

Research plays a prime role in the professional lives of many medical physicists, especially those in academic institutions. The prime goal of this research is to acquire new knowledge. Acquiring the knowledge, however, is not sufficient, in that the information must also be disseminated to the community.

The standard vehicle for dissemination of research knowledge is the peer-reviewed journal. In fact, a medical physicist's academic advancement is often based on the number of papers that have appeared in a peer-reviewed journal. However, publication in a journal introduces significant restriction on the ability for subsequent dissemination of the research information. Prior to publication, the producer of the information is the complete owner of the information. Researchers may disseminate the information to anyone they please in any form they please. Publication, however, places significant limitations as to how information may be disseminated because of the existence of copyright laws. Often, the individual who has generated the information has turned over ownership of the information to the publisher of the journal and no longer has complete control over how the information may be distributed to others.

Limits exist, however, on the extent that a publisher may control dissemination of the information in a journal article. In the distant past (>40 yr ago) the publisher exercised significant control over dissemination. If an author wished to provide others with copies of a paper, the author would have to purchase reprints of the article from the publisher and deliver the reprint to the recipient. In the more recent past, the author of the article, or anyone else for that matter, may photocopy the article from the journal. The ease of photocopying has established some principles of "fair use," that is, scenarios where photocopying lies within the limitations of copyright restrictions, and other scenarios where photocopying violates copyright. For example, individuals may copy an article from a journal for their own use, but to make a large number of copies without permission for distribution to a class may violate copyright restrictions. Presently, most journal articles appear in electronic form, typically as a PDF file that can be downloaded and stored on an individual's computer. The same file can be emailed to many recipients. Because of the ease of dissemination of this information, a new paradigm for dissemination is necessary. It is necessary to balance the need to disseminate information against the need for the journal to recoup the expenses of publication and dissemination and, when appropriate, make sufficient profit to warrant remaining in business.