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Digital libraries: to meet or manage user expectations

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Abstract

Purpose – The purpose of this paper is to review the nature of, and rationale for, user expectations in the digital library setting, and ways in which they may best be met and/or managed.

Design/methodology/approach – An analysis of the literature, focusing on empirical studies, and bringing out main themes and issues.

Findings – User expectations of digital libraries are often unrealistic, usually unrealistically high, mainly due to the ubiquity of the web search engine as an information environment. Expectations differ between user groups. Both meeting and managing expectations have been promoted as a solution; it is likely that a mix of the two will be most effective. More empirical and conceptual studies are needed. Ways of making the nature of digital library collections and their organisation “visible”, embedded in a natural way within their interfaces, are desirable.

Originality/value – This is the first paper to review the literature of this topic.

Keywords Digital libraries, Customer satisfaction

Paper type Literature review

Introduction

Digital libraries have become of increasing significance in recent years, developing in functionality and content, and becoming accessible to a wider community of users (see, for example, Bawden and Rowlands, 1999; Borgman, 2000; Chowdhury, 2002; Andrews and Law, 2004). User satisfaction with, and indeed acceptance of, digital library services has not, however, increased to the extent which might be hoped. The most obvious expression of this is a regrettable tendency on the part of many users, or potential users, of such services to rely entirely on web search engines for information. Not for nothing has the verb “to Google” entered the English language, seemingly as a synonym for “to search for information”.

It seems clear that this neglect of digital library services must be associated with users’ expectations of them, presumably low. This paper aims to give some perspective on this issue. It goes on to examine, in this context, a perennial question for providers of library services: once user expectations are understood, should they be met - so far as is feasible - or should they be “managed”.

This paper is based on a workshop, “Meet or manage? User expectations of digital libraries”, given by the same authors at the LIDA (Libraries in a Digital Age) conference in Dubrovnik and Mljet, Croatia, in May 2005. The authors are grateful to workshop participants for helpful comments and insights.



User expectations of digital libraries

Our knowledge of user expectations of digital library services is largely based on anecdote and opinion. Though this may seem a condemnatory viewpoint, the truth is that it is typical of much of professional understanding in the library/information field, despite the efforts of those who seek a more evidence-based practice (see, for example, Booth and Brice, 2004), and those who take a more theoretical approach to the idea of expectation (see, for example, Holshan *et al.*, 2004). Even within the limited literature, there is some confusion of usage between the idea of “user expectations”, and related ideas such as user wants and needs.

There is relatively little systematic research in this area. Good examples of the latter are the studies carried out by Fast and Campbell (2004), who compared the perceptions and expectations of university students for searching the web and library databases, and by Novotny (2004), who examined the use of an online catalogue by “web-savvy” student users. Another is that of Xia (2003), who examined perceptions and expectations of user communities and librarians in a New Zealand academic library. Griffiths and Brophy (2005) report two detailed studies of the relative use made of web search engines and academic resources by UK students, and the expectations and perceptions of these two forms of services. An example of thoughtful professional reflection on this topic is given by Straw (2003). Other examples are quoted by Brophy and Bawden (2005).

Evidence from such studies suggests that typical expectations of digital library services include the following:

- *comprehensive* – include everything;
- *accessible* – everything immediately available;
- *immediate gratification* – speed of response;
- *followability of data* – seamless;
- *ease of use* – single interface;
- *multiple formats* – text, images, sound.

These capabilities are certainly not expected from “conventional”, i.e. not wholly digital, library services. The reason is clear. Expectations of digital libraries are strongly coloured by experience with the ubiquitous digital information environment, the world wide web. As Fast and Campbell (2004, p. 139) put it:

Web searching is shaping user expectations of what an information retrieval system looks like, how it behaves, and how to interact with it . . . [Digital libraries] are now being used by people who have extensive experience on systems that require almost no training, and which produce immediate, if not completely satisfying, results.

The same idea is expressed in a more negative vein by Bell (2004):

[Library users are now] people who want fast, easy access to unlimited, full-text content using interfaces that require no critical thought or evaluation.

