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Altmetric Data Literacy

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The field of altmetrics has undergone significant development in the past 15 years, leading to distinct phases of development, which we frame in this abstract as: Altmetric 1.0, Altmetric 2.0, and Altmetric 3.0. This generational framework highlights the evolution of altmetrics from simple tracking of online mentions of science to more nuanced, platform-specific analyses, and finally to integrated approaches that combine multiple data sources for a comprehensive view of research impact. Here we define altmetrics data literacy, explore how our understanding of metrics has evolved and how the role of platform-specific activity features and characteristics has become increasingly important in responsible research assessment.

Altmetric Literacy

Altmetric Literacy is the ability to understand and critically evaluate so called alternative metrics, often referred to as altmetrics. These metrics capture the broader impact of research beyond traditional academic citations, including online public engagement and presence. Altmetric literacy requires familiarity with alternative forms of research impact measurement and an understanding that altmetrics complement traditional citation metrics by offering a more holistic view of the research's impact.

Altmetric 1.0: Early Indicators of Online Engagement

Altmetric 1.0 marks the beginning of altmetrics, primarily focusing on tracking simple mentions of scholarly work across platforms like Twitter, blogs, and news outlets. These early indicators helped capture the dissemination of academic publications but probably lacked deeper understanding and were prone to gaming. The earliest research based on mentions highlight the rapid uptake of scientific publications in most altmetrics and weak significant association with scholarly citations (Thelwall et al., 2013).

Altmetric 2.0: Platform-Specific Metrics and Refined User Categorization

Altmetric 2.0 represents a more refined phase, focusing on platform-specific characteristics and refined analysis of the users who through their diverse online actions generate altmetrics. Research has shown that the types of users engaging with scientific publications are diverse. A systematic review study indicates that individual users, including both academics and the general public, play a dominant role in disseminating research on Twitter/X (Maleki & Holmberg, 2023c). Similarly, a distinction between original tweets and retweets has become important, as retweets often attract more attention and include more visual and natural language content (Maleki & Holmberg, 2024), while original tweets tend to be more closely associated with citations (Maleki & Holmberg, 2023b).

Platform-specific metrics extend beyond social media, with altmetrics from blogs and policy documents providing critical contextual insights. For example, blog mentions seem to play a hybrid role as a study related to blogs citing COVID-19 publications reveal that blogs from research institutions play a crucial role in science communication within the scientific community, but that they also often contribute to the transition between science and public understanding (Malinen et al., RIP). Policy citations offer insights into how scientific work influences decision-making in governmental and non-academic institutions. Also, the increasing recognition of policy citations requires better understanding of what the metric measures (Maleki & Holmberg, 2023a) and the differences and the overlap between platforms like Overton.io and Altmetric.com as providers of policy citations (Maleki & Holmberg, 2022).

Altmetric 3.0: Integrated and Nuanced Analytics

Altmetric 3.0 represents integrating platform-specific insights and traditional citation metrics with specific affordances in scientific publications for a more comprehensive analysis of research impact. In this phase, a combination of advanced statistical analysis and AI could offer a multi-dimensional view of research influence. For example, the Keyword Impact Assessment method has been introduced to analyze keyword-level altmetric and citation indicators at topic-level (Maleki & Holmberg, RIP), allowing for mapping social impact of science.

Conclusion: Towards a Comprehensive Understanding of Research Impact and Altmetric Literacy

These overarching insights into altmetrics contribute to advancing altmetric literacy—the ability to critically interpret and apply altmetric data in research evaluation. As altmetrics evolve, platform-specific metrics, advanced statistics, and contextual insights have become key to understanding the diverse ways academic work influences both scholarly and societal spheres. Altmetric literacy is essential for researchers, librarians, and research evaluation specialists to fully grasp the nuances of how altmetrics complement traditional citation-based metrics, offering a more comprehensive view of research impact. Moving forward, there is a growing need for more usage case reports and best practices to guide the integration of altmetrics into research evaluation frameworks. This includes identifying effective ways to incorporate altmetric data in different contexts, from institutional assessments to policy influence tracking.

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