

Researchers and discovery services

Behaviour, perceptions and needs

A study commissioned by the
Research Information Network

Executive Summary

November 2006



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Definitions

The aim of this study is to assess the use and the perceptions of resource discovery services by academic researchers in the UK.

The resource discovery services we focus on in this report are the means that researchers use to discover and locate the wide variety of information resources that might be relevant to their work. Use of such services is an essential part of the research process, enabling researchers to discover and locate many different kinds of information resources, including:

- journal articles;
- books and book chapters;
- grey literature;
- conference proceedings;
- datasets.

These different kinds of resources can be widely scattered across many different physical locations and websites. It is thus not surprising that resource discovery services too are diverse in nature. Well-established forms of resource discovery service include bibliographic abstracting and indexing services such as Chemical Abstracts: these provide online searchable indexes to a wide range of journals in a particular discipline. Newer resource discovery services include general internet search services such as Google: these index a proportion of web pages, including many of interest to researchers. Dedicated web portals can act as a guide to the resources for a specific discipline to be found on the web: examples are H-Net and Intute (the new identity of the Resource Discovery Network).

Local services, such as institutional library catalogues and portals, and libraries and librarians themselves, are also important resource discovery services. Other people also act as resource discovery “services” for many researchers: asking a colleague can be the fastest way to identify a relevant resource.

Although resource discovery services usually act as a guide to relevant material rather than contain the material itself, some resources themselves can also act as resource discovery services. The bibliography at the end of a book or the list of other articles cited at the end of a journal article are forms of resource discovery service, and some researchers search large e-journal collections to identify relevant articles. Others search within datasets and large full-text collections for relevant resources.

Discovery services increasingly seek to enable researchers not just to discover and locate, but also to gain access to the resources they need through linking and authentication.

Increasingly, the boundary between resources themselves and discovery services is a permeable one, and this trend seems likely to continue as new forms of content aggregation are developed.

‘Users’ are defined in the broadest sense and are understood to be both (i) professional researchers in key disciplines and (ii) library / information services professionals. For the purpose of this study, professional researchers are understood to cover the career spectrum from postdocs onwards.

Methodology

A telephone survey of 450 research-related personnel in UK universities forms the main source for the report: interviews were undertaken with 395 researchers and 55 librarians and information officers across all disciplines. This was followed by a series of more in-depth interviews with postdoctoral researchers in a range of disciplines, together with a number of small focus groups of postdoctoral researchers, to try to identify whether there were behavioural differences between researchers at the beginning of their careers whose experience was formed entirely in the digital environment and those who have faced a transition in working practices.

The study is essentially qualitative in nature, though care has been taken to interview a balanced sample of researchers according to discipline type and length of experience. We have tried to use the results to paint a broad picture of behaviour and views, but also to capture some of the richness of the extensive interview data.

We have included direct comments from the participants at various points in this report: these are illustrative rather than representative.

Drafts of the findings were made available for comment by an expert panel, consisting of senior academic librarians, providers of commercial discovery services and experts involved in the design of publicly provided discovery resources..

More details of the methodology are in **Appendix 1**.

Key findings

General satisfaction with discovery services

The picture that has emerged from the survey is one of general satisfaction with the research discovery services available across the disciplines. Researchers in the sciences are most satisfied with the resource discovery services on offer, whereas interviewees in arts and humanities have more concerns about gaps in service coverage. The interviews with librarians broadly confirm this: librarians in the sciences and social sciences are generally satisfied with the range of discovery tools available while those in arts and humanities identify some gaps. (**Section 4.2.9**)

Users cannot always access the resources they have discovered

The main frustration is not with the research discovery services themselves but with the problem of subsequently accessing identified sources and materials. The 'last mile' of the process which actually delivers the document or other source that has been searched for is the focus of concern, with lack of access to journal articles because of a subscription barrier being the most frequently-expressed difficulty experienced. Librarians agree with researchers that the key problem is accessing online journals rather than problems with the discovery tools themselves. (**Section 4.2.9**)

