An online electronic journal

for teaching purposes

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Electronic journals are rapidly increasing in importance as a means of communication, but there is, as yet, little available in the way of training in their production or use. An experimental online electronic journal has therefore been established to provide such training. The journal is provided on the World Wide Web as a distributed activity: in the recently concluded evaluation phase, issues were produced at three nodes – Loughborough University, City University and the University of South Australia. The students involved in the evaluation have been on courses in information, library and publishing studies at both undergraduate and postgraduate levels. The main training topics are: accessing electronic journals and evaluating interfaces; refereeing and editing; evaluating layout and design. The results of the evaluation show that this simulation approach is highly acceptable to students. It also has the value of highlighting areas where students are uncertain, or experience problems in handling the material. Student reactions to, and comments on, electronic journals appear to parallel those among actual users of such journals. Hence the training activity throws some light on the general problems that can be expected in making the transition from printed to electronic journals. As a result of the evaluation activities reported here, an online training package is being assembled, which will be made available over the Internet.

Introduction

Electronic channels are rapidly taking off as a means of accessing journal literature (Lancaster, 1995). Behind the interest lies the increasing concern of academic libraries with the mounting cost of purchasing printed journals. Some commentators believe that higher-education institutions themselves will move into the electronic publishing field in order to control expenditure on journals (Okerson and O'Donnell, 1995).

This rapid growth in the number of electronic journals available raises the immediate question – how will all those concerned with journals, as authors, editors, or readers, be trained? The prime purpose of the project described here is to explore the problems of providing such training. It was also planned that student feedback would assist the construction of an online teaching package.

A process of iterative development of teaching material, based on student feedback, is particularly appropriate here, since a student's ability to evaluate forms a part of what is being assessed. The rationale of this approach has been discussed in more detail elsewhere (Ramaiah *et al*, 1995). The approach is designed both to inform and test the student and, simultaneously, to provide feedback that can be used to modify and update the teaching material.

A training electronic journal

Understanding the workings of an electronic journal in such a way as to help others necessarily entails hands-on experience. It requires an ability to manipulate and to modify both contents and appearance. Since it was obviously not possible to make changes to existing electronic journals, the decision was taken to set up a new 'training electronic journal'. It was decided that, though the material included in the journal should be original, it need not necessarily be standard articles.

To mimic the problems that might be encountered with a real electronic journal, it was necessary that the training electronic journal should be networked between sites, with input from each site. An electronic journal – *InfoTrain* – was consequently developed between three sites – Loughborough University and City University in the UK, and the University of South Australia.

The training process

The process of handling electronic journals involves a number of different activities. It was decided that three were especially important in terms of training. These were:

1. accessing electronic journals and evaluating interfaces;

2. refereeing and editing the contents;

3. evaluating the layout and design of the electronic journal.

The students were to be guided in their exploration by handouts and questionnaires. They would use the results of these activities as the basis for their assessed coursework.

At Loughborough, the results given here involved 61 first-year and second-year undergraduate students taking courses in library, information and publishing studies during the academic year 1994–5. At City, 128 students on postgraduate Masters courses (full or part-time) in information science or information systems were involved. In both universities, the students were divided into small groups for carrying out the required work. The basic material used for study was abstracts of Masters dissertations that had been recently completed at the two universities.

Evaluation of the interface

The concern in this exercise was in exploring ease of access, navigation and comprehension of the potentialities of different electronic journals. The students at Loughborough investigated three electronic journals: an experimental Institute of Physics

journal, an Institute of Electrical Engineers journal, and an issue of *InfoTrain* from South Australia. They were asked questions about the activities possible with each journal. In order to answer these questions, students had to navigate their way through the journals. At City, the students were required to evaluate a section of the issue of *InfoTrain* produced there (each group looked at a section which had been prepared by one of the other groups). The groups also evaluated another refereed electronic journal of their choice from those available without cost via the World Wide Web.

The questions asked were of two types: matters of opinion (for example, are icons used easy to understand?) and matters of fact (for example, does the journal have hypertext links within the article?). Responses to questions in the first category indicated that 86 per cent to 95 per cent thought that the journals were 'very easy' or 'quite easy' to use.

The area that presented some slight difficulty was in understanding menu items and identifying icons. This is not unusual; other studies have found problems here (for example, Sulaiman and Meadows, 1995).

The responses to the factual questions give a rather different picture of the students' ability to cope with an electronic journal. They suggest that the more complex the level of navigation, the greater the student uncertainty. They were asked whether each journal allowed browsing at the title and author level, at the abstract level, and through figures, diagrams and tables.

In some cases, the incorrect responses formed a majority. Thus, over three-quarters of the students thought that one of the journals allowed searching within an article when, in fact, it did not. It is possible that students misinterpreted the questions in some way. For example, the students were asked about hypertext links from the specific articles studied to other documents; it transpired that the meaning of the word 'document' was not clear; did it, for example, include a database?

