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Electronic journals: Some recent projects

ABSTRACT

The paper describes three recent electronic journal projects with which the author has been involved.

The first, Project ELVYN, was a collaborative project with the Institute of Physics Publishing and involved the distribution of an electronic version of a journal to eight library test sites. These libraries then made the journal available to individual readers via the local area network.

The second project, Café Jus, looked at electronic journal use with two groups of readers: taught postgraduate students, and staff and research students. The postgraduate students were seen in groups and were given a structured questionnaire to complete after interacting with an electronic journal. The staff and research students were asked to complete access logs each time they used an electronic journal as part of their work.

The third project, SuperJournal, involved approximately 20 publishers and 13 library test sites. Clusters of journals in the subjects of Communication and Cultural Studies; Molecular Genetics and Proteins; Political Science; and Materials Chemistry were made available and their use studied over a three year period.

The findings of the three projects are discussed and conclusions drawn regarding the future of electronic journals.

BIOGRAPHICAL NOTE.
CLIFF MCKNIGHT
After serving an engineering apprenticeship, Cliff McKnight worked as a design draughtsman before reading for a first degree and then PhD in psychology. He was a lecturer/senior lecturer in psychology at Goldsmiths' College, University of London for eight years, leaving to become Editor of several international computer magazines. He returned to academia in 1986, joining Loughborough University's HUSAT Research Institute. In 1994 he moved to the Department of Information Science where he is currently Professor of Information Studies and Head of Department. He has had an interest in human-computer interaction since working with the late Christopher Evans in 1971. His current research focuses on the impact of information technology on scholarly communication, particularly those issues relating to the development and use of digital libraries. He is the Senior Editor of the Journal of Digital Information and serves on the editorial board of the International Journal of Human-Computer Studies, the New Review of Hypermedia and Multimedia, and the Journal of Educational Multimedia and Hypermedia.

Keywords:
Electronic journal; User studies.

Introduction

Despite being only in the relatively recent past, the precise origins of the electronic journal are difficult to pinpoint. Harold Bamford's 1972 paper "A concept for applying computer technology to the publication of scientific journals" tended to concentrate on editorial processes, but certainly by the late 1970s the electronic journal was being discussed and pioneering work being undertaken by such people as John Senders (e.g., Senders, 1977) and Starr Roxanne Hiltz and Murray Turoff (e.g., Hiltz and Turoff, 1978). This work in the USA was beginning to attract interest in the UK human-computer interaction community. Expressions of such interest led to Brian Shackel at Loughborough University, being invited to participate in the US NSF-funded Electronic Information Exchange System (EIES) project (Sheridan et al, 1981). Unfortunately, UK involvement in EIES was "prevented by a Post Office embargo at that time on extensive transatlantic computer-based message transition" (Shackel and Pullinger, 1984). Denied the opportunity to take part in the US study, Shackel resolved to set up a UK study along similar lines. Thus began the BLEND project and the start of a tradition of digital library research at Loughborough which continues to the present day.

Throughout the 1980s the electronic journal remained as an experiment, with Senders (1981) himself saying "I have seen the future and it doesn't work". Fortunately, others were more optimistic than this and the late 1980s saw the development of the first hypertext electronic journal (McKnight, Richardson and Dillon, 1988). It was not until the early 1990s that electronic journals gradually began to be produced on a commercial basis. This development was accompanied by various research projects and the present paper will describe three such projects with which I have been associated in Loughborough University.

Project ELVYN

At a time when many were suggesting that electronic journals could obviate the need

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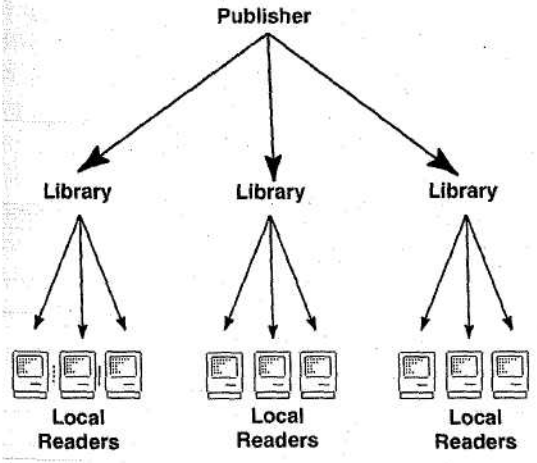
or either librarians or publishers or both, Project ELVYN[1] investigated a scenario of journal delivery to users which maintained a role for both intermediaries. The structure of the project is shown in Figure 1 below.

