Can altmetrics provide practical impact data? Most bibliometric methods for measuring research quality only use data from indicies of academic journals, and use time windows of five years or less. They are therefore unlikely to capture the practical impact of research, because monitoring only academic publications means they can't detect practical impact directly, and the relatively short time windows means they can't detect the indirect influence that an important practical impact will eventually have on research.

Altmetrics can use data from a wider range of contexts, and so it should have the potential to capture some of the practical impact of research. Unfortunately, altmetrics don't exclude data from academia, either, which may obscure evidence of practical impact by diluting it with a large volume of data due to meticulous citation in altmetric "mentions" by researchers.

An example of both this potential and possible dilution is the study by Mohammadi *et al.* (2014) of Mendeley readership data.

What makes the Mendeley reference manager data potentially useful for identifying practical impact is that the meta-data includes the users' "profession". Users self-select that from a pre-populated list of options, so it's not infallible, but it does allow for classing users as being research academics (those who author citable research), non-research academics (those who don't author papers—i.e., students), or someone outside of academia. The research preferred by the class of users who are not members of academia would presumably be the research that is most relevant to practitioners, and the research that is having a practical impact.

As Mohammadi *et al.* put it: "It seems that Mendeley readership is able to provide evidence of using research articles in contexts other than for their science contribution, at least for Social Science and some applied sub-disciplines. …It also could be used as a supplementary indicator to measure the impact of some technological or medical papers in applied contexts…" (Mohammadi *et al.* 2014). Where 'contexts other than for their science contribution' and 'the impact… in applied contexts' are forms of practical impact.

Though, it is important to note some of the caveats given by the authors. "Mendeley is perhaps most useful for those who will eventually cite an article and so its readership counts seem likely to under-represent users who will never need to cite an article, perhaps including disproportionately many practitioners" (Mohammadi *et al.* 2014). So, while the data from Mendeley suggests the potential of tracking practical impact, it may not be able to fulfill it. Also, "although the Mendeley API provides information related to the discipline, academic status and country of readers for each record, it only reports percentages rather than raw data and only gives information about the top three categories." So, if one of the top three categories of readers isn't a practitioner category, almost no information about an articles impact on practice ends up being available.

A similar potential for finding evidence of practical impact exist in social media sources as in Mendeley readership data. The various examples of Altmetric LLC data given by Adie and Roe (2013) hint at this potential for extracting practical impact information, while also highlighting some of the difficulties in utilizing those sources. E.g., though Adie and Roe were able to collect meta-data about the users involved in "mentions" of citable research, there's no indication that there is any data available which would allow users to be classified as being, or not being, members of academia.

But, then again, this lack of meta-data suitable for classifying users is only a hinderance to the automated analysis and quantification of data. Finding and flagging altmetric mentions in social-media discussion can provide leads to information about the practical impact of research. Which is presumably why Almetric LLC provides "data sources that can be manually audited by our users. If Altmetric [LLC] says that an article has been tweeted about five times, then users should be able to get the relevant five links, Twitter usernames, and timestamps to go check for themselves" (Adie and Roe 2013).

If institutions step away from using metrics and move toward using indicators in the evaluation of research quality and impact, the field of altmetrics would seem to be ripe with potential indicators to fit the bill.

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- Mohammadi, Ehsan, Mike Thelwall, Stefanie Haustein, and Vincent Larivière. 2014. "Who Reads Research Articles? An Altmetrics Analysis of Mendeley User Categories." *Journal of the Association for Information Science and Technology*, 1–27.

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