

*Learned Publishing*, 23: 59–62  
doi:10.1087/20100110

Publication metrics, such as the Thomson-Reuters journal impact factor, are used almost ubiquitously for evaluation of journal and research performance.<sup>1,2</sup> Editors and authors thus have a vital interest that the journals with which they are involved achieve a high impact factor. In the April 2005 issue of the influential biological journal *Trends in Ecology and Evolution*, Anurag Agrawal<sup>3</sup> pilloried the practice of journal editors encouraging citations of recently published papers in their own journals as a ‘corruption of journal Impact Factors’. Indignation about suggestions by editors to cite papers of their own journal first surfaced in the late 1990s.<sup>4</sup> Whereas the inventor of the impact factor, Eugene Garfield did not see any wrongdoing in this editorial practice,<sup>5</sup> authors (and other editors) increasingly became upset about it.<sup>6–13</sup> Since authors, apart from publishers, are the primary beneficiaries of an increased impact factor, this upset is astonishing. Moreover, in a recent study of journals that had increased their impact factor at least fourfold in a few years, Andrade *et al.*<sup>14</sup> found ‘no proof of widespread manipulation of the impact factor through the massive use of journal self-citation’. The rate of journal self-citation rather seems to be inversely correlated with the impact factor of the journal,<sup>9</sup> with journals with an impact factor higher than 5 showing a lower self-citation rate.

The authors’ concern about ‘manipulation through journal self-citation’ is based on the erroneous assumption<sup>15</sup> that the citation process is somewhat objective<sup>16</sup> and unbiased, and that a journal’s impact factors actually do vouch for the quality of the journal<sup>9,12</sup> or even of the individual authors’ work.<sup>9,17</sup> Thus, manipulation of this supposedly objective process is considered unethical. In reality, impact factors always are corrupted (in Agrawal’s sense) since the sociology of citation is far from a straightforward citation of the best papers. Yu & Wang’s<sup>11</sup> assumption that ‘The citing of

---

## Should editors influence journal impact factors?

---

**Frank-Thorsten KRELL**

*Denver Museum of Nature & Science*

**ABSTRACT.** *The journal impact factor is widely used as a performance indicator for single authors (despite its unsuitability in this respect). Hence, authors are increasingly exercised if there is any sign that impact factors are being manipulated. Editors who ask authors to cite relevant papers from their own journal are accused of acting unethically. This is surprising because, besides publishers, authors are the primary beneficiaries of an increased impact factor of the journal in which they publish, and because the citation process is biased anyway. There is growing evidence that quality and relevance are not always the reasons for choosing references. Authors’ biases and personal environments as well as strategic considerations are major factors. As long as an editor does not force authors to cite irrelevant papers from their own journal, I consider it as a matter of caretaking for the journal and its authors if an editor brings recent papers to the authors’ attention. It would be unfair to authors and disloyal to the publisher if an editor did not try to increase the impact of his/her own journal.*



Frank-Thorsten  
Krell

© Frank-Thorsten Krell

papers is a spontaneous behavior when authors write articles' is only partly true, since authors select their references on the basis of diverse reasons, most unrelated to the quality of the cited paper.<sup>15,17–21</sup> Citations can be driven by social factors<sup>22</sup> or strategic considerations.<sup>23</sup> Citations are likely – deliberately or subconsciously – to be biased towards

- one's own papers (one knows one's own papers best, one wants to promote one's own work, and, oddly enough, self-citation counts in traditional citation analysis);<sup>23,24</sup>
- papers of friendly colleagues (I cite you, you cite me);
- papers in a language the author happens to understand (mother tongue or/and English);<sup>21,22,25,26</sup>
- papers in journals and books that happen to be most easily available to the author;<sup>27</sup>
- reviews (instead of more original papers)<sup>15,21,28</sup> since their citation requires fewer words and helps to stick to the maximum word count required by an increasing number of journals;
- particularly bad papers easy to criticise,<sup>19</sup> especially of disliked colleagues (a friend who made a mistake is less likely to get exposed);
- papers that are cited so often that it seems unnecessary to invest time in reading prior to citing (standard references).<sup>18</sup>

*it is problematic to use journal-targeted metrics such as impact factors to judge the quality of single authors*

Apart from such quality or relevance-independent motivations, many authors take referencing lightly. Simkin and Ropychowdhury<sup>29</sup> estimate that only 20% of cited papers were actually read by the citing authors. Other studies show that between 3 and 60% of all citations have errors, commonly over 20%.<sup>30</sup> A major part of the citations might be chosen for convenience rather than for appropriateness.<sup>31</sup> Perfunctory references can make up 25%<sup>32</sup> or more, with some authors considering up to 100% of their citations as non-essential.<sup>33</sup> As Thorne<sup>23</sup> showed more than 30 years ago: 'The whole process of citing references is very idiosyncratic and a reflection of author biases.' This has not changed.<sup>34</sup>