More specifically, the influence is that of the major search engines, most notably Google. Griffiths and Brophy (2005, p. 550), from a basis of detailed analyses of students’ searching behaviour, conclude that:

[S]tudent’s use of SEs [search engines] now influences their perception and expectation of other electronic resources.

And that:

[S]tudents' use of resources is now very coloured by their experience with search engines, which in turn may lead to expectations that may not be realistic for different types of services.

This summarises neatly a fundamental issue behind the “meet or manage” question.

More than Google is involved here, however. There is a conflation of search experience with that of widely used transactional sites, such as Amazon and eBay. This effect has variously been termed “Amazoogole” and “Googlezon” (Dempsey, 2005). Sullivan (2005) also identifies the popularity of computer games as a factor. It is also very probably the case that changes in society generally, at least in the developed Western world, are likely to be influential. These include a greater speed of developments (Gleik, 1999), a perceived need for immediate gratification (Stoffle *et al.*, 1996, p. 219), a more information rich environment, and the popular heuristic of “satisficing”, when just enough information is good enough (Tennant, 2001; Agosto, 2002; Schwartz *et al.*, 2002; Schwartz, 2004).

From the list of typical expectations given above, it seems that we can characterise user expectations of the digital library – all information, in all formats, immediately accessible through simple searching – as being simply, and unrealistically, far too high. Studies suggest that, while it is true that expectations are usually too high rather than too low, the picture is not entirely clear, and somewhat context dependent; see, for example, Metz (2001), Hyldegaard and Seiden (2004), Auster and Chan (2004), and Flanagan *et al.* (2004). Fast and Campbell (2004) report that student expectations of an OPAC were “modest”, whereas expectations of web search through Google were “high”, though this seems to have largely related to ease of use, and accessibility of documents. There seems little doubt that expectations of a “full” digital library, especially as compared with a traditional library, tend to overestimate what may be achieved.

It is sometimes the case that combined with such unrealistically high expectations goes a surprising lack of appreciation of basic points: that, for example, library collections do not just happen, but have been created based on a knowledge of needs of user groups. This point will be referred to later, in the context of the need to make the nature of the digital library collection more visible.

Nonetheless, expectations of the digital library will generally be so far above those of any conventional library service as to suggest that users see these are quite different environments. As Straw (2003) puts it:

The disconnect between the users expectations and the librarians reality is often greater in the virtual world than in the traditional face-to-face meeting. Increasingly more users see the virtual reference encounter as magically solving a whole range of problems with instant answers and full-text electronic content.

One rather cynical way of viewing this (mentioned by several participants at the LIDA workshop) is that users may have a rather negative view of conventional libraries – and indeed librarians – so that a digital equivalent automatically invokes higher expectation. Any disillusionment which results from such expectation being disappointed indicates that it is not, in fact, such a big difference between the digital library and its traditional equivalent. While there may well be some truth in this, expectations of digital libraries seem to rest on more positive foundations.

Again, the web seems to be the main causative agent. Studies, such as that of Griffiths and Brophy (2005), Xia (2003), Fast and Campbell (2004), and Novotny (2004) show that users believe that web search is fast and easy, providing immediate access to information and giving them what they want. Griffiths and Brophy (2005), in the most thorough study of its kind, find that Internet search engines totally dominate the searching practice of UK students, with 45 per cent using Google regularly, as against 10 per cent using online library catalogues. The rationale for this is that search engines are perceived to offer ease of use, familiarity and reliability.