The publisher was the Institute of Physics Publishing (IoPP) and eight libraries took part in the project. IoPP offered to make all issues of the journal Modelling and Simulation in Materials Science and Engineering (MSMSE) available in electronic form to the members of the project. The offered formats were SGML, PostScript and plain TeX. It was the responsibility of the individual libraries to ascertain which format was best for them and to devise their own delivery strategy. As an example, at Loughborough we considered the offered formats and decided to adopt the SGML format and to use the IoPPvs DTD to convert the SGML documents into HTML documents for viewing, using a standard World Wide Web browser across the campus local area network (LAN). The libraries also had to attempt to recruit users who would find the journal useful and would be willing to use an electronic version - not always an easy task! Full details of the project can be found in Rowland, McKnight and Meadows (1995).

Figure 1: The structure of Project ELVYN



In the initial discussions at each site it proved quite difficult for potential users and library staff to agree on a specification of the precise form in which they wished to have the journal delivered. Apart from difficulties relating to lack of knowledge of technical limitations, there were also different expectations. Potential users generally stressed the need to browse through the journal, whereas the librarians tended to think in terms of retrieving items via the use of search terms.

Implementation at the sites also presented more difficulties than anticipated. Although the libraries had skilled systems librarians, it almost always proved necessary to call on the technical knowledge of computer experts outside the library in order to get the journal up and running.

Although a preliminary study had suggested a high level of interest in the electronic journal, in practice it proved quite difficult to recruit users for various reasons. For example, users lacked incentives to learn how to access such a journal when there was only one title and it appeared infrequently. Furthermore, although the journal could be delivered to the user's desktop, journal reading is often done in other contexts - at home, on the train and so forth.

The rate of change of technology also had an influence on the project. For example, at the start of the project in mid-1982 many universities were investing effort in making information available using Gopher-based systems, whereas by the end of the project in mid-1994 many had switched to using the World Wide Web.

Café Jus

During 1996, the number of scholarly periodicals available in electronic form increased rapidly. The Café Jus[2] project (Woodward et al, 1998) took advantage of this critical mass of electronic journals to mount a major user study with taught postgraduate

students, research students and staff in various disciplines at Loughborough University.

For the postgraduate students, a structured questionnaire was developed which could be used in conjunction with hands-on access to an electronic journal. The questions were arranged under three headings - journal content, journal appearance and facilities offered by the journal. An initial presentation on the project together with documentation was provided; then each student accessed an electronic journal, noting down responses to the questionnaire as their reading progressed. Student cohorts from six departments took part: Computer Studies, Human Sciences, Information and Library Studies, Physical Education and Sports Science, Civil Engineering and Economics.

For comparison, it was decided to obtain feedback on electronic journal usage from research students and academic staff. In this part of the project, users were given individual instruction in the use of electronic journals and then left to use them on their own at their own desks. The method of obtaining data here was via a log sheet on which participants were asked to keep a record of their usage of electronic journals. Volunteers were sought mainly via electronic mail messages inviting participation, but this proved to be a good deal less effective as a recruiting tool than the group approach used with postgraduate students.

Low-level problems, especially delays in gaining access and impediments to moving about within and between journals, proved to be a major demotivating factor in the use of electronic journals. Once an article had been accessed, reading on screen remained unpopular. This is not very surprising given that most publishers made their journals available as PDF files, a format ideal for printing but not suited to on-screen browsing or reading. Free journals using HTML were generally preferred to commercial journals using PDF for convenience of reading, but they were likely to be regarded as of lower academic quality.