Citation counts are influenced also by the author's research environment and the

author's publishing philosophy, both of which may not relate to research quality. Authors working in prolific labs with many simultaneous, related projects receive a higher number of citations, as do authors who practise salami-slicing strategies, producing as many papers in as short a time possible from the same subject, leading to a high number of author self-citations.<sup>24</sup>

Within the limited pool of journals considered by the *Science Citation Index*<sup>1,35–37</sup> impact factor, and citations counts in general, clearly show the attention that a particular journal or an individual author attracts, respectively, but they are weak indicators of scientific quality. Patterson and Harris<sup>38</sup> recently showed a low but statistically significant correlation between citations and quality score determined by independent experts. However, it would be premature, and also inductive reasoning, to assume that this result drawn from three volumes of the journal *Physics in Medicine and Biology* indicates a universal law. A study comparing citation counts with peer assessments in the British Research Assessment Exercise<sup>39</sup> has shown that in many disciplines, citations counts are a weak proxy for peer assessments. This points to a fundamental problem with citation analysis as a measurement of scientific quality. Citation counts first and foremost indicate the attention an author receives. Attention is a suitable performance indicator, although inferior to quality.

It is even more problematic to use journal-targeted metrics such as impact factors to judge the quality of single authors. The journal impact factor was introduced, and remains useful, as a means of quantifying the interest created by journals. Applying it as proxy for the quality of individual authors is both misleading and unethical as it has been clearly explained in the literature, and should by now be widely understood, that the journal impact factor is largely unsuitable for that purpose.<sup>17,40–43</sup> The impact factor is an arithmetic mean of the citation rates of all authors of a particular journal during a two-year period, with an extremely high standard deviation, and relies on a biased and incomplete database.<sup>1,35–37</sup> A comment by Eugene Garfield is pertinent here:<sup>44</sup> 'The source of much anxiety about

Journal Impact Factors (JIF) comes from their misuse in evaluating individuals. . . . I have always warned against this practice.'

As long as auditors or panels use unsuitable performance indicators and bluntly rely on journal impact factors as a 'stamp of approval for hiring and promotions' of individuals,<sup>3</sup> I see nothing unethical if authors and journals try to increase this factor – given that it is largely meaningless in this context. Let's face it: the journal impact factor shows the attention a journal receives, nothing more. It is a suitable indicator for libraries to which journals to subscribe and for reference organs such as *Current Contents* or *Biological Abstracts* on which journals to report. It was invented for this reason and serves this purpose well.<sup>45</sup>

It is the duty of a responsible editor to increase not only the quality of his/her journal, but also raise the awareness of and the interest in the journal. It would be unfair to authors and disloyal to publishers if an editor did not act in this direction.

When I was an editor of *Systematic Entomology*, I informed authors about papers in press or recently published that related to their work and suggested citation, if they consider it appropriate. I do not consider this unethical but rather a service to authors who may be unaware of very recently published material or papers in press. The editor of a journal is particularly aware of the papers published in that journal, whereas the author is more aware of his/her own publications and the publications of close colleagues, and those of enemies.

It would be unethical for editors to insist on an increased number of journal self-citations, in decreasing citations of competing journals, or indeed consider journal self-citations in their decisions as to whether or not to accept a paper. It would be unethical, but not because it increases the impact factor, but because it interferes with the author's freedom and responsibilities and gives marketing priority over scholarship, respectively. It is probably unethical to solicit reviews with the main focus of papers of their own journal, because scientific relevance is unlikely to be concentrated in only one journal. However, it is not unethical, and is even a matter of caretaking for their own journal

and for their authors, if editors bring to authors' attention papers from their own journal.

