collectively proposed methods to gather evidence of broader impacts and provide more detail about the science system: tracking acknowledgements [10], patents [11], mentorships [12], news articles [8], usage in syllabuses [13], and many others, separately and in various combinations [14]. The emergence of the Web, a “nutrient-rich space for scholars” [15], has held particular promise for new filters and lenses on scholarly output. Webometrics researchers have uncovered evidence of informal impact by examining networks of hyperlinks and mentions on the broader Web [16–18]. An important strand of webometrics has also examined the properties of article download data [7,19,20].

The last several years, however, have presented a promising new approach to gathering fine-grained impact data: tracking large-scale activity around scholarly products in online tools and environments. These tools and environments include, among others:

- social media like Twitter and Facebook
- online reference managers like CiteULike, Zotero, and Mendeley
- collaborative encyclopedias like Wikipedia
- blogs, both scholarly and general-audience
- scholarly social networks, like ResearchGate or Academia.edu
- conference organization sites like Layrd.com

Growing numbers of scholars are using these and similar tools to mediate their interaction with the literature. In doing so, they are leaving valuable tracks behind them—tracks with potential to show informal paths of influence with unprecedented speed and resolution. Many of these tools offer open APIs, supporting large-scale, automated mining of online activities and conversations around research objects [21].

Altmetrics [22,23] is the study and use of scholarly impact measures based on activity in online tools and environments. The term has also been used to describe the metrics themselves— one could propose in plural a “set of new altmetrics.”

Altmetrics is in most cases a subset of both scientometrics and webometrics; it is a subset of the latter in that it focuses more narrowly on scholarly influence as measured in online tools and environments, rather than on the Web more generally.

Altmetrics may support finer-grained maps of science, broader and more equitable evaluations, and improvements to the peer-review system [24]. On the other hand, the use and development of altmetrics should be pursued with appropriate scientific caution. Altmetrics may face attempts at manipulation similar to what Google must deal with in web search ranking. Addressing such manipulation may, in-turn, impact the transparency of altmetrics. New and complex measures may distort our picture of the science system if not rigorously assessed and correctly understood. Finally, altmetrics may promote an evaluation system for scholarship that many argue has become overly focused on metrics.

Scope of this Collection

The goal of this collection is to gather an emerging body of research for the further study and use of altmetrics. We believe it is
greatly needed, as important questions regarding altmetrics’ prevalence, validity, distribution, and reliability remain incompletely answered. Importantly, the present collection, which has the virtue of being online and open access, allows altmetrics researchers to experiment on themselves.

The collection’s scope includes:

- Statistical analysis of altmetrics data sources, and comparisons to established sources
- Metric validation, and identification of biases in measurements
- Validation of models of scientific discovery/recommendation based on altmetrics
- Qualitative research describing the scholarly use of online tools and environments
- Empirically-supported theory guiding altmetrics’ use
- Other research relating to scholarly impact in online tools and environments

The current collection includes articles that address many of these areas. It will publish new research on an ongoing basis, and we hope to see additional contributions appear in the coming months. We look forward to building a foundation of early research to support this new field.

Author Contributions
Wrote the paper: PG JP DT.