Rencana-Rencana/Articles

On-line Database Search Service in the University of Malaya Library: a Preliminary Analysis of Its Use

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Abstrak: *Perkhidmatan pencarian secara on-line DIALOG telah ditubuhkan di Perpustakaan Universiti Malaya pada bulan September 1990. Sejumlah 49 pencarian telah dijalankan untuk kakitangan akademik dan penuntut pos-sarjana sehingga akhir tahun 1990. Sejumlah 26 borang soal-selidik dikembalikan dan jawapannya dianalisakan. Bagi 85% orang peminta, ini ialah kali pertama mereka menggunakan perkhidmatan pencarian on-line. Mereka dari bidang sains lebih banyak menggunakan perkhidmatan ini berbanding dengan mereka daripada bidang sastera dan sains sosial. Semua peminta menggunakan hasil pencarian untuk maksud penyelidikan. Hasil pencarian mempunyai ketepatan tinggi. Ini menegaskan pentingnya ada temu-duga rujukan di antara pustakawan dengan peminta, strategi pencarian yang baik dan kehadiran peminta sendiri apabila pencarian dijalankan. Banyak lagi rujukan yang relevan didapati melalui pencarian on-line jika dibanding dengan cara manual. Ia juga mengambil masa yang amat singkat. Pencarian on-line juga telah mendatangkan perubahan tentang cara peminta menggunakan Perpustakaan. Perkhidmatan pencarian on-line amat berguna dan harus dikekalkan.*

Abstract: *On-line searching using the DIALOG on-line services was introduced in the University of Malaya Library in September 1990. Forty-nine searches were conducted till the end of 1990, for members of the academic staff and postgraduate students. A user evaluation of the searches was made through a questionnaire. The 26 questionnaires returned were analyzed. For 85% of the respondents, this was their first on-line search. Those from the science disciplines made more use of the service than those from the Arts or Social Science disciplines. Almost all respondents used the service to obtain information for the purpose of research. Search results had reasonably high precision, emphasising the importance of having a pre-search reference interview, good search strategy and also the presence of users at the search sessions. More relevant citations were retrieved as compared to the conventional manual searches. On-line searching had also drastically cut down on the time needed to obtain the required information. It has also helped to change the use of the library service. The service is very useful and should be continued through appropriate funding.*

INTRODUCTION

The widespread use of computers for information storage and retrieval has no doubt brought about radical changes in the method of seeking information. Libraries in the United States in particular, were early pioneers in exploiting the use of computers as an effective tool to store and retrieve information on-line. On-line searching is basically making use of the powerful processing capabilities of the computer to search the same literature that are also available in the printed or hardcopy format. Large amount of information stored in computers can now be searched on-line in an interactive mode, and thus offer an almost instantaneous access to the required information. On-line searching has done away with a lot of the hassle encountered in doing manual searches.

Many large on-line services and systems exist today, most of them in the United States or Europe. Such services packaged databases of similar or related disciplines together to ease searching and provide not only speedy access to very large amount of information which have been gathered over the last few decades or so.

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This new way of accessing information has radically changed the role of libraries and information centres as the main provider of information. On-line search service can be provided by anyone or any information vendor who have a microcomputer, a modem and the necessary communication software. In fact, anyone with some instruction can use the on-line retrieval system without the intervention of a librarian or information specialist. This change, has influenced the information-seeking habit of researchers and may also have an impact on their research.

OBJECTIVE

On-line search service has been established for the first time as an adjunct service in the University of Malaya Library in September 1990 through a research grant. It was started to bring the benefits of on-line searching to the academic community in the campus who are involved in teaching and, in particular, research. On-line computer-based searching has been available overseas since the late 1960s, and became widely used in academic libraries from the mid-1970s onwards. Today, it is available in many libraries both locally and overseas, as part and parcel of basic library services. In some countries, such a service is readily available even in the public libraries.

