

Multimedia Information and Library & Information Staff

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Abstract

Multimedia information is rapidly growing both in importance and in diversity. The question is not simply how such information should be handled by library and information staff, but also whether their role might be bypassed by direct end-user access. This possibility is examined here in the context of an in-depth study carried out recently in the UK. It is concluded that the problems presented by the handling of multimedia information will require a change in role of library and information staff, but will not eliminate the need for their input.

1. THE BACKGROUND

Many definitions of what is meant by 'multimedia information' are in circulation. The problem is that the concept, itself, is blurred. Attempts at definition are likely to be too broad, or to miss important elements. For example, a common definition would be of the type: 'Multimedia information results from the integration of data, text, images and sound within a single electronic information environment'.¹ On the one hand, this is often too broad a definition. For example, the commonest form of multimedia information at present consists simply of text and (stationary) graphics. On the other hand, the definition leaves out an important element—the level of interaction between the user and the system.

This question of interaction is of considerable significance to library and information staff in their role as intermediaries between the information available and its users. Such staff are currently learning to handle multimedia information: but so, too, are their customers. In terms of handling multimedia information, where will the balance between librarian and customer lie in the future? For example, consider the following description of

the FastDoc systems currently being tested in Western Europe to handle text-plus-graphics documents.

'A document is ordered using our Windows software, simply by tagging the entry in a catalogue. The user's PC automatically places the order via a dial-up link to the library's computer, which automatically processes it. The first page reached his fax machine within five minutes together with an invoice, also generated automatically'.²

In this process, the only active involvement of the librarian is likely to be in the payment of the invoice.

One thing that is quite clear is that demand for multimedia information will grow rapidly. In specific areas of science and technology, production and consumption of multimedia information has been commonplace for years past. An obvious example is the acquisition of data from satellites in Earth's orbit. The interest in such information is now expanding to a wider audience. One important reason for this is that the technological infrastructure now available—the Web-based approach to handling information and the Internet for its dissemination—encourages the use of

multimedia sources. For example, a recent European initiative has launched MIDASNET (the Multimedia Information Demonstration and Support Network) with the intention of helping commercial and industrial firms in the European Union explore the potential of multimedia for their activities.³ As part of the launch, a survey of top firms in Ireland found that some two-thirds wanted to know more about the Internet. Nearly all of these firms were particularly interested in its use for handling multimedia information.

The European Commission has proposed that one of its main R&D programmes for the next few years should be aimed at creating a user-friendly information society. The programme for this emphasises the importance of developing multimedia information. Similar initiatives are appearing world-wide, not least in the United States. The situation is, however, less straightforward than the proliferation of these programmes might suggest. In assessing what contribution they can make to multimedia information handling, librarians and information staff need to consider the problems as well as advantages of providing such information.

2. THE PROBLEMS

One obvious problem is the cost of technological infrastructure required to handle multimedia information. In terms of their capabilities, the cost of computers continues to drop dramatically. However, demands on the sophistication of computers continually increase, with the result that the actual cost of new equipment drops less rapidly. Moreover, the rate of change is such that new equipment has to be bought at frequent intervals—a costly requirement.

This is especially true of multimedia technology at present. Consider, for example, computer graphics, a basic element of multimedia handling. From the graphics viewpoint, the computer screen suffers from the same defect as the printed page. It often faces the need to represent a three-dimensional in two-dimensional space. Considerable effort is now going into the development of a three-dimensional computer environment (mostly under the heading of 'virtual reality'). No doubt appropriate technology will be

developed, but it can be expected to undergo rapid change and to be relatively costly. In addition, there is no guarantee that it will be downwardly compatible with existing equipment. If librarians are struggling to provide adequate access to two-dimensional images, how will they cope with a requirement for three-dimensional images?

Cost obviously affects access. All studies show that the extensive use of computers for information purposes requires the equipment to be immediately available, preferably on the user's desktop. If the library or information centre is to fit into this scenario, it needs to act as a switching centre providing multimedia information to its users via a network. Though this kind of provision is growing, it is still far from universal. However, the fundamental problem goes deeper: it refers to the network, itself, rather than to the equipment that it links together. Multimedia requires much more bandwidth for transmission than pure text.

The current increasing sophistication of multimedia is paralleled by its growing demands on bandwidth. It only needs one low-bandwidth link in the network for a bottle-neck to occur in the flow of multimedia information. For many users, handling multimedia activities can be tedious occupation.

One final problem relates to the extent to which multimedia handling is oriented to user needs. A typical document in science and technology, as noted previously, is a mixture of text and graphics. One study of what readers require when handling such a mixture is tabulated on the next page (its findings are similar to those of other studies).⁴

The most striking point is the great demand for the electronic information to be available in print. The reason becomes evident when other items in the list are examined.