#### References

1. Steele, C., Butler, L., and Kingsley, D. 2006. The publishing imperative: the pervasive influence of publication metrics. *Learned Publishing*, 19: 277–90. doi: 10.1087/095315106778690751
2. Pringle, J. 2008. Trends in the use of ISI citation databases for evaluation. *Learned Publishing*, 21: 85–91. doi: 10.1087/095315108X288901
3. Agrawal, A.A. 2005. Corruption of journal Impact Factors. *Trends in Ecology and Evolution*, 20: 157. doi: 10.1016/j.tree.2005.02.002
4. Smith, R. 1997. Journal accused of manipulating impact factor. *British Medical Journal* 314: 461.
5. Garfield, E. 1997. Editors are justified in asking authors to cite equivalent references from same journal. *British Medical Journal*, 314: 1765.
6. Hemmingsson, A., Mygind, T., Skjennald, A., and Edgren, J. 2002. Manipulation of impact factors by editors of scientific journals. *American Journal of Roentgenology*, 178: 767. Available at: <http://www.ajronline.org/cgi/reprint/178/3/767>
7. Rogers, L.F. 2002. Reply. *American Journal of Roentgenology*, 178: 767. Available at: <http://www.ajronline.org/cgi/reprint/178/3/767>
8. Sevinc, A. 2004. Manipulating impact factor: an unethical issue or an editor's choice? *Swiss Medical Weekly*, 134: 410. Available at: <http://www.smw.ch/docs/pdf200x/2004/27/smw-10761.pdf>
9. Kirchhof, B., Bornfeld, N., and Grehn, F. 2007. The delicate topic of the impact factor. *Graefe's Archive for Clinical and Experimental Ophthalmology*, 245: 925–7. doi: 10.1007/s00417-007-0618-1
10. Krauss, J. 2007. Journal self-citation rates in ecological sciences. *Scientometrics*, 73: 79–89. doi: 10.1007/s11192-007-1727-7
11. Yu Guang and Wang Liang. 2007. The self-cited rate of scientific journals and the manipulation of their impact factors. *Scientometrics*, 73: 321–30. doi: 10.1007/s11192-007-1779-8
12. Falagas, M.E. and Alexiou, V.G. 2008. The top-ten in journal impact factor manipulation. *Archivum Immunologiae et Therapiae Experimentalis*, 56: 223–6. doi: 10.1007/s00005-008-0024-5
13. Wallner, C. 2009. Ban impact factor manipulation. *Science*, 323: 461. doi: 10.1126/science.323.5913.461a
14. Andrade, A., González-Jonte, R., and Campanario, J.M. 2009. Journals that increase their impact factor at least fourfold in a few years: the role of journal self-citation. *Scientometrics*, 80: 515–28. doi: 10.1007/s11192-008-2085-9
15. MacRoberts, M.H. and MacRoberts, B.R. 1996. Problems of citation analysis. *Scientometrics*, 36: 435–44. doi: 10.1007/BF02129604
16. Testa, J. 2008. Playing the system puts self-citation's impact under review. *Nature*, 455: 729. doi: 10.1038/455729b
17. Seglen, P.O. 1997. Citations and journal impact factors: questionable indicators of research quality. *Allergy* 52: 1050–6. doi: 10.1111/j.1398-9995.1997.tb00175.x

*it is the duty of a responsible editor to increase not only the quality of his/her journal, but also raise the awareness of and the interest in the journal*

