The Impact of Electronic Publishing on the Academic Community

Session 1: The present situation and the likely future

Electronic publishing and the academic community: a publisher's perspective

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Abstract

A review, from an established electronic publishing organization, of the current opportunities and pitfalls of electronic publishing for researchers, librarians and publishers.

Introduction

Institute of Physics Publishing is a not-for-profit learned society and is one of the leading supporters of physics on the international stage. It has its origins in the Physical Society of London, formed in 1874.

Institute of Physics Publishing created the first ever electronic journal in physics in 1994, Classical and Quantum Gravity, and was the first major publisher in any discipline to place all of its serial output onto the World Wide Web. Today, Institute of Physics Publishing offers a sophisticated electronic journals service, a rapid communications service, a cross-publisher abstracts-alerting service (jointly owned with Elsevier b.v.), an e-mail directory, a jobs exchange, a conference service and extensive author and referee services.

In 1996 Institute of Physics Publishing served just over 2.2 million pages through its Web site and in 1997 is serving between 15,000 and 35,000 pages per working day. It is therefore likely to be one of the most popular Web sites in physics.
Institute of Physics Publishing has also pioneered innovative pricing models, national site licences and no-cost or low-cost services. Thus all 33 electronic journals are available at no extra cost to existing institutional subscribers; and UK universities, as part of the Higher Education Funding Councils of England, Wales and Scotland, are able to access Institute of Physics Publishing electronic journals if they purchase just one paper journal. Furthermore, many of the electronic services are free or very low cost. A good example being the condensed matter alerting service (CoDAS) which provides abstracts from 65 journals from five publishers at a cost to an individual of £60 or Dfl. 188 per annum.

The community

One of the major benefits of having been an early entrant to the electronic publishing arena is that Institute of Physics Publishing now has a great wealth of data on usage of its services. More importantly we now spend a great deal of time listening to end users and customers in an attempt to provide them with what they want. Indeed focus groups, questionnaires and library advisory councils provide us with most of the ideas that become product enhancements, pricing changes, format and delivery options and strategic plans.

Our research shows that physicists are, in the main, over-worked, under-funded, suffering from information overload, under greater pressure to publish, have less time to conduct actual research (as opposed to administration and teaching), are increasingly specialized, have a need to monitor related fields, and, when it comes to electronic physics content, are often confused about what is available.

Meanwhile, information specialists are battling with lack of funds, shortage of space, a dramatic increase in output, a changing role and much uncertainty.

Established publishers also feel threatened by falling sales, growing costs (including, of course, the very considerable costs of electronic publishing), increased competition, heightened expectations and new publishers. The fastest-growing category of new publishers may well not (yet) be commercial, but organizations such as the preprint server at Los Alamos and information services like the excellent TRIPTOP (http://www.tp.umu.se/TTOP/) are certainly perceived as potential threats by some publishers.

Therefore, certainly in the field of physics, a rather gloomy overview emerges; one which cannot be 'solved' or 'rescued' totally by electronic publishing. However, some solutions can be devised using electronic means that can ease the burden for us all.

Electronic solutions

Let us return to the individual physicist. Because he is overworked he needs to have access to information (be it print or online), whatever his location. Institute of Physics Publishing introduced a remote service as part of its electronic journals offering on 25th November 1996 and already just under a quarter of the 16000 registered users take advantage of this service. When travelling without online or disk access, print quality becomes a big issue. Portable
document format (PDF) has rapidly become a standard, although 30% of Institute of Physics Publishing users are still sending required reading to a PostScript printer.

Information overload is now a recognised problem for many professionals. The physicist needs personalization options (some 16% of our current users choose this option), e-mail alerting to content he has chosen (14%), cross-journal searching, more powerful search engines, short-cut keys, intuitive interfaces and information delivered quickly (Institute of Physics Publishing papers are placed on the Web upon acceptance; they do not wait for the print version).

The pressure to publish can be marginally alleviated by easy and straightforward electronic submission and refereeing of papers, fast turn-around times at publishers, strong online communities and the free delivery of suites of software that aid the compilation of a paper.

As specialization continues to grow in physics, the need to monitor related fields also increases. Of the 900,000 electronic journal pages served by Institute of Physics Publishing in 1996 some of the most popular of all, indeed eight of the top ten papers accessed, were review articles.

Finally, many physicists, and indeed publishers and information professionals, cannot keep up with this rapidly changing world and therefore cannot recall whether a publication is available electronically, whether his librarian has arranged access to it and whether it costs anything. Thus many intermediaries are emerging who aim to eliminate some of this confusion.

Meanwhile, information specialists or librarians face their own set of problems. Funding is usually the most dominant. Institute of Physics Publishing's stance on this has been to invest in its future by supplying electronic versions of print journals (because, for now, that is what they are) at no extra cost. Furthermore, 1997 subscribers receive 1996 content at no extra charge. And from 1998 that content, still at no extra charge, will extend back to 1st January 1993. About 50% of Institute of Physics Publishing's electronic offerings are free, or available at no extra cost.

Space is often an issue in libraries. However, our experiments with offering free archive CDs of serials content have not been terribly popular with librarians, though this may be part of a general antipathy towards a format which requires much support and resources. Hence the free five year online archive which will be offered from 1998.

The tremendous increase in output by the community also poses grave problems for information specialists in terms of funding, resources and space. Publishers such as Institute of Physics Publishing are only just beginning to experiment with publisher-as-archivist models, which may be inappropriate for many. National or international bibliographic and deposit libraries are seen by some to provide an optimum route and indeed, Institute of Physics Publishing does deposit all its electronic journals in the UK National Deposit Libraries.

Thus we have three groups in the community --- researchers, institutions and publishers --- in a state of uncertain flux and facing what seems to be insurmountable problems which can only partly be relieved by electronic activity. However, I do believe there is a way forward.

**Collaborations**
Much of what Institute of Physics Publishing has discovered in the past few years is now being discovered by other organizations, but probably at great cost. Indeed many of the European Union and UK Government initiatives in this field seem to be duplicating each other at vast expense. The spirit of the physics community and learned society not-for-profit organizations lend themselves to the unhindered exchange of knowledge and indeed Institute of Physics Publishing has always worked with this spirit in mind.

I believe we need to reduce the cost of disseminating information and to provide subject-wide access points to that information. The only practical way to achieve that is through collaboration.

**Discussion following presentation by Dixon**

Kircz asked whether publishers were doing any more than reproducing paper journals in electronic form. Dixon replied that electronic journals and articles were being linked through keyword systems and reference linking. Indeed, Institute of Physics Publishing's Hyperlite system does link from references to the INSPEC database, and to full-text and pre-print servers. Butterworth raised the problem of creating links between formally published material and grey literature. Dixon's view was that if material was available in electronic form it was helpful to create links, even to material that was 'unpublished' in the formal sense. The Institute of Physics publishes some 7,000 articles per year and our acceptance rate is 55--65%, i.e. we receive just under 12,000 articles per year.

Ginsparg said that the attachment of reviewing information to electronic preprints was valuable additional data. Okerson referred to an example in which a publisher requested a site license fee equal to the anticipated loss of all personal subscriptions to the paper journal.

Celis raised the issue of payment for electronic versions, linking to payments for paper versions was easy but unrealistic in the long term. Dixon commented that charging systems for electronic versions would be available in the future.