Means and ends are not clearly delineated

Many, if not most, researchers do not draw a hard and fast distinction between 'means' and 'ends', between discovery services and what is being discovered. Initially, it is possible to see this as based on lack of familiarity with discovery services or

misunderstanding, but it is actually a reflection of the real experience of research in the digital environment and of the design of services which seamlessly (at least in theory) move from reference to abstract to full-text in a way that was not possible in the print-on-paper world of indexes and card catalogues. This is also the context of the frustration that results when it appears that the goal is so near, yet so far away. **(Sections 4.2, 4.2.3.4)**

One size doesn't fit all

Most researchers are using a range of resource discovery tools, selecting an appropriate tool for a specific inquiry. There are relatively few examples of individuals relying on one or two sources to deal with all their research inquiries.

The most heavily used resource discovery sources are general search engines, internal library portals and catalogues, and specialist search engines. Subject-specific gateways are also important. Researchers in social sciences appear to use a wider range of resource discovery services than other researchers. **(Section 4.2)**

There is a very long tail of discovery services used by researchers

The pattern exhibited by researchers' named discovery resources is very clearly a 'long tail'. A very few resources are named by a large number of researchers: Google and its allied sites plus Web of Science/Web of Knowledge, Science Direct and some 'services' which are really interfaces e.g. Athens, BIDS. A few tools such as COPAC also feature fairly strongly. All other resources are named by a very few individuals in each case. The high recognition of some of these is clearly related to where they sit within the user's online journey (e.g. Athens) or by their prominence in portal interfaces. Others like Google have just captured enormous general awareness. **(Section 3)**

Researchers use discovery services to find a wide range of resources: journal articles are the most important

Virtually all researchers (99.5%) rely on journal article as a key resource but over 90% mentioned that they also use chapters in books with many authors, organization's web sites, and the expertise of individuals. Ranked by importance, journal articles are by far the most important resource, listed in the top three by 71% of all those interviewed. No other resource is mentioned in the top three by a majority of interviewees and the next most cited resource – monographs – is only mentioned by 32%. **(Section 4.1)**

Peers and networks of colleagues are extremely important

Research colleagues are one of the most important sources for virtually every type of enquiry. They also feature as important providers of advice to colleagues about resources and tools, and sources of recommendation for new services. A number of researchers said that they had tried Google Scholar, for example, as a result of colleagues telling them about it. Networks of colleagues are especially important to postdoctoral researchers, who tend to be least confident in their research discovery skills.

Although researchers are contacting one another, this is usually on a one-to-one basis. Some use is made of email listservs, but they are not yet making use of other online social networking services to harness expertise. **(Section 4.1)**

Researchers see searching as an integral part of the research process, and they tend to refine down from a large set of results

Researchers see resource discovery activities as an integral part of the research process, and time pressures in searching are typically different from those felt by business information users who are victims of information overload. The largest group of researchers interviewed (almost 50%) adopt a strategy of refining down from an initial large set of results. Only a relatively small group (17%) start with a precise search; but a third (34%) undertake both kinds of search depending on the nature of the enquiry.

Many researchers are in effect dealing at some stage of their research with the implications of Meno's paradox, in seeking to find out about what they do not know. They often start without knowing precisely what will be the object of their search, and their aim is to find whatever they then decide may be significant to their research. Scanning through a large set of search results is therefore more appropriate, and provides more reassurance, than seeking a quick answer through a precise, and possibly over-constrained, initial search. **(Section 4.2.5)**

Researchers are concerned about irrelevant search results, but they are more concerned that they might miss important information

Some researchers do feel that general search engines deliver too many irrelevant results. This complaint occurred in every discipline area, though it seems to be a particular problem for disciplines where the object of enquiry cannot be easily described in language that differentiates it from general usage. Researchers in these areas would like to see specialised scholarly services to help overcome this problem.

The issue of irrelevant results is related to the preferred method of searching for most researchers, which privileges breadth of searching and large numbers of results over precision in searching. The main concern for most researchers is the fear that inadequacies in a particular discovery service or in their own expertise, or lack of time, might lead them to miss something significant for their research.