Local staff who have been overseas, have been introduced to on-line search facilities available readily to researchers in those libraries. As such, there has always been a demand for the service from those who have used and benefited from it. Those who have not used on-line service, are aware of its benefits as well. This service has been many years in the planning but was not established until quite recently. Being a new service in the Library, it offered a good opportunity to find out whether on-line searching has any impact on the information seeking habits of researchers and to assess the level of demand for such a service and whether it should be continued, bearing in mind the high cost that is almost always associated with an on-line service of this kind.

MATERIALS AND METHOD

Searches were conducted for members of the academic staff and postgraduate students in the University of Malaya on a demand basis. The service was widely advertised throughout the campus, and was offered as a free service for a limited period of time until the funds available from a research grant were used up. The service was offered free in order to encourage researchers to come forward and use it should there be a legitimate need, and not to be discouraged by the high cost that was often asso-ciated with an on-line search. Moreover as this service had not been available earlier, even staff who have research grants had not made provisions to use their grants to pay for the on-line search service. Staff members were encouraged to make provisions for such a service in their request for grants in the future. With such a provision, and with a reasonable level of demand, the Library should be able to continue and maintain the service. It would also ensure that the service is not under-utilized.

Requests for searches were made on a standard request form, where the requester had to outline clearly the nature of the search required. The librarian conducting the search would arrange for a pre-search reference interview with the requester to clarify terms, concepts and any ambiguities. This is to ensure that the librarian had a very clear and accurate understanding of the user's information needs, identify the correct concepts, and thus formulate the proper search strategy to ensure a high precision in the search results.

Searches were made using the DIALOG on-line service based in California, through the use of a microcomputers, the MAYPAC (Malaysian Packet Switching Network) service and a communication software (CROSSTALK XVI) to establish to telecommunication link. DIALOG on-line service was chosen because of its wealth of over 400 databases available in almost every major subject disciplines. Searches were conducted as soon as possible, and requesters were asked to be present wherever possible, to help make suggestions to modify search strategies, where necessary. Search results were captured onto the microcomputer hard disk and a printout was made for all requesters. Feedback regarding the searches made and the users' evaluation was obtained through the use of a questionnaire, which was attached to the printout sent to the requester. An analysis of the replies received forms the basis of the findings of this study.

RESULTS

A total of 49 searches were conducted for the period from September 1990 till the end of that year. Twenty-six questionnaires were returned. Table 1 shows the number of searches conducted with a breakdown by the categories of the requester and their faculties/institutes.

TABLE 1
Breakdown of Searches Conducted According to Requesters' Status and their Faculties/Institutes

Faculty/Institute	Staff	Postgraduate Students	Total
Arts	3	-	3
Education	11	-	11
Economics	1	-	1
Institute of Advanced Studies	4	8	12
Computer Centre	2	-	2
Language Centre	1	-	1
Medicine	2	-	2
Science	12	1	13
Engineering	3	-	3
Library	1	-	1
Total	40	9	49

For 22 (85%) of the respondents, this was their first on-line search, while quite a number have had searches done using CD-ROM databases. Table 1 shows that search requests came from almost all faculties or institutes, and this is evidence that the service had been adequately publicized. In a broad categorization of the requests by disciplines, it can be seen that requests from the Sciences exceeded those of the Arts and Social Sciences, 32 for the Sciences as against 17 for the latter. There were eleven requests from the Education Faculty, and the searches were confined to mainly the ERIC database, which is one of the cheapest database to search. For those in the Science disciplines, new and very current information is important, a feature which makes on-line searching superior compared to other methods of searching. The figure for the science disciplines would have been very much higher, if not for the fact that staff from the Medical Faculty have access to the MEDLINE medical database on CD-ROM, which is very heavily used.

