

Changes in journals in the IT era

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If you are a researcher more than 40 years of age, you may remember going to the library 20 years ago to find a paper and searching through several thick *Index Medicus*¹ volumes, a series that ceased publication after December, 2004. You may remember pushing the cart through the library to look for the articles you identified. Several years later, you could search for the article on Medline using a keyword while sitting at a computer at the library. That was the dawn of the information technology (IT) era of the journal. What about now? Now, researchers sit in front of their own computers to search by keywords.

Indeed, you can use various search engines, such as Yahoo, Google, and PubMed, to identify and download articles in various domains of medicine and to collect data. Many of these articles can be downloaded free or for a fee. If the articles have not yet been digitized, you can obtain a scanned copy of the journal from your library. In the past, information was stored in libraries; now, it is stored in digitized storage spaces known as Archives. It used to be the case that you would spend time and money obtaining articles that were available only in libraries located in other countries. Now, you simply enter the relevant information, search for the article, and download it to your personal computer, a process that allows you cheap and immediate access. This is a researcher's version of paradise.

However, current journals are changing rapidly, and journal editors should avoid complacency, even for a minute. Online submission and review systems, electronic publishing, and online subscription are becoming realities. Various e-book readers, tablet PCs, and PCs enable subscription without printing. Thus, to facilitate citation of their publications, many journals seek to be indexed on search engines and strive to provide readers with the ability to download articles directly from the Internet. Moreover, Open Access helps researchers to read and cite journal articles.

Several journals are cited in a wide range of subject areas and their reference categories now include images, web pages, and even multimedia files. In the future, journals will be dynamic multimedia productions rather than

printed pieces of paper containing static images. During the transitional stage, the printed page is moving to the screen in the form of electronic publishing. This system is sufficiently advanced to link the multimedia data in journals to smart devices via quick response (QR) codes and so on. The *New England Journal of Medicine*² has already distributed an iPad application so that you can subscribe to it on your iPad.

We construct archives that permit on-line access and easy subscription. An online submission and review system was introduced to enable the entire process, from submission to review and publication, to occur online. We transform the references in articles to the XML format and have adopted a digital object identifier (DOI)³ for every article in a journal for purposes of cross-referencing⁴. This system enables knowledge of the number of journal articles that have been cited as well as which journal cited them. We publish current paper and electronic versions to mail and E-mail, respectively, to subscribers. Whenever you see an article that has already been published, you can access it at any time. We are also trying to develop mobile applications so that journals can in the future be more easily read on mobile devices.

We face difficult times. However, we must continue to strive to not get left behind in this IT era. Ironically, the papers that discuss the most advanced scientific technology tend to appear in the most traditional formats. We will make every effort to keep up with existing technology and track the innovations that appear in other scientific journals.

References

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