Managing CD-ROM in an Academic Library

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In the last two years, the rapid development of optical disc technology has suddenly presented librarians with a completely new medium for information retrieval. Bibliographic data stored on optical discs and the accompanying software, on floppy disc, enables users to search that data in a variety of ways which emulate the online searching of remote databases without the financial constraints that that implied.

The system we have at Leeds, and with which I am therefore most familiar, is the Cambridge Scientific Abstracts (CSA) version of MEDLINE. We use an Opus computer and a Philips CM100 compact disc read only memory disc drive. The data is stored on discs with three quarterly cumulative updates and one annual disc. The files are identical to the MEDLINE files from 1982 to date. There are therefore seven discs at present.

Because it is a novel means of presenting information it is necessary to approach the management of the system in a novel way too. The compact discs cannot simply be put out on a shelf and left for the users to make of them what they will. There are several features which make "managing" necessary and I will examine those first before describing how this question has been approached in my library and in some others.

Features of CD-ROM that create management problems

1. Access

Most libraries will have only one set of equipment, at least at first, so the use of the equipment must be controlled so that access is available in the way we would wish and to those we want to have access.

2. Disc changes

Databases that occupy more than one compact disc, such as MEDLINE, require disc changes during the course of a search. This seems to be the most vulnerable part of the system. Ought we to let our users change the discs at will?

3. Print out/downloading to floppy disc

It is possible to print out references if there is a printer attached to the system. How do we control that if indeed we want to? There is also the facility to download to a floppy disc. Readers wanting to use this facility will, by definition, have some computing know-how but it may be only sketchy.

4. Ability of the end user

Although most users today are fairly computer orientated this is a new application for them. Most library users have been accustomed to having online searches done for them with the librarian acting as an intermediary. There is a danger that they may be very dissatisfied with the CD-ROM system because their results are poor through lack of understanding of search techniques or they may demand so much help that this creates a staffing problem.

Thus we can see that CD-ROM requires a different approach to management and that much more staff supervision is necessary than in the case of printed bibliographies and indexes. I do not intend to discuss the selection of equipment or to deal with finance except as it crops up in relation to the features I have already enumerated.

Management methods

1. Access

First we must consider control of access to a limited amount of equipment - in fact only one set. I do not think it is realistic to think in terms of using a computer that is already used for other functions. A dedicated machine is the least that it is practical to consider.

At Leeds, as in several other libraries, we have instituted a booking system with the days subdivided into thirty minute sections. We had anticipated that that would be enough time for a user to find the information he required. In practice, sessions tend to be much longer for a

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number of reasons. Firstly, readers do not plan their searches before they start as librarians, used to the expensive time of an on-line search, tend to do. They seem to search the system in much the same way as they would do a manual search in *Index medicus* - using a single term then scanning the results sequentially, selecting the chosen references from the abstract and printing out as they go along. Secondly, many of our users come from remote sites and can only get to the library once a week so they may want to search for several topics at one sitting.

It is necessary to impose a time limit or the few will take over the equipment and other, perhaps more diffident users, will not get an opportunity to use it. That is, the library staff must take an active role in allocating time, rather than leaving readers to settle it between themselves. The booking sheet also enables library staff to plan their own time if they want to demonstrate the system or to do searches themselves.

The other aspect of access is, who should be allowed to use the facility? It is important to decide from the outset whether it is to be freely available to all comers or whether some sort of training should be insisted upon before users are permitted to search. We must also consider which groups of readers should be allowed to use the database. For example, in my institution we planned this year to introduce MEDLINE on CD-ROM to medical students early in their careers but the academic staff feel very strongly that students should learn first how to search the literature in the "traditional" way. We have targeted instead one particular group of undergraduates - the intercalating year - for instruction. Meanwhile, at the University of Newcastle it was seen as a valuable teaching aid and students have been encouraged to attend a one hour tutorial before being added to a register of users.

2. Disc changes

CSA MEDLINE is split up into annual discs and, large as the storage capacity of compact discs is, many databases cover several discs.

The suppliers assured us from the start that the discs were not vulnerable and would stand up to mishandling. Reports received of users putting the CD into the floppy disc drives for example did nothing to reassure me. The disc may have survived the experience but the disc drive was damaged.

Even if physical harm is not done, the cumbersome process of exiting the system and reloading for every disc change, which is still the case with CSA MEDLINE, is not well received by users.

The recently announced multiple disc players suggests that these concerns had some foundation. Compact Cambridge have announced a stacked multi-disc drive unit which will support new enhanced software and permit searchers to load and search up to four discs at once. For users of single disc drives there will be an easier procedure for changing discs.

One solution to the problem is to make only the current disc freely available and not to permit any disc changes. I believe that one library allows readers to use the current disc to formulate a search which the library staff then run on earlier discs on their behalf, while other libraries allow readers to change the discs themselves.

