Letter to the Editor

The Multiple Meanings of Impact Factors

Sir:

Harter and Nisonger (1997) raise some cogent semantic issues concerning journal impact factors. The term ''impact factor'' was coined by me and Irving H. Sher in the early sixties (Garfield & Sher, 1963). We first used the term as a simple means of comparing journals regardless of size. Anyone who has used *Journal Citation Reports*® is well aware that the journal impact factor by itself does not tell the whole quantitative story about a journal. That is why *JCR*® has, from its inception, included data necessary to compute a variety of impact and productivity measures. Productivity of articles (S), references (R), R/S (impact), and total citations for one or more years are among the data that can be used to characterize journals. Harter and Nisonger want to use the number of citations received in 1994 to articles published in 1992 and 1993. However, it is another variant on calculating productivity. It would not provide a journal user a standard of quality, independent of journal size. It is a mark of distinction for any new journal, large or small, to achieve an impact comparable to the well-recognized leaders in its field.

Using the term ''article impact factor,'' in place of journal impact factor, would introduce ambiguity because that term is already used to characterize the citation frequency of a particular article. You would have to say ''1994 average article impact'' to distinguish it from ''1994 journal impact factor.''

For many years, Section 6 of the *JCR*® included precisely the 2-year citation count that Harter and Nisonger want to use as ''journal impact factor.'' However, this would introduce very large numbers for the most-cited journals. In 1996, *PNAS, Science, Nature,* and others received over 100,000 citations for their 1994–1995 articles. I presume the authors would divide these counts by 100 or 1,000 to produce more manageable numbers.

There are, in fact, many useful journal impact factors one can calculate. As I stated previously, a 5-year impact calculation may be of interest (Garfield, 1990). Such 5-year data are available by manual calculation from several years of *JCR*® or by using *ISI's Journal Performance Indicators*®. The latter permits calculations from 1-, 5-, and 16-year periods and by use of programs such as *Access,* or its equivalent, on any combination of years desired. We used the 1995 edition of this database to compute 7- and 15-year cumulative journal impact factors for the 100 highest impact journals (Garfield, 1998). Many editors have claimed that current journal impact factors do not adequately take into account the long half-lives of references cited in certain fields. Indeed, in this cross-disciplinary listing, one can observe that journals in fields like physiology demonstrate a significant shift in rank. However, within the discipline itself, the changes in rank are less remarkable. Since most informed evaluators compare journals within disciplines, the work in compiling long-term impact factors may prove to be primarily of academic interest. Long-term impact can also be approximated by using current impact in combination with half-life (Magri & Solari, 1996). Both actual citation frequencies or approximations provide a more realistic metric, rather than the simple ratio reflected in current impact factors.

Eugene Garfield
Chairman Emeritus
Institute for Scientific Information
3501 Market Street
Philadelphia, PA 19104
E-mail: garfield@codex.cis.upenn.edu

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