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# A MAP for the library portal: through the labyrinth of online information sources.

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ABSTRACT:
In as little as twenty five years, online information provision has been transformed. This has largely been uncontrolled, yet the resources now available offer rich returns for the data-hungry end user. Increasingly, many users require their information immediately and really don't care where it is stored. Such demands, coupled with librarians' natural tendency to apply order, have led to the development of library portals which aim to solve the problems arising from trying to navigate this labyrinth of information. The Millennium Access Plus (MAP) portal is one such product. Using the NISO OpenURL standard, MAP offers three main elements – contextual linking via WebBridge, one step 'multi' searching using MetaFind and resource authentication through Web Access Management (WAM). Use of this portal at the University of Exeter Library has made a considerable, positive impact on the recent use of online full-text systems and services and the experiences undoubtedly point to a strong future for such interfaces everywhere.

KEYWORDS: Contextual linking, portal, OpenURL, resolution server, Millennium Access Plus (MAP), Innovative Interfaces Inc. (III), multisearching

It is barely three years since the OpenURL standard was accepted by NISO (Van de Velde, 2001) and yet the library world now has more than a dozen products which seek to maximise the potential of resource linking (or 'integrating') technologies. Although the names of these products, including MAP (Innovative Interfaces Inc.), MetaLib (ExLibris), ZPORTAL (FDI), SingleSearch (Sirsi) or EnCompass (Endeavor) originated by other means, they succinctly describe their purpose – the means to guide users directly and easily to the comprehensive range of full text resources they require through the labyrinth of vendors, services, databases, catalogues, subscriptions etc.

To start with, it is important to acknowledge the ground-breaking work in the late 1990's by two members of the University of Ghent, Herbert Van de Sompel and Patrick Hochstenback together with their colleague, Oren Beit-Arie from ExLibris who developed contextual linking to the point where it has become an international standard and where it continues to provide the basis for ExLibris' SFX product (as decribed by Stubbings, 2003) as well as many others. While competitive, the various systems on offer provide comparatively similar solutions for an increasingly information-impatient world. This article seeks to narrate the early experiences of the implementation of Innovative Interfaces Inc. (III) Millennium Access Plus (MAP) product at the University of Exeter Library, UK. In this context I would also acknowledge the considerable work and assistance by various members of the Innovative Interfaces team including Laurie Davidson (2001), Sarah Hickman and (at that time) Steve Kafka. Further information on these products can be found at the Innovative Interfaces Inc. (2004) website.

The University of Exeter is a traditional, 'red brick' British university with its roots in the late nineteenth century and has witnessed major expansion since 1955. It currently has nearly 12,000 students and a staff of around 2,000 including academic and support teams. The University Library is

located in five branches on two campuses and two associate sites. Exeter was a founder member of the South West Libraries Automation Project (SWALCAP, later SLS) in the late 1960's and has enjoyed a long tradition of offering online information services. In 1999, after competitive tendering, the University chose the Innovative Interfaces Inc. Millennium product as its library system replacement for LIBERTAS. In the summer of 2003, after an internal review by library staff of systems to support the university's expansion of teaching and research, the University Library extended Millennium's existing capabilities by purchasing the integrated Millennium Access Plus (MAP) portal.

A library portal can be defined as 'a single user interface for access to a wide variety of electronic resources both within and outside of the library' (Boss, 2002). In this, MAP has three interrelated elements and also integrates seamlessly with the Millennium system Online Public Access catalogue (OPAC) and staff modules. These are:

- WebBridge – contextual linking
- Web Access Management - authorisation
- MetaFind – multiple searching (underlying technology is MuseGlobal)

**WebBridge**

This is the name given by Innovative Interfaces to the linking technology that allows users to search additional or alternative resources arising from an OPAC search or Millennium staff module ('target') or, separately, from a bibliographic database or index which is OpenURL compliant ('origin'). Searching the catalogue in this context uses two phases, 'browse' (which identifies a list of items) and 'bibliographic' (which identifies a specific item usually selected from the browse results). The library staff modules of Millennium (such as Circulation, cataloguing, Acquisitions and Inter-Library loans) can also be configured so that information in a record (such as ISBN) can be used to link to other resources and provide extra information (such as price or further bibliographic details). Using target resources, it is possible for library staff to fully customise WebBridge to offer context-dependent links arising from either the original search (browse level) or from a specific item retrieved from the OPAC (bibliographic level). The linking, achieved by invoking a customisable WebBridge icon, can be limited to specified locations so that general-use OPACs operating in the library cannot be used to contravene network authentication rules or diverted to non-OPAC uses.