That this perception of reliable ease of use is, to an extent, valid is confirmed by a study by Brophy and Bawden (2005), which indicates that an improvement in searching skills brings better results from library databases, but not from internet search engines. The further finding from this study, that the two kinds of system are complementary, offering different kinds of information, is likely to be less important to most users than the evident fact that search engines can be used to good effect with minimal, or no training. The findings by Griffiths and Brophy (2005) that students of library and information management used, and appreciated, library and academic resources to a much greater extent than other students confirms that perception of ease of use equalling quality can be overcome, but only in groups of users with a particular disposition to do so. Both the Griffiths and Brophy study, and that of Fast and Campbell (2004) show that even when typical user groups have an explanation of, and experience with, structured library/academic sources, they still tend to prefer the simple and familiar systems. Becker (2003, p. 85) similarly reports that students typically “follow the path of least resistance” and rely on basic Google searching, even though they are able to articulate the advantages of source evaluation. This clearly has consequences for the kind of training and awareness programmes that may be thought to be the “solution” to an over-reliance on search engines for all information seeking.

By contrast, studies show that many, perhaps most users, find that traditional library systems, even in digital form such as OPAC, are disappointing, frustrating, illogical, counter-intuitive, and intimidating. These negative aspects outweigh their appreciation, and even admiration, of the control and order of “library style” information environments. The latter should not be over-looked. Fast and Campbell (2004) found that their student users expected that OPACs would be well-organised, with material properly arranged and described, and appreciated the difference between this and the search engine environment (which, for other reasons noted above, they nonetheless found more congenial). Griffiths and Brophy (2005) found a clear expectation among some of their participants that certain kinds of resources, and hence some kinds of information, would be found in academic/library sources, and not in search engines; this “collection expectation” is a perspective which digital library designers may do well to build on.

One response on the part of the designers of digital libraries has been to make their interfaces take on as much as possible the “look and feel” of a web search engine (Babu and O'Brien, 2000). This can, and should, go beyond provision of a simple “search box” interface, into a more thoughtful incorporation of the “best” features of search engines:

As service providers and developers, it is crucial that we learn lessons from those commercial search engines that dominate students' use, and embed those lessons into academic resources that students can find and use easily (Griffiths and Brophy, 2005, p. 552).

This has evident advantages in improving user acceptability, but may, ironically, carry a penalty. The more a digital library interface looks and feels like a web search engine, the more the unrealistic expectations of its performance may increase.

There is some evidence, albeit limited because of the relatively few studies performed, that expectations differ between different types of user. A digital library development project at the University of California established differences in this respect between earth scientists, information specialists, and educators. The earth scientists, for example, expect tight links between the library resources and their local data manipulation environment, while the educators expected content and functionality in direct support of educational goals (Hill *et al.*, 1997). Similarly, the Victoria University of Wellington in New Zealand found differences between the expectations of library users according to their status as academic staff, postgraduate students and researchers, and undergraduate students (Xia, 2003). The academics and postgraduates expected such things as a wide range of resources and access to the latest material, as well as ease of use and convenience of access; the undergraduates expected ease of use and quick convenient access, but did not consider any other aspects, apart from expecting the information found to be accurate. These results suggested that targeted awareness and training for different groups was needed. The Library of Congress, in categorising its users as library staff, hobbyists, scholars, researchers, object seekers, rummagers, surfers, teachers, and students, found differences in expectations between the groups (Marchionini *et al.*, 2003). This last study found that a knowledge of differing expectations could help in improving and customising interfaces, and in providing the best form of support to users.

Meeting and managing expectations

Expectations of information services, including digital libraries, can be dealt with in two ways. They can be met, fully or at least partially. Or they can be managed, through the instilling of a realistic understanding as to what the service can and cannot provide; such understanding coming through training, demonstration, advice, documentation, etc. The question as to which approach is better is one which affects all information service provision. It comes starkly into focus for the digital library, because of the nature of user expectations, and the reasons for them, outlined above.

Meeting expectations, when these are initially unrealistically high, implies the provision of “better” services; the likelihood that this can be done depends on how unrealistic are the initial expectations. More often than not, this involves an attempt to give the digital library a more intuitive interface, while retaining its intrinsic advantages. As Fast and Campbell (2004, p. 144) express it:

The organisation and control that characterises an online library catalogue must be packaged and presented in a way that anticipates and tries to minimise the intimidation and frustration that [users] feel upon trying to take advantage of these benefits.