There is no doubt that users have to receive some instruction in this aspect of the system, perhaps more than any other.

3. Print out and downloading to floppy disc

The ablity to print out the results of a search is clearly one of the big plusses for the user and it is absolutely essential, with bibliographic databases, to have a printer attached.

In the case of a database such as MEDLINE, where there are often abstracts included, references are frequently quite long. Although the reader has the option to format the output, discarding many of the fields, I wonder in practice how many of them do? We are then in a position where reams of paper are used - a cost that you might not have included in your calculations. Printers too are noisy things, especially at the lower end of the price range, so the positioning of the printer should be considered. If, as in my library, the computer is located in an open access area the annoyance factor in the library must also be considered. We found it necessary to purchase an acoustic hood almost at once - and the disturbance is reduced but not eliminated.

It might be possible to at least limit the amount of printout generated by making a charge. If the library already charges for photocopying the easiest way is to charge the same amount per page for printout as for photocopies. It may also be possible to install a "chargecard" type of system on the printer as is sometimes used on photocopiers.

Downloading data to floppy disc for subsequent use with another personal computer is also an

extremely attractive idea. I have heard people, who claim to be inexperienced computer users, enthuse about using downloaded data to create their own database, reformatting and manipulating the data with apparent ease. My experience, to the contrary, has been that readers have only a very vague idea of what to do, they need a lot of help and I have never seen the fruits of their labours.

The hazard is that, to use the popular misquotation, "A little knowledge is a dangerous thing" - as soon as a user moves into the operating system of the computer there is real scope for disaster. In one library, to my knowledge, a user succeeded in deleting the operating system from the hard disc.

4. Ability of the end user

Traditionally, in the UK anyway, readers have relied upon an intermediary for on-line literature searches though many have been anxious to do their own searches. The use an intermediary was largely dictated by the costs of on-line searching, a large proportion of the charges being based upon connect time and telecommunication costs. The understanding of indexing and the MeSH vocabulary was also a significant factor. A search was best done after considerable preparatory work and then input as quickly as possible to the host, often requiring little editing at the on-line stage.

All the time/cost constraints of the on-line situation disappear when we are using CD-ROM but users may still search very inefficiently. It has been shown [1] that users tend to search the CD-ROM in the same way they search the hard copy of *Index medicus*. They retrieve references using a single term and scan the results one by one as they would search under a single subject heading.

I feel strongly that we should encourage readers to use the system to the full extent of its capabilities. To do this they have to have some knowledge of MeSH and subject indexing. The menu driven search facility leads users through simple Boolean logic and, with proper use of MeSH headings and subheadings it is possible to achieve satisfactory results. It seems sad that a busy clinician will spend half a day instead of half an hour over a search because he stubbornly refuses to construct a "proper" search. To cite but one example, a user plodded through 900 citations on a single annual disc because he was determined to use free text searching. On questioning him I was able to elicit enough information from him about the object of his search and by constructing a simple search of no more than four MeSH terms reduced the result to 27 references - but he was unwilling to try to learn to construct a search strategy and also refused to trust the indexing system because he was afraid of missing anything by relying on it.

I think that learning something about MeSH headings and the subject indexing methods used in constructing the database is an integral part of any training in the use of MEDLINE on CD-ROM.

The demands upon staff time are large - however the system is managed. Most people report this and a variety of methods have been used to try to minimise it.

CD-ROM Users Club

This is an appropriate point at which to describe the way in which we have organised the use of MEDLINE on CD-ROM at the Medical and Dental Library at the University of Leeds.

We decided to create what we called a CD-ROM Users Club. For the first year the membership fee has been 50 per person. That fee bought a package consisting of the following items:

1. Training in the use of the CD-ROM hard and software
2. Training in the use of MeSH and subject searching
3. Documentation - a users manual and a quick reference "crib" sheet
4. Unlimited access, via the booking system, to the database (all years as they know how to handle the discs after training)
5. Unlimited, free, printout and the opportunity to download data to their own floppy disc
6. Regular updating of information - if, for example, there are changes in the software, and notification when a new cumulation disc arrives, etc

The idea of charging to use information was a completely new concept although, as we already have full cost recovery for on-line searching, it is not such a major departure for us. We currently have 56 fully paid up members, many of whom have paid the subscription out of their own pockets. "Casual" use is allowed if no club member is using the system but advance booking is not allowed for casual use and no disc changes are permitted. Printout must also be paid for and we do not allow downloading to floppy disc. Library staff do not give more than very basic

"start up" help to these users. We have continued to offer an on-line literature search service. Although there was a fall in demand last year it is not immediately clear whether this was as a result of the availability of CD-ROM or simply a normal fluctuation because most of the club members have not been customers of the on-line service in the past.