Browse and bibliographic level linking can offer different possibilities. For example, a *browse* link takes the user's original search syntax (author, title, keyword etc.) as its base and can link without further keystrokes into e-journal indexes, bibliographic databases, or other catalogues of the library's choice using those original search terms. So, a user might, on clicking the WebBridge icon (see Figure 1), be offered a pop-up list of links to Amazon, Global Books in print, regional library catalogues, OCLC WorldCat, the RLG bibliographic database, MetaFind, EBSCOhost EJS contents search engine and Google (see Figure 1). Each resource (one more click) will use the original search term as the source for its interrogation.

*Bibliographic* level offers both the same possibilities using the same search terms and also additional, contextual sophistication by drawing on bibliographic data included in the catalogue record for the retrieved item. Using a series of 'Field Selectors' and 'Data Tests' it is possible for library staff to configure bibliographic level 'target' links to include, for example, the original search term against other catalogues, the precise title of the item on an alternative catalogue, a subject keyword against a

relevant bibliographic database and multiple ISBNs against various indexes. In this case, the user might be offered pre-stated links to RLN, OCLC WorldCat, COPAC, a multi-disciplinary database such as Web of Knowledge, a subject specific database (from a long list), web search engines, and plenty of others – all tuned to the subject matter of that specific OPAC search result and original search terms (see Figure 2). While construction of these potential additional resource lists requires careful prior consideration, it should be noted that they are optional for the standard OPAC user, invoked by a single icon and appear in a pop-up panel (or, alternatively, in a table on the OPAC screen).

The linking from origins works in a similar way. A very large number of databases are OpenURL compliant. Database vendors offering this functionality can set (usually on request) their systems to send OpenURL compliant data to the library's resolution server (which is what WebBridge is) for it to match against various tests and decide how to offer links – especially to full-text resources. To illustrate this, assume that a user has been searching PsycINFO (in Exeter's case, provided by OVID/SilverPlatter). The result of the search will appear as a series of brief bibliographic citations each of which includes the local WebBridge link (text rather than icon in this case). Clicking on the latter leads to the local resolution server and a pop-up panel offering links to likely full-text sources, based on library-specified criteria (see Figure 3).

As an added feature, WebBridge offers its own html-customisable form which users can employ as an *Articlefinder*. By entering minimal data (typically journal title, year of publication, volume, issue and start page or, alternatively ISSN, year of publication, volume, issue and start page), Articlefinder acts as an origin and sends the data back to the resolution server as if it was an external database. The data is then tested against the library's various WebBridge criteria and knowledegbases, so that links are offered to available full-text sources.

Although the OPAC, or use of OpenURL-enabled databases provide the library user's experience of WebBridge, library staff can also benefit from links from the Millennium staff modules. These range from book jacket images and reviews to assist purchasing decisions to direct links for specified resources which can be used for ordering (such as Amazon book information or Global Books in print), replacement billing, cataloguing or inter-lending.

**Technical considerations**

The technical side of this, especially local set-up, may appear daunting. In fact, WebBridge uses a considerable amount of intuitive online configuration and graphical interfaces to achieve this and has its own web-based management software. Innovative offers an online tutorial, some pre-set resources (always helpful as examples if not as live resources), online WebEx tuition, a detailed set of online FAQ files, responsive e-mail support and a very helpful WebBridge users' email listserv. Once the rudiments have been grasped it is comparatively simple to set-up and maintain this product – a task which is completely in the hands of local library staff. In the Exeter experience it took just three weeks from product installation to offering a full, public service and fourteen major target resources such as Index to Theses, ZETOC and JSTOR as well as others mentioned earlier. In the same timescale, twenty one origin resources were configured, largely with the assistance of the various vendors as they control the links and data passed to our resolution server. These included the majority of Exeter's OCLC databases provided through FirstSearch including WorldCat and Articles1st, SportDiscus and Geobase (provided by Ovid/SilverPlatter). WebBridge configuration software also permits full customisation of screen and link prompts and these, together with periodic checking of targets and origins, require a

certain amount of on-going fine tuning – which is inevitable in this ever-changing environment. To date, Exeter has 26 target resources configured and 35 origins. There are a number of set-up components.