18. Bavelas, J.B. 1978. The social psychology of citations. *Canadian Psychological Review* 19: 158–63.
19. Brooks, T.A. 1986. Evidence of complex citer motivations. *Journal of the American Society for Information Science*, 347: 34–6.  
doi: 10.1002/(SICI)1097-4571(198601)37:1<34::AID-ASIS>3.0.CO;2-0
20. Liu Mengzong 1993. Progress in documentation the complexities of citation practice: a review of citation studies. *Journal of Documentation*, 49: 370–408.  
doi: 10.1108/eb026920
21. Bornmann, L., Mutz, R., Neuhaus, C., and Daniel, H.-D. 2008. Citation counts for research evaluation: standards of good practice for analyzing bibliometric data and presenting and interpreting results. *Ethics in Science and Environmental Politics*, 8: 93–102.  
doi: 10.3354/esepp00084
22. Leimu, R. and Koricheva, J. 2005. What determines the citation frequency of ecological papers? *Trends in Ecology and Evolution*, 20: 28–32.  
doi: 10.1016/j.tree.2004.10.010
23. Thorne, F.C. 1977. The citation index: another case of spurious validity. *Journal of Clinical Psychology*, 33: 1157–61.  
doi: 10.1002/1097-4679(197710)33:4<1157::AID-JCLP2270330453>3.0.CO;2-B
24. Fowler, J.H. and Aksnes, D.W. 2007. Does self-citation pay? *Scientometrics*, 72: 427–37.  
doi: 10.1007/s11192-007-1777-2
25. Järvinen, P. and Pietiäinen, J. 1988. Citation patterns of papers published in *Ornis Fennica*. *Ornis Fennica* 65: 31–6.
26. Leeuwen, T.N. van, Moed, H.F., Tijssen, R.J.W., Visser, M.S., and Taan, A.F.J. van 2000. First evidence of serious language-bias in the use of citation analysis for the evaluation of national science systems. *Research Evaluation*, 8: 155–6.  
doi: 10.3152/147154400781777359
27. Soper, M.E. 1976. Characteristics and use of personal collections. *Library Quarterly*, 46: 397–415.  
doi: 10.1086/620584
28. Lawrence, P.A. 2008. Lost in publication: how measurement harms science. *Ethics in Science and Environmental Politics*, 8: 9–11.  
doi: 10.3354/esepp00079
29. Simkin, M.V. and Roychowdhury, V.P. 2003. Read before you cite! *Complex Systems*, 14: 269–74.
30. Aronsky, D., Ransom, J., and Robinson, K. 2005. Accuracy of references in five biomedical informatics journals. *Journal of the American Medical Informatics Association*, 12: 225–8.  
doi: 10.1197/jamia.M1683
31. Lawrence, P.A. 2007. The mismeasurement of science. *Current Biology*, 17: R583–5.  
doi:10.1016/j.cub.2007.06.014
32. Krampen, G., Becker, R., Wahner, U., and Montada, L. 2007. On the validity of citation counting in science evaluation: content analysis of references and citations in psychological publications. *Scientometrics*, 71: 191–202.  
doi: 10.1007/s11192-007-1659-2
33. Liu Mengzong 1993. A study of citing motivation of Chinese scientists. *Journal of Information Science*, 19: 13–23.  
doi: 10.1177/016555159301900103
34. Todd, P.A. and Ladle, R.J. 2008. Citations: poor practices by authors reduce their value. *Nature*, 451: 244.  
doi: 10.1038/451244b
35. Krell, F.-T. 2002. Why impact factors don't work for taxonomy. Its long-term relevance, few specialists and lack of core journals put it outside ISI criteria. *Nature*, 415: 957.  
doi: 10.1038/415957a
36. Krell, F.-T. 2009. The poverty of citation databases: data mining is crucial for fair metrical evaluation of research performance. *BioScience*, 59: 6–7.  
doi: 10.1525/bio.2009.59.1.2
37. Meho, L.I. and Yang, K. 2007. Impact of data sources on citation counts and rankinds of LIS faculty: Web of Science versus Scopus and Google Scholar. *Journal of the American Society for Information Science and Technology*, 58: 2105–25.  
doi: 10.1002/asi.20677
38. Patterson, M.S. and Harris, S. 2009. The relationship between reviewers' quality-scores and number of citations for papers published in the journal *Physics in Medicine and Biology* from 2003–2005. *Scientometrics*, 80: 343–9.  
doi: 10.1007/s11192-008-2064-1
39. Mahdi, S., D'Este, P., and Neely, A. *Citation Counts: Are They Good Predictors of RAE Scores? A Bibliometric Analysis of RAE 2001*. Advanced Institute of Management Research, London, 2008. Available at: <http://ssrn.com/abstract=1154053>
40. Opthoff, T. 1997. Sense and nonsense about the impact factor. *Cardiovascular Research*, 33: 1–7.  
doi: 10.1016/S0008-6363(96)00215-5
41. Decker, O. and Brähler, E. 2001. Von Büchern und Zeitschriften – Diskussion der Bewertung wissenschaftlicher Leistungen in den kultur- und sprachgebundenen Fächern in der Medizin. *Zeitschrift für Klinische Psychologie, Psychiatrie und Psychotherapie*, 49: 235–46.
42. Kurmis, A.P. 2003. Understanding the limitations of the journal impact factor. *Journal of Bone & Joint Surgery*, 85A: 2249–2454.
43. Campbell, P. 2008. Escape from the impact factor. *Ethics in Science and Environmental Politics*, 8: 5–7.  
doi: 10.3354/esepp00078
44. Garfield, E. 1998. The diverse roles of citation indexes in scientific research. *Revista de Investigación Clínica*, 50: 497–504. Available at: [http://www.garfield.library.upenn.edu/papers/rev\\_invest\\_clin\\_v50p497y1998.pdf](http://www.garfield.library.upenn.edu/papers/rev_invest_clin_v50p497y1998.pdf)
45. Garfield, E. 1972. Is citation frequency a valid criterion for selecting journals? *Current Contents*, 1972 (13): 2. Available at <http://www.garfield.library.upenn.edu/essays/V1p289y1962-73.pdf>

**Frank-Thorsten Krell**

Department of Zoology

Denver Museum of Nature & Science

2001 Colorado Blvd,

Denver, CO 80205–5798, USA

Email: [frank.krell@dmns.org](mailto:frank.krell@dmns.org)