



## An index to evaluate the quality of taxonomic publications

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“Not everything that counts is countable, and not everything that's countable counts.” A. Einstein (Bornmann and Daniel 2009)

“It is a fact that taxonomic monographs are rarely read by general biologists; in fact, many of them are read by only a few specialists.” (Mayr, Linsley & Usinger 1953)

The number of citations is not an adequate measure of taxonomic quality, which is a view that is shared with other scientific disciplines (Seglen 1997; Valdecasas *et al.* 2000; Walter *et al.* 2003). A recent editorial in *Nature* claims that “... citations are an unreliable measure of importance” (Anon. 2010: 850) and uses two chemistry papers as an example. The first paper was cited 182 times in the same period that the other paper was cited only 13 times. However, the latter paper is recognized as ‘outstanding’ by the experts from the American Chemical Society, which would not be revealed by the arbitrary counting of citations. Similar examples have evoked critical editorial comments in high-impact journals. In the context of a possible future use of the Impact Factor (IF), the editor of *EMBO Reports* states:

“[The] Impact Factor, which began as an attempt to identify and recognize the academic quality of scientific work, is already a commercial indicator in many ways on a par with the Global Dow Jones Index... Someone should perhaps have done something 40 years ago to arrest the trend towards judging the value of scientific work by a self-inflating and, to a large extent, arbitrary number; we all know that a scientific finding's true value to humanity can only be judged by history.” (Jacobs 2009: 1067).

Mark Patterson, the Director of Publishing at PLoS, agrees with Jacobs' assessment:

“But what is to be done when the journal impact factor is so tightly woven into the fabric of research assessment? How could we escape Jacobs's nightmare scenario? At PLoS, we believe articles should be judged on their own merits, rather than on the basis of the journal in which they happen to be published” (Patterson 2009a: 1186).

What is striking here is how Patterson's and Jacobs' comments parallel Van Valen's motto, “The primacy of content over display”.

### Citations, IF and Taxonomy

With the objective of addressing the 'quality of science', the first proposal to use citation indexes for science was published by Garfield (1955): “...I propose a bibliographic system for science literature that can eliminate the uncritical citation of fraudulent, incomplete, or obsolete data...” The use of journal citations in articles to specifically select those with a higher number of citations to add to a library was initiated by Gross & Gross in 1927 (Archambault & Larivière 2009). Archambault and Larivière tracked the genesis of the practice of using citations as selection criteria to produce lists of 'relevant journals', along with the successive incarnations and refinements of journal 'selection' procedures. This practice continued until Martyn & Gilchrist (1968) and then Garfield (1972) established the IF as it is currently known (in Archambault & Larivière, 2009). Relevance and quality are considered strongly correlated terms by Garfield (2003) and others. Recently, Krell (2010) introduced the term 'attention' as an interpretation of what a citation really means. However, he is currently alone in assigning this particular meaning to the IF.

Valdecasas *et al.* (2000) suggested that the “reliance on citation index was detrimental to taxonomy”. Our basic argument in that article was that the citation and journal impact factor were being used by managers and funding