Asymmetries

For many years a symmetry prevailed in the world of peer-reviewed journals. After a researcher had read the journals that came across his desk and scanned the collection in the library, he was assured that he had seen most of the relevant papers related to his work. Sure, there were papers and references that sent him outside of his standard zone of literature, but for the most part he stayed with what he knew to be useful. Back then, of course, there were fewer journals and the task was practicable. Then, depending on his access to a Xerox machine, he either filled out and sent reprint request post cards or copied the paper for his files.

When it came time to publish his work, the journals he read were the ones to which he submitted his papers. Once the paper was accepted, he filled out his order for reprints so that he could respond to the request cards. The symmetry between the journals he read and the journals to which he sent his papers prevailed. But as the volume of research increased and number of papers and journals grew, the landscape of research publishing changed… dramatically.

Where is your stack of reprint post cards?

When was the last time you ordered reprints?

…or photocopied a paper?

It is as if all of that activity took place on a far shore. The world where an author submitted to the same journals whose pages he searched with little assistance has been replaced by a world where our searching is done on the Internet and we read the PDF file of a paper on an LED display. Now, we discover interesting papers in many different journals, some of which are unknown or didn't exist a few years ago. And if you are fortunate to be a student, faculty member, or employee at a research institution, you have access to nearly all of the papers you find. Therefore, *which* journal a paper is published in is of no concern to the researcher. But where it gets published *is*.

To an author, where he publishes is of great concern. In an environment where publish or perish has become the major criterion for academic advancement, it is required that authors not only publish many papers, but also that they appear in the most highly cited journals. To measure this, an impact factor (IF) was devised. The value assigned to a journal is based on the number of citations to that journal in a given year scaled by the average number of papers it published in the two previous years. Thus the IF of a journal becomes an author's major consideration when choosing where to submit his or her next paper.

But researchers don't search the literature on the basis of IFs. They simply sift through what they find after choosing the most appropriate search terms. This uncoupling between journals that publish papers relevant to one's research and journals to which one should submit papers introduces an asymmetry in our use of the literature that could affect the existence of many journals.

It would seem that the drive to get papers published in the better rated journals would drive marginal journals to stop publication. This would concentrate publishing into fewer and fewer journals with a growing number of submissions. With editors and publishers trying to increase citations through various efforts, it would appear that the end game would be a few large journals in each field with authors clamoring to get in.

This is similar to commercial publishing, wherein the editors try to pick saleable books (citable papers) and authors submit to the big publishers because of their marketing clout (impact factor). But there is another trend in publishing that may interfere with such an approach: open access publication. In open access, a paper is made accessible to any one without a subscription. The author pays the publication costs. In some fields, such as biomedicine, authors who are funded by government entities are required to publish in a journal that permits open access.

This "author pays" model is more akin to vanity publishing, although open access journals do employ a peer-review process. One of the drawbacks to this approach is that economics could drive marginal journals to cut their publication fees in order to attract more submissions. In addition, standards might be lowered. For example, an editor of such a journal might be tempted not to make an effort to ferret out duplicate publications. Yet, the papers published in these journals are just as visible to the net search engines as the high-IF publications.

How will all this play out in a time of economic turmoil? With the tug between open access and traditional subscription support and between the comprehensiveness of Web searches and the intended merit denoted by the IF, as a researcher and as an author you will be an observer and a participant in an ongoing experiment in information distribution. But you won't have to worry about ordering reprints, mailing reprint requests, or standing in front of a copy machine.

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