For example, though electronic data are easier to search, printed versions are usually easier to browse. Equally, a networked computer is not, as yet, a very portable object. Indeed, most requirements in the list are better fulfilled currently by print than by electronic means. Multimedia is in demand for the positive things it can offer—volume of information, level of

interaction, and so on—but it still has some way to go in terms of user-friendliness.

The Importance of various electronic document characteristics to readers

Electronic document characteristics	Percentage saying very important
Creation of a print survey	80
Ability to browse graphics	73
Ability to browse text	66
Portability of the text	53
Flipping pages and scanning	45
Ability to underline and annotate	41
Physical comfort	37

3. A CASE EXAMPLE

There is a factor of considerable importance for library and information staff. User's adverse opinions of multimedia are more often triggered by low-level problems than by high-level difficulties. A recent study at Loughborough University can be cited as an example.⁵ This has looked at the problems academic readers encounter when using electronic journals (nearly all of which consist of a mix of text and graphics). The university library at Loughborough now offers access to several hundred electronic journals via its Web pages. It is therefore relatively easy for readers to identify what is available. The question is how readily they can extract the information they need from the journals.

One major difficulty was encountered immediately by many readers we studied—that is gaining access to the journal. This often involved lengthy delays (up to 50 minutes, the maximum time permitted) before the desired journal article appeared on the screen. The delay was primarily due to the amount of electronic traffic. Even mirror sites did not always solve the problem. For example, one reader was told to log into the US site of the e-journal because there were too many connections to the UK site. To make matters worse, the exact form of the interface varied from publisher to publisher, and was often far from self-explanatory. Even gaining access to

the article was not the end of the process. Most readers expected to be able to download and print out the articles that interested them. This again often proved to be time-consuming.

Additional difficulties appeared once access had been gained. Several readers found navigation tricky, especially when browsing. In a number of cases, the help facilities proved to be sufficiently well-concealed that the readers failed to find them. It was also found that details of typography and graphics were less easy to see on-screen than on paper. The more complex the journal, the greater the potential problems. For example, one engineering journal required additional software in order to view animated sequences. The version available on the campus was the wrong one, and it was not worth acquiring the correct version purely for reading one journal of restricted interest.

After they had acquired some experience of handling electronic journals, users were asked for their reactions. Two-thirds thought that, in principle, such journals offered easier access. They meant by this that all the journals could be accessed from their own rooms: there was no need to waste time visiting library (and perhaps finding that the journal issue required was already in use). However, when asked which type of journal—the electronic or the print—they found it easier to use, much the same proportion preferred the printed journal. This reflected the deficiencies in handling the electronic version that have been remarked on above.

4. CONCLUSIONS

The Loughborough study (and others) point to some general conclusions. Three immediately relevant conclusions are:

- ❑ Low-level problems, especially delays in accessing and navigational difficulties, are a major demotivating factor in handling multimedia information.
- ❑ Lengthy on-screen reading remains unpopular. At the same time, downloading and printing out leaves much to be desired, especially in terms of delays.
- ❑ Users of multimedia information require both training and advice. Since the nature and presentation of such information continues to

change rapidly, such training and advice is not a one-off activity, but has to be repeated.

Some of these problems relate to the product. For example, some of the difficulties with navigation arise from the fact that publishers are still learning how to present multimedia effectively. It might be expected that these problems will be alleviated as providers gain experience. Other problems—especially the delays—are infrastructural, and may prove more difficult to resolve. However, the basic problem lies in the rapidity of change. It is here that library and information staff can be particularly effective. Users of multimedia information will need both initial training and continuing advice on how to handle it. In the Loughborough study, most users felt they would have had problems, certainly in their initial attempts at using electronic journals, had guidance not been provided. They also noted the need for updating. An example of this actually occurred during the course of the study. One publisher changed the way its journals were accessed without warning, and the readers immediately required assistance to make the changeover.

Looking at these results, it is clear that at least two library skills are required in the handling of multimedia information on an institutional basis. The first is the organisation of the information, so that readers can readily identify relevant material. The Loughborough study, for example, was preceded by a library exercise that organised the incoming electronic journals into an acceptable and easily usable

file. The second is the provision of the training and advice needed to handle the information. Again, the Loughborough study suggests that library and information staff should take the lead, though staff from the computer centre, or from departments, may also have a role to play.

It will be noted that the end-users at Loughborough actually did the information retrieval. Yet this did not remove the need for intervention on the part of information experts. The question was raised at the beginning of this paper—where will the balance between librarian and customer lie in the future? The answer for some time to come is likely to be that the growth of multimedia information will change the role of library and information staff, but will not eliminate the need for their input.

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