Purpose for search

Table 2 indicates the response to the question regarding the purpose for the searches. Multiple answers were permitted:

TABLE 2
Purpose for Search

	Purpose					
	Thesis	Pub. Research	Lecture	Consult.	Patent	
Staff	5	5	11	2	1	1
Students	9	1	9	-	-	-
Total	14	6	20	2	1	1

It is evident that research seems to be the main reason for the search request. This includes all the postgraduate students who had indicated their need to prepare their theses, which in all instances, will be the write-ups based on their research efforts. Among them are those who have indicated that they need the references to prepare for the submission of their research topic for acceptance. This is indeed a good sign, and is what an on-line search service should achieve - to support research efforts among the academic and research community in the University.

Impact of search

One very important aspect of this study was to find out whether on-line search service had in any way, made any significant impact on information gathering for research which are going to be carried out or on-going. Generally, it was agreed that on-line search drastically saved time, which was indicated by 20 of the 26 respondents. Many have indicated that manual searching in the traditional ways would have taken a week (15%), more than a week (27%), a month (12%), more than a month (38%) to retrieve the same literature obtained for them through on-line searching. 88% said that time is an important factor in research, and most would like to have their references within a week (35%) to within a month (35%). Another significant impact of the search service was that it provided assurance to requesters (50%) that no works of major significance to their topic or discipline were overlooked. With on-line searching it is possible to conduct a comprehensive search on very large databases sometimes comprising millions of citations, which would have taken a long time to do manually, as printed indexes are often voluminous. On-line searching also allows depth of searching in which highly specific searches can be performed and data can be manipulated in ways that are not possible manually. Five respondents (19%) indicated that the information retrieved had suggestions for alternative approaches to research. For a small survey sample, this is significant, but the finding must be investigated in greater detail and with a larger sample.

Search Relevance

For a search to be useful, it is obvious that the search results must have good precision, that is, citations retrieved must be relevant to the topic requested. It can be said that the search results are as good as the person doing the search. A good

search depends very much on formulating a good search strategy, which in turn is dependent on a clear understanding of the topic to be searched. Thus, a pre-search interview between the librarian and the requester is important. Wherever possible, the requesters themselves should be present when the searches are being carried out, so that search strategies can be changed when necessary, to retrieve more relevant information. Half of the respondents were present at the search sessions, and of these, almost all agreed that their presence contributed to the effectiveness of the search. They had a better understanding of the search process by being 'involved', and this would help them to formulation more precise search requests in the future.

On-line Search Vs Alternative Search Methods

For both staff and students, most indicated, that without on-line searching, they would rely on manual searching through the use of the printed index and abstract journals, looking up other bibliographies and other ways of obtaining information. Table 3 summarises the responses.

TABLE 3
Other Methods of Looking Up the Literature

Method	Staff	Students	Total
1. Look up printed abstracts and indexes	13	9	22
2. Look up bibliographies	10	9	19
3. Own personal index file	3	2	5
4. Ask librarian for help	3	6	9
5. Through peer groups	1	5	6
6. Others			
i) Write to authors	1	5	6
ii) Ask supervisors	1	1	2

The survey also shows that without on-line search, quite a number of the relevant references retrieved through on-line searching would otherwise have been missed through conventional methods. Regarding the 'percentage of relevant references retrieved' using the manual methods, only 8% of respondents indicate 80-100% relevance; 27% indicate 60-80% relevance; 38% noted 40-60% relevance; 23% indicate 20-40% relevance. It can be seen that with manual search, it is difficult to achieve high precision.

Not being able to retrieve all relevant citations through manual searching would have mattered to most, and may perhaps affect their research. Twenty-

two of the 26 respondents indicated that if they had only obtained 50% of what they got from the usual manual way of searching as compared to what they had obtained using on-line searching, it would have mattered very much to them. 54% of respondents indicated that it was crucial to have all the relevant references, and anything short of that, meant that the search of the literature had not been thorough and thus incomplete. 65% of respondents indicated that having all the relevant references on a topic means having a better perspective of the level of research activity on it. This would mean that unnecessary duplication of research effort could be avoided, and funds could be better channeled to those areas more likely to produce potentially better return for the effort expended.