The three electronic journals investigated in this exercise fell into different categories. The IEE journal was available commercially; the IOP journal was experimental; *InfoTrain* was an amateur design. Yet these differences were barely discernable in the student responses (though, overall, the IEE journal was found somewhat easier to handle).

Content

The purpose of looking at content was to examine how well students could referee and edit online material. The material used in this exercise was the abstracts from Masters dissertations. Three criticisms of content were much commoner than any other (number of mentions given):

1. poor grammar and style – 44;

2. poor layout and structure – 36;

3. the inclusion of unnecessary detail, or irrelevant material – 23.

The first refereeing study at Loughborough involved six groups looking at the same abstract and commenting on its quality. The different possible responses were given a weighting such that the lowest score of 5 corresponded to an abstract that should

certainly be rejected, and the highest score of 18 to one that must certainly be accepted. The scores from different groups of students were consistent, ranging only from 10.3 to 12.5.

The next study involved the students in examining a range of different abstracts. Again, their weighted assessment of each abstract was calculated; the resulting scores ranged from 6.5 to 18. These scores were compared with their recommendations regarding publication (1 = publish without change; 2 = publish with slight modification; 3 = publish with considerable modification; 4 = do not publish). There was a clear correlation between the weighted score and the recommendation, as would be expected. However, both undergraduates and postgraduates proved loath to recommend rejection, even of clearly low-quality abstracts. The spread of refereeing comments was similar to that encountered in real-life refereeing of journal articles. Differences manifested themselves between subject areas; library-oriented topics (library collection development, librarianship, user education, etc.) were rated less highly than the other areas.

Presentation

At Loughborough, second-year students were asked to design an electronic version of a printed journal with which they were already familiar. They were told to concentrate on the most important pages in information terms: the cover, contents page, first page of an article, etc. The students were split into groups, each of which had to agree a design for its electronic version. Each group was then asked to evaluate the versions produced by the other groups. Interestingly, all groups decided to follow the printed version of the journal fairly closely, despite the fact that they also thought the transfer led to a rather boring appearance. Their argument was that the transition to the electronic version would be more easily made if the electronic environment looked familiar. This reflects the viewpoint of many journal readers (Schauder, 1994).

There was similarity between the resultant electronic versions, and also in the students' critiques of each others' versions. Their main area of disagreement concerned the correct amount of material that should be included on each screen. Their discussion actually reflected a current debate among human-computer interface designers. The other area where some disagreement emerged related to the overall organization of the information.

Work on design and presentation at City concentrated on the abstracts. Although these were text-only, the groups came up with a multiplicity of designs for them. The students used HTML (HyperText Markup Language) for presentation. The resultant lack of control over the appearance of the final product, given the variety of browsers and their customizability, led to a number of interesting debates in subsequent class discussions.

The approach used at the City suffered from technical problems which led to stages in the sequential process falling behind schedule.

Dissemination

The provision of different types of material from three separate sites proved valuable in drawing students' attention to some basic problems of dissemination. More especially,

they found that problems which appear at first sight to be trivial can have a profoundly demotivating effect on users. A typical example is the long wait that is sometimes necessary when *InfoTrain* material from Australia is accessed. Another is the difference in time required to access text and graphics. *InfoTrain* can, in principle, be looked at by anyone who can access the Internet. This has raised some interesting queries regarding the material which is being put up by students – for example, their proposals for the electronic design of journals. Some are worried by the thought that people all over the world may be in a position to criticize their efforts.

Conclusions

Student feedback indicates that the teaching-journal approach both stimulates interest and creates a feeling that the exercises represent real-life activities. For example, a retrospective survey of the students in South Australia found that they all evaluated the course positively, and two-thirds graded their reaction as very positive. The 'real-life' aspect was appreciated in comments by Loughborough students.

The training electronic journal concept has been tried out with both undergraduate and postgraduate students. What is noteworthy is how little difference there was in their overall reactions, or in their ability to carry out the exercises. The implication is that the concept should provide a suitable approach to electronic journals for any group with a basic level of computer literacy. An introductory electronic journal training package, modified in the light of the results reported here, will soon be made available via the Internet for use by publishers, librarians and information officers, as well as fellow-academics.

The results of this study have, however, a wider significance. Problems encountered by these students in using electronic journals appear rather similar to those encountered by actual authors, editors and readers. Hence, the project results point up some of the difficulties of the transition from print-based to electronic journals. First, journal users, though they are aware of the potential flexibility of electronic handling, are likely to believe that, at least initially, electronic journals should mimic the appearance of printed journals. Secondly, students have commented on the difficulty of editing and refereeing material on-screen. The basic problem is the small amount of material that can be viewed at once. Here, again, students have identified a difficulty that has already become evident in the publishing world. From a training viewpoint, therefore, *InfoTrain* has a heuristic value: by handling it, students can validly infer the problems that really exist. Thirdly, students misunderstood, or did not understand fully, some of the navigational possibilities on offer. This is a problem that publishers can expect to face more generally. Perhaps due to uncertain expectations, professionally designed and produced electronic journals were not seen as overwhelmingly better than an amateur production.

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