But this will often mean making a digital library “look” like a web search engine; and, as noted above, this may simply serve to increase user expectations further.

Simply meeting expectations by making systems easier to use, while a laudable enough aim, is not sufficient in itself. There has to be a consideration for what will benefit the users most and this may not be just giving them the easiest possible interface. As Griffiths and Brophy (2005, p. 552) caution:

[W]hile the preference for very simple search engines is prevalent, it is important to note that students are not necessarily best served by this approach.

What is stated here for students is likely to be true for most, if not all, users of digital libraries.

Trying to meet expectations is of obvious importance; without some progress in this direction, digital libraries will simply be by-passed in favour of simple systems. But expectation must be met in a way which allows users to take advantage of the controlled and organised environment - in terms of both resource description and of collection management.

The alternative approach, managing expectations, will largely involve explanation and instruction (see, for example, Stubbings and McNab, 2001; Metz, 2001; Becker, 2003). This can help avoid disappointment from unrealistic, even impossible, expectations. More positively, it may help users appreciate the new, and perhaps unexpected, things that digital libraries can do. Examples of the latter would be such things as linking internal and external resources, linking library and learning resources in an education or training environment, and providing customised alerting from electronic journal collections (see, for example, Tennant, 2001). In general (another point made firmly by the participants of the LIDA workshop), there must be good communication between any library and users, if expectations are to be managed in any realistic and positive way. The only issue is how this communication can best be achieved; traditional training courses, library bulletins, etc., seem ill-matched to the present situation. Ideally, the communication should be implicit in the library's interfaces, a point which will be developed below.

An example of the management of unrealistic expectations is given by the Library of Congress's National Digital Library Program (Marchionini *et al.*, 2003), which points out the need to help users understand quickly:

- which items are not in the digital library;
- that few primary material are online;
- that there are many levels of search to work through;
- that there are many access points, but they are not uniform.

Another example comes from the management of a virtual reference service, provided by the library of Middlesex University in England (Butterworth, 2004). Allowing reference queries to be submitted in a search box allowed users to expect, by analogy with a search engine, an almost instantaneous response; impossible, given the nature of the service. Changing the interaction to take the form of a posting to a discussion list thread gave a more realistic expectation of the likely time scale for response. In this case, expectations are managed by the interface itself, through a metaphor rather than an explicit explanation. Freeth (2002), in a healthcare library setting, recommends management of timescale expectations for electronic mediated searching by "strategic slowing" of responses to some search requests.

This has the advantage that expectations are managed by a more direct, and arguably more "natural", means than one which relies on some form of user training and awareness-raising. Such methods are never well-accepted, particularly when they may give rise to the perception that the digital library is "complicated" or "difficult", when compared with the essentially training-free search engine environment. Finding

ways to “embed” awareness training into digital library interfaces, rather than having it appear as a potentially irritating added requirement, is an important task for the operators of such libraries.

Conclusions

352 There is unlikely to be a clear answer to the question as to whether it is better to meet or to manage user expectations of the digital library. Meeting all expectations, however unrealistic, can never be an appropriate policy even in theory, while expectation management which simply dampens down reasonable requirements is equally undesirable. The solution will generally be a combination of the two approaches, depending on the context.

It is certain that more systematic empirical studies to build up a base of solid evidence for such decision making are sorely needed. These could usefully be complemented by conceptual studies of the idea of user expectation, and its relation to user wants and needs.

Further development is also needed in ways by which the composition, structure and organisation of digital libraries – and hence their differences from other less controlled information environments – can be made manifest in a “natural” way. This can help to manage expectations, in a more subtle manner than by requiring formal training or making negative-seeming statements about what such libraries do not, or cannot, offer. It may also help to meet the clear and positive, if rather unfocused, expectations which many users seem to have about the nature of the collection and the organisation of the digital library. Making the collection, and its structure, “visible” may be the most useful single aspect of maximising the usability of digital libraries, and thereby both meeting and managing expectations.

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