

An Evaluation of Citation-Return on Reprints

A ten-year retrospective study of reprint distribution and their subsequent citation was undertaken, which indicated that the citation-return on reprints is low, although distribution of reprints may have aided in increasing the citation rate. There is an indication that many authors use journals in libraries as sources for citation articles either by reading or photocopying rather than requesting reprints. Reprint utilization by recipients, however, goes beyond use solely as citation sources.

CITATION ANALYSIS has resulted in the indication of significant trends regarding the impact of publications as measured by their citation rate.^{1,2} Another area of citation study, which is amenable to objective analysis, relates more specifically to the area of reprint citation by authors, namely the frequency of utilization of requested reprints and their subsequent citation.

Reprints are purchased for distribution often at high cost to either the author institutions or federal and state agencies; in addition, the cost of mailing reprint request cards and reprints increases as postal costs rise. A recent cost estimate placed the cost of the multiple facets of reprint requests and distribution at about half a billion dollars annually.³ In face of these rising costs there is a natural concern over the utilization of reprints.

Since the various aspects of reprint distribution are increasing in many countries, the value of the reprint as a means of communication comes under question. The objective of the current study was to attempt to determine the impact of reprint distribution on the subsequent citation of that reference and the degree of citation as a function of receipt of those reprints by authors.

Since 1965 records have been maintained

on the requestors' names and the reprints of papers distributed from my office. The *Science Citation Index* (Institute for Scientific Information) was used in a ten-year retrospective study of the subsequent citation of twenty-eight papers, which represent all journal publications during the ten-year reporting period for which I was the senior author and/or those for which reprint distribution was entirely my responsibility. All citations of these twenty-eight papers, except self-citations (any publication citing these papers in which I was an author), were counted over a ten-year (1965-75) period and cross-checked against the reprint distribution file.

The publication years selected were 1965 to 1974. Analysis of citations was made from the *Science Citation Index* dating from 1965 until 1976, providing a twelve-year reporting period. The two-year excess of reporting period over publication period was made since analysis indicated that the seventeen papers published in 1970-74 (which fulfilled the criteria of senior authorship and/or reprint distribution responsibility) were cited thirty-seven times; but when the years 1970-76 were examined, the citations increased to sixty-six, nineteen of these due to citation of 1973 and 1974 papers.

The analysis of citation-return revealed that over the ten-year publication period, twenty-five of the twenty-eight total papers were cited (eleven of eleven published be-

Keith Green is Regents' Professor of Ophthalmology, Department of Ophthalmology, Medical College of Georgia, Augusta.

tween 1965 and 1969; fourteen of seventeen published from 1970 to 1974). The twenty-five papers were cited a total of 193 times, with reprints distributed to thirty-nine of the authors citing them (thirty-one reprints compared to 127 citations, or 24 percent, in 1965-69; eight reprints compared to sixty-six citations, or 12 percent, in 1970-74).

This means that 80 percent (154/193) of the citations of these twenty-five papers were made by authors who neither requested nor received reprints. There is an apparent lack of relationship of citation occurrence to citation-return, since the percentage of citations by authors receiving reprints appears low. It is obvious, therefore, that many reprints are distributed without subsequent citation.

The number of citations can be related to the total number of reprints distributed, since the latter has been recorded in this office. The thirty-one citations from those sent reprints in 1965-69 resulted from the distribution of 1,233 reprints, giving a citation-return of 2.5 percent; while for 1970-74, the eight citations by authors receiving reprints resulted from the distribution of 1,167 reprints (.7 percent).

For all the years, therefore, the citation-return on all distributed reprints from this office is 1.6 percent; that is, only 1.6 percent of all reprints distributed resulted in their citation. If one assumes, however, that the thirty-one citations for 1965-69 and eight citations for 1970-74 would not have been forthcoming if reprints were not sent, then reprints increased the citation-return rate by 25 percent for 1965-69 and by 12 percent for 1970-74.

Two major conclusions can be drawn from this study. First, only 18 percent of the citing authors received reprints directly from this author and, second, the thirty-nine citations by authors who did receive reprints

represent only a small fraction (1.6 percent) of all distributed reprints.

It is apparent, therefore, that many authors who cited these papers did so without access to reprints, which indicates a wide use of library facilities for reading and/or photocopying of journals as a means of access to publications. It is important to realize, however, that not all distributed reprints will be cited nor be directly relevant to any specific research endeavors that result in a subsequent citation. Rather, the reprint allows individuals to maintain a "sublibrary" of information relevant to many aspects of their activities.

Thus, although the citation-return may be low, other facets of reprint utilization have to be taken into account, such as their use in teaching, as well as a means of keeping up with current research activities in areas of peripheral interest.

The data suggest that there is a need for further study in this area of citation-return on a larger scale than the experience of one individual. From the input of several authors, it would be possible to draw more definitive conclusions regarding the usefulness of continuing the practice of reprint distribution. Such a study could be effectively coordinated through a university or college library.

REFERENCES

1. Eugene Garfield, "The 250 Most-Cited Primary Authors, 1961-75. Part II. The Correlation between Citedness, Nobel Prizes, and Academy Memberships," *Current Contents* 20(50):5-15.
2. Eugene Garfield, "The 250 Most-Cited Primary Authors, 1961-75. Part III. Each Author's Most-Cited Publication," *Current Contents* 20(51):5-20.
3. Eugene Garfield, "Citation Indexing for Studying Science," *Nature* 227:669-71 (1970).

Up-to-the-minute research grant publications save you time and money.

ORYX PRESS Publications are the most comprehensive—most economical—source of current information on research grants sponsored by government and private funding organizations in all subject areas:

1979 Directory of Research Grants

The comprehensive, up-to-date, hard cover, annual guide to over 2000 unique research grants in 90 subject categories. All grant sources are covered — public and private, domestic and foreign, graduate and undergraduate. Recommended by every major professional reviewing service.

Grant Information System

Includes four (quarterly) volumes a year covering over 2000 grants in 90 academic disciplines. Monthly Faculty Alert Bulletins are issued in six major categories. An indispensable tool.

Fund Sources in Health and Allied Fields

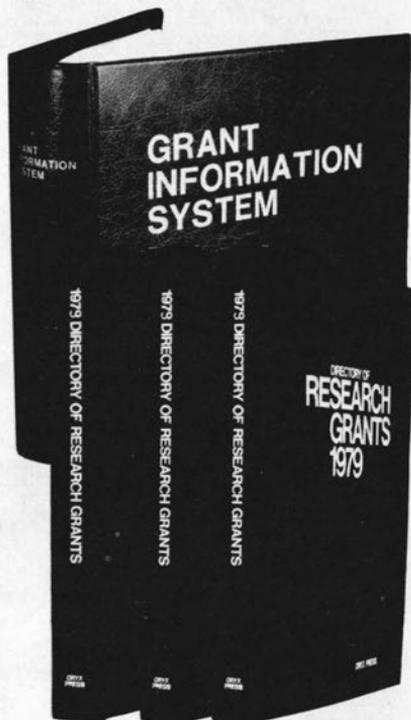
An outstanding monthly source of complete grant information for professionals who need to know what fund sources are available now in this important field.

Elhi Funding Sources.

Complete monthly grant information for faculty and staff of elementary and secondary school systems.

And on-line now with Orbit — The SDC Search Service.

Don't miss a single grant opportunity! Phone or write now for complete information on ORYX PRESS Grants publications:



ORYX PRESS

3930 East Camelback Road
Phoenix, Arizona 85018 • (602) 956-6233