The hidden user: providing an effective service to users of electronic information sources

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The growth in electronic library systems has forced a review of library service and structures. The increasing provision of information online, as opposed to onshelf, is evident in a vast array of information services (e.g. Bushallow-Wilbur et al., 1996; McCook and Gonsalves, 1993; Pack and Pemberton, 1999). The benefits of this change are significant: many users may access the same information simultaneously; information may be updated instantaneously; costs are reduced; and staff time in shelving and handling resources is minimised. While the advantages for the information service are great, there are some significant issues that must be addressed if the information service is to continue to meet the needs of users. In a burgeoning electronic environment, the challenge is to identify clearly the needs of users, and to ensure the services are fully supportive of these. However, this may not be as simple as it first appears

The changing patterns of information users

In the past, information workers had a keen understanding of their user population. This was developed through regular on-site interactions. Users were assisted to find information, and their search behaviours were monitored to check for any difficulties. The individual idiosyncrasies of patrons were readily identifiable and catered for. Public libraries, for example, have long maintained a close check on lending patterns and preferences in order to identify the ideal mix of new resources. They ensure regular patrons are recognised and well supported through their services. University, special and school libraries have similarly endeavoured to reflect patron needs in the style and range of services created. The regular interactions with on-site users have enabled a clear understanding of the needs and patterns of users, so that these services may fully reflect these requirements.

With the increasing use of electronic resources, a changing pattern of usage is evident. The ability to connect to library services through the Internet, and to access information services from other sources has reduced the capacity to characterise and
categorise users. University users, for example, are increasingly electing to access their information service through their computer, particularly as more resources are online and downloadable. The number of physical bodies entering the library portal is diminishing, although virtual usage is increasing. Thus, information services are faced with the reality of hidden users, those who are no longer physically evident, but who still rely on the information services.

There are several implications and challenges stemming from this increased adoption of virtual library use. First, there needs to be a stronger understanding of the retrieval competencies exhibited by electronic searchers. Allied to this is the need to consider how one can best assist hidden users with their search processes.

Electronic search competencies of users

There is an assumption that users adequately understand the principles of information searching and retrieval through electronic means. However, there is increasing evidence that this is not the case (e.g. Marchionini, 1995; Weaver, 1993). The difficulties of inexperienced electronic searchers has been examined through a series of nine studies (e.g. Debowski and Wood, 1999; Debowski et al., 2000; Wood and Debowski, 2000; Wood et al., 2000). These studies provided university students and adults in a wider community group with database or Internet training, and examined their progress in achieving effective retrieval of information from a variety of electronic sources. These studies explored the strategies employed by the participants, and examined the problems they encountered. The data offer some significant insights into the plight of the isolated searcher who cannot turn to an expert for help.

Off-site searchers encounter two main problems: access and retrieval. The first problem primarily relates to the use of the computer and its peripheral devices to enable online access. Users will often encounter such problems as loss of connections, glitches in setting up software and difficulties caused by their limited understanding of the computer, software and the technology environment as a whole. Those who are relying on effective connection from home can feel very frustrated with the lack of success in even getting into the system. This can be a strong impediment to online library usage. In addition, some basic skills such as downloading text and saving Web sites are often poorly established in searchers who are relying on a telecommunications link to their library.

Even those who are successful in generating a connection find their troubles are not over. Many searchers, even those who believe themselves to be expert, experience considerable difficulties in entering their search requests and completing suitable interrogations to finalise a search process. These difficulties can be classed into three categories: understanding the retrieval process; identifying a suitable search strategy; and evaluating the output of the information search. Within each of these categories, there are numerous traps, which can reduce the efficacy of search for these users.

The retrieval process is a logical and easy one for qualified personnel to comprehend. However, the less experienced user is less comfortable with the underlying concepts, which must be mastered. Users need to understand the differences between library catalogues, document delivery, full-text search of literature databases, search directories, Web portals, search engines and Web browsers, and select a tool based on its likely retrieval value. Similarly, users are forced to become familiar with a range of different protocols, due to the erratic and non-uniform nature of many of these “aids” to search. Users without wide experience and confidence tend to rely on a limited set of tools, and to use these to the exclusion of all others. This, naturally, reduces their search power. Each information channel provides access to different information outcomes, and can alter the achievement of an effective search.