Search Value

All respondents, without exception, agreed that on-line search service is a useful addition to the other library services. Fifteen out of the 26 respondents indicated that on-line search service had helped to change their use of the library service. While in the past, users were used to getting references which were many months old, now with on-line searching, very current references can be retrieved. Some have commented on a greater awareness of other sources of obtaining information. All respondents have expressed satisfaction with the on-line service and would use it again to search other topics.

Most users appreciated the on-line service and its benefits to them. Only 5 respondents (19%) felt that the Library itself should continue to fund the service. 46% of respondents indicated that a special allocation should be available to pay for the cost of on-line searching. Others (27%) did not mind paying for it from their research grants. This is a reflection that the respondents were very positive about the search service and were generally willing to make some arrangements to continue to finance the service. Thus the burden of financing and continuing with the service need not fall solely on the Library.

CONCLUSION

Almost all the respondents to the survey indicated that the results of the on-line searches were to be used in their research. Whether one is starting out or carrying on with a research project, the study has indicated a need for an on-line service. A comprehensive survey of the literature is in fact a must, be it for submitting a research project for a

thesis or just carrying out basic research. The information explosion has necessitated the need for a change in the method of searching. Those involved in research in the science disciplines have made a greater use for the on-line search service. To them very current information is needed, and currency is one strong point that on-line searching has over all other methods of searching.

Time is an important factor in the effort to obtain the necessary information, and any method of retrieval that can cut down on time expended in terms of weeks or months, is definitely significant. In the past, manual searching had been a very tedious and often frustrating affair, and even with all the efforts put in, one could still end up with 50% or less of what one would have retrieved in an on-line search. With on-line searching, not only much more literature is retrieved, but it also gives the added assurance that no works or references of importance in the topic are left out. It remains to be studied further, whether, with the greater amount of literature available and better knowledge of a field or topic, it helps to alter the course or increase the quality of research. This could be the subject of another study over a reasonably longer period of time. It has definitely brought about some changes to the information seeking habit of researchers, who have indicated that they will use it again to search for information.

It is generally felt that on-line searching is expensive. But our own experience has proved it otherwise. Based on the cost analysis of the searches made, it was found that on an average, it costs slightly less than ten dollars per minute of search time, inclusive of telecommunication costs and the database usage charges. Looking at the benefits of on-line searching from all angles, it is cost-effective. The service should become part and parcel of any academic or research library. It is an essential and dynamic tool for research and its use should be encouraged and sustained. The universities and other centres for research must be strongly committed to the service and be ready to support it with the same priority as for other research requests. Adequate funding either to the library or to the research staff who needs it, should be provided, so that the service is beneficially used, and perhaps the number of searches performed, would reflect the level of research activity in the universities or research centres. There should come a time when on-line search service becomes a tool for everyday use in libraries and where staff can request for an on-line

search as readily as they would request for any service the library has to offer. Librarians would also have the opportunity to work more closely with researchers and understand their information needs.

The use of databases in CD-ROM format is beginning to make its impact as an alternative to on-line searching. However the cost of CD-ROM databases is still rather prohibitive and not all databases are available in CD-ROM format yet. Moreover there is the need for sufficient number of drives. CD-ROMs still suffer from the fact that their data are not as current as those that can be obtained from on-line searching.

The findings in this study is rather preliminary. For one, the study period is limited and the sample size is small. It would be good to make a comparison of how on-line searching affects those conducting research in the social sciences and humanities as against those in the pure and applied sciences. As it is, this study has shown a higher usage of the service by those from the latter discipline.

Despite the fact that other methods for accessing information are available today, there can be no denying that on-line service is important in enhancing research activities and will not be easily superseded. Thus, every encouragement should be given to make it easily accessible to all who needs it.

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