The reasons for adopting this method of managing the CD-ROM facility were threefold. Firstly, it was seen as a means of controlling all those features already outlined as being in need of control. Secondly, it was hoped that by having the training course as part of the package we would persuade people to take the subject indexing seriously. Thirdly, and I suppose most importantly, we had to generate some income in order to be able to continue to provide the facility. The initial capital outlay was covered by some "spare" money but the ongoing commitment is not inconsiderable and has turned out to be rather more than we originally expected because of the need to update the subject indexing structure and thus re-issue discs for previous years.

Reaction to the scheme has varied. When I first suggested this method to other professional colleagues last year, before it was actually tried, the reaction was very sceptical. The fact that over fifty people have now paid up suggests that we have at least convinced our own users. The Library Committee to which I report was very supportive. One voice was raised in protest on the principle that this was the thin edge of the wedge of paying for all information. The remainder, several of whom have already joined the club, supported the scheme because, while acknowledging that it was a valuable source or information, it could not replace many of the other items in the library which still had to be bought out of ever shrinking resources. We could not provide this service for a few users while depriving others of printed material.

In an attempt to find out what our users thought we distributed a questionnaire after about six months of operation. I can summarise the more interesting points resulting from the replies as follows.

Asked how they had heard about the CD-ROM, 40% said they had seen leaflets in the library, 40% had responded to direct mailing. We wrote to anyone who had used the on-line search service in the last two years. Only one reply was as a result of letters we sent to Heads of Departments.

Sources of funds to pay for the club membership were 40% Departmental funds, 30% research funds and 30% from their own pockets.

All the respondents had found the training in MeSH and CD-ROM satisfactory and the majority, 60%, also liked our inhouse user manual. 30% thought that the manual produced by the database supplier was better. Without exception the respondents found the system easy to use and, while 60% used the menu driven search method, a surprising 40% claimed to use the "Dot commands" method which much more closely emulates the on-line search pattern.

We asked what they did with the results of their searches and while they all printed out results some of the time, 40% said they downloaded to floppy disc. Of those people, half of them took the results away, re-examined their references and printed out selected references; the other half used the results to create their own database on their own personal computer. About half of the people who did not already use the download facility expressed a wish to know more about it. Everyone said that they kept the printed results of their searches for future reference. They all thought that the availability of abstracts was a considerable advantage.

We then enquired about how much time they spent using CD-ROM and whether it saved them time. Only 30% of the respondents said that they used it once a week and none said they used it more than once a week. Those sessions varied from 30 minutes to two hours, the majority being between 1.5 and 2 hours. They all said that the system saved them time and when asked if they could quantify the time saved some interesting replies were received. Two respondents said it saved them 4-5 hours a month, another said it saved "several" hours each month. One person thought the saving was as much as eight hours a month. While one user said that he could not quantify the time saved because he was led on to other ideas through the system, another said that he did better work in the same amount of library time.

We then tried to discover the degree of satisfaction with the results. Almost all (90%) of the users thought that the results they achieved were very relevant and 70% said they preferred to do their own searching. Those who were able to compare the CD-ROM system with on-line searches based on experience of both, preferred the CD-ROM. The only reservations recorded were because of the shorter time-span of the compact disc database.

Users were asked about the uses to which they put their results. They all used the system for their research, 30% giving that as the only use. Current awareness featured in 60% of the replies. Preparation of grant applications was given as a reason for the search by 30% and publications by 40%. Only 20% of the users applied their results to clinical treatment and one respondent had used the database in preparation of a student reading list.

We were interested to find out how the Users Club had been received and 80% claimed to like the idea, 70% thought that the booking system was good and 80% said that they would recommend club membership to colleagues. On the all-important subject of finance, 80% said that they would be prepared to renew their subscription for a further year at the same price, half of the remainder would renew if the price was lower and the other half were prepared to pay more. Respondents were given the opportunity to add their own comments and most of these centred upon the tediousness of changing the annual discs. Largely as a result of the timing of the questionnaire, there were some adverse comments about the delay in receiving updates - there was a slight hiatus in the middle of 1988.

Quite irrelevant to this discussion, but because it seemed a good opportunity to find out what our users thought at a time when librarians were discussing the subject, we also asked what the reaction would be to a British database limited to perhaps only the top 200 journals. The idea was greeted with an emphatic NO although one user said that it would be a nice alternative for some searches.

The object of this paper has been to point out the features of CD-ROM that need a different approach to management and to suggest some solutions. Since it is such a novel system, some novel arrangements have been tried but it would be fair to say that most are still experimental. A very small survey of a very limited group of users nevertheless shows that is is a facility which satisfies a need for information in a modern format and that users have taken to the system very happily.

References

1. Capodagli, J A et al. **MEDLINE on compact disc: end user searching on Compact Cambridge.** *Bulletin of the Medical Library Assocation*, 76(2), 1988, pp. 181-183.