Searchers are also hampered by ineffective search strategies (e.g. Neumann, 1995). These relate to three key areas: keyword selection, the use of boolean connectors, and the development of a suitable search sequence. In the early days of database searching, thesauri were essential sources of inspiration for those wishing to identify appropriate keywords. Many users are
unaware of these tools, or have limited or no access to them. Instead, they are limited to their own vocabulary and expectations. Searchers will tend to focus on the topic keywords, and use these extensively. Rather than adjust and develop these, they will tend to re-use the same words in different patterns, hoping that the result will be different the next time around. This is a serious limitation in the search process, and has a significant effect on the quality of search achieved. Similarly, the use of boolean connectors is generally ignored by searchers unless they are trained to consider their inclusion (e.g. Jacobson and Newkirk, 1996). Searchers who do try to use the connectors can become confused about the functions of the core connectors, “and” and “or”. This leads to incorrect permutations between terms. Similarly, the grouping of like terms and the use of brackets and other dividers can be confusing to those searching offline. While some search engines provide the option of advanced searching, and guide users in these processes, many Internet searchers are unaware of the potential of this advanced search process. Instead, they remain at a simplistic search structure level.

Those who are searching online databases are faced with a further challenge: the need to integrate a series of search statements into a single sequence can allow more refined searching, but also provides opportunity for additional errors and incorrect blends. In the nine studies of information search, few participants demonstrated strong skills in developing a structured and planned search sequence. This understanding of search strategy and process was a difficult skill to acquire, and was undermined by the absence of some of the previous skills.

A final level at which search impediments occur is that of search retrieval and evaluation (Ackerson and Young, 1994; Drabenstott and Weller, 1996). A person who seeks information is limited by two factors: first, the search product, which is retrieved; second, the capacity to critique those outputs. This latter skill is one which comes with experience and successful retrieval. A major difficulty occurs when the searcher is largely unsuccessful and is not sure about the value of the information or its representativeness of the field of knowledge. Searchers can become decreasingly committed to searching for information if their retrieval efforts appear to be fruitless or rather barren.

Developing an effective search support structure for hidden users

These difficulties primarily relate to a lack of skill, and a limited grasp of the principles of search. If the hidden user is to be supported and nurtured, the information service needs to become more focussed on developing these skills and understandings in those accessing the service online. There are many approaches that may be adopted in achieving this target.

Training of users is clearly one important target if those searching online are to be successful and regular users of the service. Training within the library environs has been an important service for many years. Pamphlets and other cueing devices can also be of value to those who have received training but require a little reminder as to the appropriate process. However, the training of off-site users is slightly more challenging. Firstly, the user has to be captured! Notices about training need to draw attention and be very prominent when the user enters the library portal. A subdued menu within a menu will do little to arouse interest. Strategies like competitions, flashing bulletins and other eye-catching arrangements are important means of capturing interest. New online users could also be asked to complete a short profile, with an assessment of their skill base. This information could be routed to various training sites that offer advice to the searcher.

The structuring of Internet and database search training also needs careful consideration, as it becomes necessary to provide online training. Many online training programmes attempt to teach too much in one bite (Marshall and Allan, 1990). Short stages and reviews of those stages are important. Feedback needs to be inbuilt, providing a stronger understanding of the decisions that are integrated into the process of building a search. Short tests and diagnostic feedback can provide useful knowledge of results for the searcher, so that particular areas can be explored in depth if need be. A particular challenge for the online search training designer is to provide some models of outcomes to the searcher. The vast array of likely sites or
references can reduce the likelihood of predicting a searcher’s outcomes. Unlike a mathematics sum, where one answer can be modelled, the search process may lead to many different paths. The provision of feedback during online training is a challenge that has not been addressed appropriately as yet. Nevertheless, it needs to be included as a target if hidden users are to be taught the skills of searching.

A further key deficiency for service to hidden users is the absence of a mentor. The information desk is a pivotal service for those visiting an actual information service. For those using the online service, there is little evidence of a human face behind the screen. Information service developers need to think more laterally and creatively about how to emulate the same “personal touch” for those who are using the virtual service. Some possibilities include an e-mail information desk, where users may contact staff with their problems, bulletin boards which are monitored and responded to by staff, user groups within a library chat-room, and live online tutorials on a regular basis. In addition, the information service might consider a number of evaluative strategies for assessing user difficulties, such as the capture of search inputs by users to identify the types of problems being encountered. This transcription of search sequences can be most informative, and help to identify particular difficulties.

Communication with users will be the greatest challenge facing the information services as they seek to remain connected to the hidden user. Noticeboards, flashing bulletins, highlighted hints and other forms of attention getting are going to be increasingly important. The user will need to develop complex search skills. This requires a partnership between the information provider and the information user. To achieve this, the user must be made aware of the information service and its possibilities. This implies a much greater focus on creating links between the information user and the information service.

The design of the online library portal is an essential element in gaining user support and commitment. The site should be attractive and should be exciting to visit and use. Pop-up screens offering additional tuition and cues should be considered as essential. Better online help regarding services and systems should also be targeted as a priority support structure. A diagnostic service where users might e-mail their search inputs and outputs for assessment and guidance could also be of strong benefit to the hidden user.

