
To Be an Uncited Scientist Is No Cause for Shame

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When a play opens on Broadway, it's sure to be reviewed in the *New York Times* and other major papers, while off-Broadway productions may open and close without getting even a single mention in the press. Similarly, most papers brought to readers of such prestigious publications as the *New England Journal of Medicine*, *Science*, and *Nature* will be "reviewed"—that is, cited—in the science press, while thousands published in lower-impact journals may not be quoted even after 10 years.

The extent of a paper's "citedness," then, is fairly predictable. If it's published in a high-impact journal, it is highly likely to be cited. If it's published in a lower-impact periodical, it may remain uncited—even if it received high marks in prepublication peer review or is frequently read.

But the discussion of "uncitedness" shouldn't stop there. It is among the least understood yet most discussed issues among people who have little direct knowledge of the research process—and it is an issue that tends to have considerable impact on scientists' views of themselves and the work they do. Millions of papers have remained uncited in the history of scholarship but, to my

knowledge, there has never been a thorough study of the reasons for uncitedness or why it should cause doubt about a scientist's talent among those responsible for approving or rejecting applications for research funding.

Perhaps the largest population of uncited papers are those published by recent Ph.D.'s who take jobs in industry. Many condense their dissertations into short papers, which are useful but may not warrant citation. Such papers get read but are not necessarily cited.

Clearly, the high levels of uncitedness reported recently in *Science* (David P. Hamilton, "Publishing—by and for?—the numbers," *Science*, Dec. 7, 1990; and "Research Papers: Who's Uncited Now?" *Science*, Jan. 4, 1991) were misinterpreted because the data were not properly described and disaggregated by field, language, or type of publication (editorials or letters, for instance, versus research articles).

Actually, the number of uncited papers published in the top research journals is much smaller. In the *New York Times* of Feb. 12, 1991, Gina Kolata quotes David Pendlebury, editor of the newsletter *Science Watch*, saying that only 15 percent

of United States research articles published in 1984 remained uncited during the period 1985-89. Articles by foreign authors, however, exhibited a higher rate of uncitedness: 28 percent.

The records of our most prolific scientists—a few thousand who have published hundreds of papers—show that their top 10 or 20 papers will be cited 50 or more times, while the remainder will be cited increasingly less, if at all.

There are many reasons for this natural process. So many papers are published that the world just may not be able to absorb them all into the existing paradigms of knowledge. Some may have been “premature” or may have suffered from delayed recognition—a fate experienced by, for example, Mendel’s precocious work on plant hybrids.

I have often wished that journals

would sponsor collective reviews of uncited papers. In some disciplines this would reveal some uncitedness involving reports on techniques designed for one-time use in specialized experiments. There is no simple way to determine whether other researchers have “copied” these methods. Other speculative papers may stimulate experiments that produce papers that may or may not cite the initial, now subliminal, idea. It is also true that some uncitedness results from bibliographic plagiarism or other variations of misconduct.

But the fact that a paper remains uncited is not necessarily a true indication of its worth. While everyone likes to be cited—and citation analysis remains a critical tool for observing the progress of science—not to be cited is no great shame. ■