The Impact of Electronic Publishing on the Scientific Information Chain

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Abstract

The academic enterprise depends on the effective dissemination of information at all levels. This is especially true for the scientific research community where the information chain is effectively a loop since authors and users form the same community. For many years their vehicle has been the learned journal which in its print on paper form requires a number of intermediaries: publishers and printers to produce the material in standard format, booksellers and subscription agents to coordinate the supply, and librarians to provide a focal point where the information could be accessed. This model is rapidly becoming untenable, partly because of the ever-increasing and more fragmented flow of scientific information, and partly because the inexorable rise in costs has placed intolerable strain on library budgets.

It is therefore clear that the system must be modified and electronic publishing provides a possible answer. The switch to electronic distribution of information is already well advanced in specific areas, and most mainline journals now appear in an electronic version. But we need to be sure that any new paradigm will meet the needs of academics and scientists worldwide, requiring new methods of working and a modification of the roles of all the players in the loop.

There have been many meetings of interested parties to try and understand the opportunities offered by the new technologies and if possible to guide the transition. Many forces, new technologies, economics, and social behaviour are driving the change. ICSU, in coordination with UNESCO, held a conference of experts on 'Electronic Publishing in Science' in Paris in 1996 and have sponsored a series of follow-up activities to address the issues which were identified when problems were addressed from the point of view of the scientific community. These can be loosely grouped under a number of headings.

i) What practices should govern electronic scientific journal publication and what code of practice can be recommended to authors, referees, editors, librarians, and users to address issues such as peer review, authentification, attribution, and archiving?

ii) What are the real costs and benefits of electronic publishing likely to be and what financial models seem most likely to be accepted?

iii) How should a definitive archive of electronic material be maintained and what respective responsibilities will pubishers and libraries have?

iv) Can electronic publishing of scientific journals help bring the communities in less developed countries more firmly into the mainstream of science?

v) How will the new intellectual property laws, for example relating to databases or to fair use, change the way in which scientists have traditionally accessed scientific information?

It is planned to comment on some of the recent discussions on these topics.