Implications for information services of the future

While the few suggestions tendered illustrate the scope for creating better connections with users, they also emphasise the need to think more creatively about information service and its future paths. Traditional thinking has focussed on gaining the most effective use of funding to provide as many resources and access services as possible (e.g. Boyle and Davies, 1999). There has been an implicit assumption that the user will be able to retrieve successfully if the resourcing is suitably managed. Research is increasingly acknowledging this is not the case. Users are troubled by many skill deficits that hamper effective information searching. In addition, their isolated access points preclude easy seeking of assistance. To accommodate this change in user capabilities we need to alter the perception of information service. The creation of many different supportive structures will be critical to the successful maintenance of the information service of the future. In turn, the (re) training of information workers and the development of closer links with information technology providers will, by necessity, need to be essential components of any service plan (Creth, 1993; Lynch, 1998; Marmion, 1998; Riley, 1998; Rosenthal and Spiegelman, 1996).

The challenge of creating a human face to the information service is the second area that needs to be targeted as the number of hidden users expands. The service needs to provide warmth and interest to users, despite the miles that separate the two bodies. A scan of library Web sites illustrates the barren and harsh nature of most sites at present. There is little evidence of a personality or welcome for the visiting user. The businesslike approach is hardly inviting to those who are perhaps less confident of their skill than they would like to be. Interpersonal connections between the clients and service providers are critical to the long-term relationship between these parties (Radcliff, 1995).
Users will constantly need to be redefined in this new world of electronic resources and sources. The need to provide training and feedback to users is a cost that will need to be factored into the future service. It may well be that some economies of scale could be achieved through outsourcing or linking to services that have well-developed training and user-support programmes. However, the need to maintain a sense of “person” in the information service must be considered at all times. Creating a hotlink does not guarantee a long-term user. The user needs to perceive the service connection. This may be assisted by the emerging development of agent technologies, where the user’s own environment, purpose and capabilities are integrated into the human-computer interface (Nardi, 1998; Rowley, 1998; Soltysiak and Crabtree, 1998).

Conclusion

The issue raised in this article is not so much related to the hidden user as the likelihood of information services becoming increasingly marginalised and hidden. The challenge relates to ensuring the user continues to find the information service to be valuable and pertinent in finding and retrieving useful information. The increasing reliance on electronic information sources is changing the access and usage of our information services. Our challenge is to reframe our notions of information service as users move toward electronic information retrieval. This could mean some drastic revisions to the way users and their needs are perceived. The challenge of creating users who are information literate is not as simple as it first appears, and will require some significant reviews of the ways in which users and information workers relate.

References


Implications for practitioners

This summary has been provided to allow a rapid appreciation of the significance of the content of this article. Browsers may then choose to read the article in toto, to derive full benefit from the author’s work.

Library information systems have come a long way – but users have not always kept up with the astonishing pace of technology.

While there are huge and well documented advantages to being able to provide information online, rather than merely onshelf, many users are having considerable difficulties in making the most of the technological revolution.

Virtual library use is increasing but these off-site hidden users often struggle to access the information they require. The challenge is to ensure that their needs are identified and that these people get the right support.

There is plenty of evidence to suggest that many hidden users, contrary to commonly-held beliefs, do not fully understand how to access material electronically. Studies have revealed that problems can begin with basic computer use, such as loss of connections or software problems. Searchers relying on a telecommunications link to their library might be lacking in the basic skills to download text or save Web sites.

Problems can continue with retrieval, simple enough for qualified personnel but not necessarily so for users who might have a hazy understanding of the differences between, for example, library catalogs, search directories and Web portals. Search power can be reduced if uncertain users are relying on a limited number of tools or using ineffective search strategies.

Integration of a series of search statements into a single sequence is another hazard in searching online databases: studies have suggested few participants had these skills. But whatever snags they hit, information seekers can become demoralised by failed attempts at retrieval.

Strategies need to be found to bring the need for training to the attention of hidden users entering the library portal. Internet and database search training must be properly structured and online training programs have to be manageable and offer good feedback. This is not an issue that has yet been properly addressed.

The information desk is a vital part of any library and this service is, by definition, denied to the hidden user. Some approximation of the “personal touch” has to be found, whether it’s an e-mail information desk or live online tutorials. A sense of both warmth and interest has to be created for users.

If the user is to develop the necessary search skills, there must be a partnership between information provider and seeker, which makes the latter more aware of all the avenues of exploration the service offers.

More imagination is needed throughout the system. Library Web sites tend to be dull; they need to be far brighter and less businesslike, both to make visiting more attractive and to make them more inviting to users who are less confident in their skills.

The greatest challenge is to ensure that the user is swept along with, rather than left behind by, the growing opportunities for electronic information retrieval. The systems are there for users. If those users are not information-literate the technology is, in the final analysis, wasted.

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