The project also encountered difficulty in collecting comparable data because publishers frequently changed their interfaces or the version of software required for access. The publishers appeared to be more concerned with being 'leading edge' than with providing a stable service. The project concluded that use of electronic journals would require a considerable training exercise both for librarians and users.

SuperJournal

SuperJournal was a research project in the eLib Programme studying the factors that will make electronic journals successful. The objective was to identify the features that deliver real value, and to explore the implications with stakeholders in the publishing process: readers, authors, libraries, and publishers. The research was conducted over three years (1996-1998) and the project ended in December 1998, with approximately 20 publishers and 13 university library test sites taking part.

The project developed an electronic journal application and made clusters of journals available to the test sites via the World Wide Web. At the start of the project, readers were asked about their expectations for electronic journals. For two years their usage was recorded and analyzed. At the end of the project, they were asked to comment on what they did and didn't like about SuperJournal, and the features they wanted in future electronic journals and services.

The project made clusters of journals in the following subject areas available to the participating test sites: Communication and Cultural Studies; Molecular Genetics and Proteins; Political Science; and Materials Chemistry.

Findings indicate that the most important

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requirements for electronic journal services are a critical mass of journals, access, and timeliness. Users want fast and easy access to a wide range of quality journals that are up to date. If these factors are not in place, it is unlikely that readers will use an electronic journal service. Of these, Science users rated timeliness most important, and Social Science users rated the range of journals most important.
The next important requirement is the core functionality provided: the ability to browse, search, and print. Searching is probably more important to Social Scientists, who are not as well served as Scientists with bibliographic databases in their disciplines.

The next requirement is for a backfile, ideally of 5-10 years, and this is probably most important in the Social Sciences. As important as having access to the backfile, is the knowledge that the journal content (both current and back issues) will remain available into the future, and will not disappear (e.g., when a subscription ceases). Depth and permanence of content in combination with breadth will enhance the overall critical mass and encourage users to make more extensive use of the service (though depth and permanence on their own are unlikely to convert non-users into users).

The last important requirement is that of gateways or 'one-stop shopping' ways for users to discover what relevant information is available and then get to it quickly. Users do not want one monolithic service that works in only one way, but choice among multiple services, and organization of content that facilitates discovery within their disciplines. Clustering journals by subject, local library gateways, and interfaces between large bibliographic databases and full text journals will all contribute to seamless discovery and access.

From the user's point of view, the key benefits of electronic journals are convenience, in particular that of desktop access (from wherever their desktop happens to be), keeping up to date with their disciplines, saving time, and managing the journal literature more easily and efficiently. Another benefit they hope for is access to a wider range of journals than their library currently offers, decreasing the time and frustration of interlibrary loans.

Conclusions

The three projects described above and others like them suggest that there are now more people prepared to access electronic journals. However, there are still very few 'real' electronic journals available. Most of the electronic content which publishers are making available is little more than an electronic copy of the paper version in PDF format. As such they are more properly described as 'print-on-demand' journals. It is difficult to see how the true potential of electronic journals (for example the inclusion of non-print material such as audio and video) can be realised in a format such as PDF, based as it is on PostScript - a language specifically designed for printers.

The research also illustrates that while technology may change rapidly, people do not. For this reason, many of the lessons learned by the early projects such as EIES and BLEND are still valid. Authors still worry about the permanence of electronic journals and are cautious about submitting their work to them. Like the transition from typewriters to word processors, users need to be offered not only the ability to perform their present tasks but also some additional benefit or 'added value.'

Finally, it is clear that electronic journals will not obviate the need for librarians. The user training and support traditionally provided by librarians will still be required. Furthermore, the need for training may well be continuous. To read print materials, a person has to learn to read once, but the continuous change in hardware, software, systems and interfaces means that in the future users may frequently need to relearn how to access the literature.

1. Notionally, ELVYN stood for ELectronic Versions - whY Not but, in an analogous fashion to the Red Sage project which derived its name from the restaurant where the project was formulated, actually derived from the Elvyn Richards restaurant on the Loughborough campus where meetings frequently took place.
2. Notionally Café Jus stood for Commercial And Free Electronic Journals: User Studies but also followed the ELVYN food-related theme.

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