Nature’s top 100 revisited

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Abstract
Recently, Van Noorden, Maher, and Nuzzo (2014) published a list of papers which are among the 100 most highly cited papers of all time. This letter argues that such a list should not be produced on the base of bare citation counts, but normalized bibliometric indicators – the standard in bibliometrics.
Dear Sir,

Recently, Van Noorden, et al. (2014) published a list of papers which are among the 100 most highly cited papers of all time (measured by Web of Science citations). Because citations are dependent on the time period since publication and the subject category of research, it is no wonder that the mean publication year is 1979 (min=1925 and max=2008) and nearly 40% of the papers are categorized as “Biology lab technique.” According to the field ranking in the Essential Science Indicators of Thomson Reuters “Molecular Biology & Genetics” has the second highest citation rate following “Multidisciplinary”. Since mid-1980s, bibliometricians use field- and time-normalized indicators which allow cross-time and cross-field comparisons of citation impact (Schubert & Braun, 1986). Today, the standard indicator is the mean-normalized citation score (MNCS, Waltman, van Eck, van Leeuwen, Visser, & van Raan, 2011). For the MNCS, the observed citation impact of a focal paper is divided by the expected citation impact, namely the average citation impact of papers from the same publication year and subject category. In an in-house database of the Max Planck Society, which is based on Web of Science data, the MNCS has been added to each paper since 1980. 54 papers of Nature’s top 100 list were published after 1979 (mean publication year=1991). In the in-house database, the 54 papers with the highest MNCS were searched (mean publication year=1993). The search was restricted to articles and reviews; it is not clear which document types Van Noorden, et al. (2014) considered. The 54 papers with the highest MNCS were compared with Nature’s top 100 list. The results show that 22 papers (41%) were unique in each list (based on the MNCS or bare citation counts, respectively) and 32 (59%) appeared in both lists. The great difference between both lists underlines the necessity to use normalized indicators – as it is the standard in professional bibliometrics.
References