While some researchers do feel overwhelmed by information, most seem happy with large sets of search results and feel confident that they can navigate through them. There were more complaints about being overwhelmed by email than by the results of their searches, perhaps because when researchers are carrying out a search they are in control, whereas the email inbox can seem out of control. **(Section 4.2.5)**

Push is popular but blogs hardly feature

Emerging tools such as blogs hardly register, but a large majority of researchers (62%) are obtaining regular information updates and alerts from services pushing information to their desktops. Most researchers who use these services are doing so by email not by RSS feeds.

These are mainly alerts from journal publishers containing tables of contents or similar, and a smaller but still significant use of alerts on sources of funding from research councils or specialist services. Some researchers also specifically mentioned Zetoc as a useful service. There is also a wide range of other alert services being used

in specific subject areas or from public bodies such as ministries or international agencies. Listservs are most popular with arts and humanities researchers.

A significant minority of researchers said that they avoid push services because their email is already too extensive, or that they had subscribed to alerts or listservs in the past but had cancelled them as they felt overwhelmed or the services proved of little value. **(Section 4.2.7)**

Library support is largely via portals, rather than personal contact

While internal library portals and networks are heavily used resources, contact with librarians and information professionals is rare. This appears to be because most researchers prefer desktop access over visits to the library (a few still prefer what they see as 'real' journals, and if books are a major resource in the discipline, then physical library use is still largely unavoidable), rather than a negative view of librarians. Though there were some comments that librarians' subject knowledge was too basic to be useful, there were other comments about the 'invaluable' expertise of the subject librarian. This lack of direct contact may be a source of concern to libraries, especially if it is not clear to researchers that many of the resources they access on their desktops and the portals they use to do so are the result of library negotiation and integration. **(Section 4.2)**

Librarians and researchers are generally in agreement, but there are some important differences

As already noted, there are a number of important points of agreement between librarians and researchers concerning the quality of discovery services, the availability of resources and the gaps and problems that exist. There is also agreement that personal contact between researchers and librarians is irregular, and researchers do their own searches in the vast majority of cases. But librarians over-rated the importance to researchers of datasets and under-rated the importance of non-text resources. There is also a divergence of view about searching, with researchers making heavy use of search engines and librarians barely mentioning them as a key tool. While researchers themselves are generally confident in their abilities in terms of discovery, librarians see them as tending to be conservative in the range of tools used and relatively unsophisticated in their search methods. Consequently, librarians think that many researchers are not exploiting services to the full. Unsurprisingly, librarians see it as a problem that they are not reaching all researchers with formal training, whereas most researchers don't think they need it. **(Section 5.1.2)**

Lack of formal training is not seen as a problem

Only just over a third of the researchers interviewed had received any formal training in using research discovery services although very few researchers see a lack of training as a major problem. Most researchers appear confident in their use of resource discovery tools, despite being largely self-taught in the use of these services.

Providing training on resource discovery tools is an integral part of many librarians' work but comments from researchers suggest that most of this training is failing to reach large parts of a core target audience. Even among those researchers who have received training, a number were trained a long time ago (on their own assessment) and therefore the training would be unlikely to have covered online tools and resources. **(Section 4.2.8)**

Specific gaps in provision

A number of specific gaps were identified, though not with a precise focus on discovery services: researchers again did not make that distinction clearly.

More detail will be given in later sections of the report but the most noteworthy are:

Access to foreign language materials

This was cited as a problem by a significant number of researchers, mainly in the social sciences and arts and humanities. There was little distinction drawn between actual sources and discovery services, though specific mentions were made of the fact that some European libraries had not yet put their catalogues online. The JISC Disciplinary Differences study also found this gap.

Chapters in multiple-authored books hard to locate

There is no index to such works, and they cannot be searched as they are not generally available in full text online. This was mostly cited by social science researchers.

Backfiles of journals online are too short

This was a particular problem for researchers in the sciences, both in chemistry and the life sciences.

Specialist search engines needed

The plea for 'one stop shops' was made across a range of disciplines; some were for search engines covering quite a wide area e.g. "physical sciences", while others were for developing fields such as cultural studies or for specific areas such as automotive engineering. Researchers working on the intersection of fields and those in very new fields also felt the difficulty of searching multiple overlapping sources.