Introduction:
What Professor Garfield Wrought and What Management Scholars Are Attempting to Reclaim

Blame the emphasis on citation counts and impact factors on Professor Eugene Garfield of the University of Pennsylvania (http://www.garfield.library.upenn.edu/overvu.html).

He's the one who had the original ideas and did the work that created the Institute of Scientific Information and the Web of Knowledge now maintained by Thompson Reuters. As his website indicates, starting in 1955 he developed the idea of "citation indexing and searching" scholarly articles, formed a private firm, and started to produce a publication covering, initially, social sciences and management literature, and then extending to many other disciplines.

In the 1960s, according to the same website, Professor Garfield started publishing the *Science Citation Index*. It was comprehensive in what it indexed, was multidisciplinary, and it "uniquely indexed the references cited in the articles . . . This allowed users, for the first time, to take advantage of the associations and connections that researchers themselves made through the references they cited in their papers." It was soon accompanied by its fraternal twin, the *Social Science Citation Index*. Both expanded and have, to all intents and purposes, become the predominant arbiters of what "counts" in publishing scholarly work. They have moved far beyond enabling researchers to "take advantage" of their "associations and connections."

Not that the work Professor Garfield initiated has always been fully accepted. In 2011 there was a "San Francisco Declaration on Research Assessment," (http://am.ascb.org/dora/), "initiated by the American Society for Cell Biology (ASCB) together with a group of editors and publishers of scholarly journals" which argued, among other things, that "it is critical to understand that the Journal Impact Factor has a number of well-documented deficiencies as a tool for research assessment. These limitations include A) citation distributions within journals are highly skewed; B) the properties of the Journal Impact Factor are field-specific: it is a composite of multiple, highly diverse article types, including primary research papers and reviews; C) Journal Impact Factors can be manipulated (or 'gamed') by editorial policy; and D) data used to calculate the Journal Impact Factors are neither transparent nor openly available to the public." Some signers of the document wrote to Thompson Reuters with their suggestions, but Thompson Reuters still hasn't responded as of this writing, more than a year later (http://www.ascb.org/dora/?page_id=7359).

And not that the work Professor Garfield initiated doesn't have its ironies. Nancy Adler and Anne-Wil Harzing published an *AMLE* paper in 2009 entitled "When Knowledge Wins: Transcending the Sense and Nonsense of Academic Rankings." Their paper was highly critical of rankings in general, including citation measures of scholarly impact. It was also a very highly cited paper—as of this writing one of the 10 most-cited papers in *AMLE*'s brief history. As a consequence, it raised *AMLE*'s impact factor substantially for the 2 years after publication. (After an article's first 2 years, it doesn't matter a whit to the standard measure of a journal's impact factor how often a paper published there is cited.)

So there is widely cited agreement on the parts of cell biologists, management scholars, and many others that something is rotten in the Web of Science and similar indices as the accepted way to define scholarly output for many scholars. The variety of ways found to critique it are legend, including psychometrically (e.g., Sijtsma, 2012); in terms of how a scholarly article is used (e.g., Golden-Biddle, Locke, & Reay, 2006); and in terms of what it is used for, such as teaching doctoral students (Susan Ashford's paper in the December 2013 issue of *AMLE* on "Having Scholarly Impact: The Art of Hitting Academic Home Runs"). It has been described as contributing to the "audit culture" in universities (Walsh, 2011).

So far these critiques have not exactly diminished the impact of the citation counts. Maybe there's another way to think about impact that might be more fruitful.

Herman Aguinis, Debra Shapiro, Elena Antonacopoulou, and Thomas Cummings, in their exemplary contribution "Scholarly Impact: A Pluralist

Conceptualization" have developed valuable possibilities for other ways in addition to the Web of Science for assessing what impact might actually mean beyond citation counts. Assisted by the British government, which by means of its Research Excellence Framework (http://www.ref.ac.uk/) is enforcing a qualitative assessment of the benefits of research beyond academia, these authors have sketched out a way of thinking psychometrically and pluralistically about the contributions of academics, and thus, about ways to reward research that has impacts on practice as well as research that has impacts on other researchers. Most important, their approach does not set one criterion against another as the "best" arbiter of contribution, but suggests ways of combining criteria that are appropriate to specific local situations.

Aguinis and his coauthors "propose that scholarly impact needs to account for multiple stakeholders' views and multiple measures of impact, what we label a *pluralist* conceptualization of scholarly impact." By this they mean, at least in part, taking into account the perspectives of multiple stakeholders, of research, including "university students, corporate practitioners, nongovernmental organizations, government policy makers, and society in general."

Several dimensions of their work are particularly valuable. First, it has foundations in psychometrics and test construction theory, something that is not often the case in critiques of citation counts, which are often more qualitatively oriented. It suggests a way that psychometrics may be used to open up possibilities for determining meaning, not just narrow them down inappropriately, often the more taken-for-granted assumption (Borsboom, 2006) on the part of those critiquing citation counts.

More specifically, the authors treat impact as "a superordinate (i.e., higher order) and multistakeholder factor ξ, which affects impact on various stakeholders labeled η_1 to η_k. In turn, impact on each of these stakeholders is assessed by multiple measures (i.e., x_1 to x_N)." Thus, their proposals distinguish (multiple) underlying meanings of impact that are not mixed up with its measurement and not necessarily derived from scholarly articles, as well as a variety of possible ways that academics might influence for the better not only corporate management, but also the larger society.

Second, their approach incorporates multiple operationalizations for considering impacts on each specified stakeholder, not only citation counts. It enables triangulation of different indices of underlying constructs, with the potential that some might be quantitative and some qualitative.

Third, the authors' expectation is that any particular measurement will be adapted to local contexts, depending on their strategic priorities. There is no implicit or explicit assumption that one size (measure) fits all. And, the assumption is that particular measurements for a local setting can be changed as priorities change. So can the ways that combinations of measures are combined to create any particular cumulative impact "score." This means that the various measurements are not in conflict with each other, but, potentially, at least, synergistic.

There is much more to "Scholarly Impact: A Pluralist Conceptualization" as well, including sophisticated discussion of various altmetrics approaches to impact and how much (if any) true impact these approaches actually measure. In fact, this paper makes evident how difficult it is to create appropriate indices of impact.

What is not here are perfect measures of all possible indices that could go into every single pluralist model. Nor is there clarification of how a broader set of measures can be developed that doesn't make an audit model (Walsh, 2011) even more prevalent in academia. (Of course, these two desires are contradictory themselves, and thus highlight some of the tensions associated with developing indices of impact.) Creating new measures is not the authors' intent. Their aim, rather, is to foster a more open discussion of what counts as impact by contributing a rigorous yet flexible framework for incorporating various types of stakeholders and measures. I hope this exemplary contribution will foster management scholars' imagination about all of what impact might really include as well as how to assess it in a way that is generative.

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