

BOOK REVIEW

Roemer, Robin Chin and Borchardt, Rachel (eds.). *Meaningful metrics: a 21-st century librarian's guide to bibliometrics, altmetrics, and research impact*. Chicago, Il.: ACRL, 2015. 251 p. ISBN 978-0-8389-8755-1. \$60.00.

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The authors of this book Robin Chin Roemer and Rachel Borchardits, are, respectively, a librarian at the University of Washington libraries and former communication librarian at the American university in Washington; and a science librarian at the American University in Washington. They set out to describe the concept of impact from two unique perspectives including print-based perspective of bibliometrics and Web-based viewpoint of altmetrics. The book suggests widening the scope of metrics in the academic field with a special focus on the role of librarians. It is divided into four thematic parts namely impact, bibliometrics, altmetrics, and special topics. Each part includes two chapters.

The Foreword is written by Jason Priem and Heather Piwowar who are the co-founders of impact story, an open source, Web-based tool helping researchers measure the impacts of all their research outputs. They suggest that alternative metrics (altmetrics) for measuring research impact are diverse and broad and have a big potential, therefore, the policy-makers should consider their use. They also note the crucial role of academic librarians as connectors between scholars and forward-thinking policy makers.

The first part introduces the concept of *impact* and elaborates its understanding and implementation in practice in two chapters. Generally, *effect* and *force* are introduced as two prominent principles of impact. However, it is difficult to discuss the concept of *impact* due to its immeasurable nature. As a result, it is necessary to move beyond the restrictions of citation-based impact indicators. Moreover, increasingly complex interdisciplinary and sub-disciplinary research requires a broader scope of metrics in academia. The authors explain the reasons why the new metrics become more and more important. They only omit time factor as one of the reasons to use altmetrics, as research output spreads quickly through social networks and can make immediate impact while citation-based metrics measure it over longer time.

Chapter 3, deals with *Bibliometrics*, its history and milestones from 1960-2014. Impact indicators are categorized in four levels: individual contribution metrics (e.g., citation frequency of an article); characteristics of venues publishing scientific

contributions (e.g., impact factor, Eigenfactor, etc); author-level metrics (like H-index and I10-index); and institution-level metrics (like Essential Science Indicators). Additionally, the categories of bibliometric tools are addressed and new bibliometric resources such as Book Citation Index, Data Citation Index as well as InCites Analytics are introduced to the reader.

Chapter 4 *Bibliometrics in practice* takes a reader through a practical tour with hands-on exercises helping to master the main metric tools, such as, Web of Science, Scopus, and Google Scholar. The chapter gives in-depth explanations about the usage of these tools and recommends some practical exercises. We have found that the discussion about journal rankings within Thomson Reuters (JCR), SCImago and Google Scholar as well as Publish or Perish (POP) is very interesting and illuminating.

Chapter 5 *Understanding altmetrics* examines the history of altmetrics (milestones by year) as an academic movement and its variety as well as extension. Many interested actors feel the necessity of applying indicators to measure real time impact as the consequences of the revolution of Web 2.0 and increasing interaction within scholarly communities through social media. The authors introduce the same four levels of altmetrics as in bibliometrics that can help measuring this immediate impact. Individual contribution level metrics include the most popular, stable, and fundamental indicators, such as, usage metrics, capture metrics, mentions, social media metrics as well as scores and rankings. Moreover, venue-level metrics are described as level 2 metrics and exemplified by their application on public library of science (PLOS ONE) and Wiley journals. Besides, in level 3, author-level metrics like Impactstory profiles, plumX sunbursts, research Gate RG scores are covered. Finally, institution-level metrics such as plumX group metrics, altmetric for institutions and snowball metrics are elaborated. Altmetrics tools are categorized in two types, namely, harvesters (i.e., Impactstory, PlumX and Altmetric.com) and peer-networks (i.e., ResearchGate, Mendely, Academia.edu, CiteULike, and Faculty of 1000). It is also demonstrated that there is little correlation between tweets and citations in these case studies. It might be that they measure quite different types of impact.

Chapter 6 presents some of the most useful tools and applications in altmetrics. There are also some useful walk-through examples to get through the tools in action. The usage and analysis of PlumX, Impactstory and Scopus data are depicted in figures and tables. The authors also stress that it has become more common among librarians to apply altmetric tools in order to help researchers and administrators to establish more varied research impact.

Disciplinary impact is explicated in chapter 7. The chapter investigates the strengths and weaknesses of various tools and metrics of impact in concrete settings of different disciplines (sciences, social sciences, and arts and humanities) as well as multidisciplinary and interdisciplinarity fields. Accordingly, some subjects are fleshed out as areas of development and being outside traditional bibliometrics paradigm. The authors explore different citation cultures in different subjects in science (biomedical sciences, mathematics, physics and computer science), social sciences (communication, political Science and history) as well as in arts and humanities (English and the humanities, dance and the arts). Many of them require understanding of a different spectrum of impact, and may benefit from fuzzy metrics and altmetrics. Balancing between quantitative and qualitative metrics is underlined

particularly by providing a different perspective of impact using altmetrics. Interdisciplinary scholars in particular can demonstrate more impact to faculty peers and administrators by using broader altmetrics.

In the final chapter, *Impact and the role of librarians* are discussed in detail. The chapter clarifies how libraries can influence the world of impact and how librarians can produce meaningful metrics. The role of librarians as information professionals is to provide basis for estimating scholarly impact, such as, library collections and institutional repositories. Their scholarly and professional knowledge as well as close relationships with academic population puts them into an influential, though precarious position. The chapter identifies strategic areas of support and advocacy for proper application of scholarly metrics. The authors present two case studies and four practical tips for librarians including staying current and up-to-date, getting networked, facilitating conversations and sharing knowledge, and thinking critically and broadly. Though there is nothing too innovative in these tips, it is nevertheless useful to be reminded of the basic factors on which the influential positions rest.

All in all, altmetrics is a multifaceted concept and enables scholars to present new and unusual forms of measuring research impact. Though there are some disadvantages with regard to the usage of altmetric tools, we have librarians who can help to present new top-down solutions to make the scholars and faculties more informed. Citation analysis also has its shortcomings and does not measure comprehensive impact of scientific production, thus academic society can use the potential of altmetrics to overcome the weaknesses of traditional bibliometric measurements and analysis. One can predict that in the future, altmetrics will not merely provide alternative and supplementary indicators but will be intertwined with other research evaluation metrics.

Generally, the book is timely and motivating. It is highly recommended for academic librarians, professionals, academicians as well as students in the field of library and information science and scientometrics. It also can be beneficial for policy makers.

The most prominent feature of the book is provision of hands-on practical exercises. They make it useful and applicable as a textbook for novice readers, undergraduate and postgraduate students in scientometrics and altmetrics. The book can be also used as a guidebook or a manual reference book in meaningful metrics. Moreover, the additional resources at the end of each chapter are advantageous for further studies in the field. Unfortunately, the book does not include an index. Therefore, we would like to suggest that the authors add an inclusive index in the next edition.

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