1. **OpenURL**. The OpenURL format is at the heart of WebBridge configuration. At first sight, this may look confusing but is, in fact, very simple. An example (sent to EBSCO's EJS service) would be:
http://ejournals.ebsco.com/openurl.asp?issn=#@ISSN-HYPHEN#&volume=#@VOLUME#&issue=#@ISSUE#&spage=#@SPAGE#
This invokes the EBSCO host e-journal server over the world wide web and transmits specified data which EJS can use to provide the full-text of the required (in this case) article. The data in the example is, of course, the ISSN with hyphen separation (e.g. 1234-5678), the volume number of the article, issue number and start page. EJS then consults its databanks and subscription information and, providing both match, will offer the full text of the article online. While OpenURL is the defined standard, WebBridge will work with any predictable URL syntax. Therefore, targets, including full-text services or individual e-journal titles, do not have to be OpenURL enabled (although origins do).

2. **Coverage database**. Although it is not a pre-requisite, such linking to full-text works best if the link offered is certain rather than potential. WebBridge offers the possibility of a single or number of 'Coverage Databases'. The data in these is derived from various journal publishers or agents. In Exeter's case, there is a policy of using a single journals agent (within the terms of the regional purchasing consortium tender) to supply as many required electronic subscriptions (journals, databases etc.) as possible. At present, this agent is EBSCO and Exeter's subscription to the EBSCO AtoZ journals service provides the necessary data in the correct format (text or XML) to populate the Coverage Database. WebBridge offers a simplified means of taking the original data from AtoZ and turning it into a coverage database containing title-level URL, start and end dates for coverage, ISSN and eissn etc. The same interface permits updating of the coverage database as often as the library desires, to update data, add new subscriptions and remove expired ones. Fields within the coverage database can be protected against subsequent data overlay if required and this feature also interacts closely with the Electronic Resource Management module marketed separately by Innovative Interfaces. The coverage database also provides the opportunity to take data from an incoming OpenURL (e.g. an ISSN), use that to draw data (e.g. a URL or a vendors Journal ID) from the coverage database which isn't included in the incoming OpenURL and then translate that into the URL passed to the full text source. This process, known as 'secondary lookup' has many uses, and overcomes some of the deficiencies caused by a lack of OpenURL data transmitted in some publishers' URLs.

Because of the different types of service offered by publishers, the Exeter WebBridge configuration integrates separate coverage databases for EJS current subscriptions (over 7,600 titles), JSTOR titles (approximately 660), BusinessSourcePremier (over 5,000 titles) – all subscribed through EBSCO, plus the Directory of Online Access Journals (DOAJ, http://www.doaj.org/) which provides linking to over 1,200 subscription free, peer-reviewed e-journals. Exeter also uses the CrossRef service which utilises the Digital Object Identifier (DOI) rather than ISSN as its most significant key. Although this doesn't provide a coverage database at present, Innovative Interfaces are currently working on a secondary look-up service to enable matches against other data and, in Exeter's case, the service is already only offered after checking the EJS coverage database (as that contains the vast majority of Exeter's subscriptions).

3. **Data Tests.** The coverage database works by using a data test, typically something like 'MatchISSN-HyphenandDate' (the name is fully configurable but it helps if it is informative). In this example, in receipt of a request containing specific OpenURL data from an external database ('origin'), this data test says 'check the data received in the OpenURL (normally ISSN or eissn but potentially any data element contained in the coverage database which is present in the received OpenURL) against the coverage database (inserting the hyphen appropriately if required); then check the coverage dates to ensure the article falls within the local subscription range; if both match then offer the link to the full-text of the article – if it doesn't then don't offer the link.' Data tests can be of three main types – match (some element against the coverage database), and two others which do not require the coverage database - 'has' (ensuring that an essential element such as title is present in the available search terms irrespective of the actual value of the data) and 'is'. 'Is' can be used, for example, to check if an item found on the OPAC falls into a specific subject category by using the local classmark and then using the result to offer a selection of subject-specific databases relevant to that item in the OPAC 'targets' pop-up panel. Data tests can also be combined with Boolean 'and' or 'or' as required to increase their capability.

4. **Field selectors.** These take the possibilities of customisation one further step forward by allowing the library to define its own data elements. Although many OpenURL field selectors are part of the standard (issn, eissn, title, subject, aulast (surname), etc.) these can also be modified or created using standard regular expressions ('regex'). Regular expressions have been used in the computer industry for many years (e.g. see http://www.regular-expressions.info/). By way of example, these can insert hyphens into the middle of an ISSN if the data provider (such as EBSCO) requires that format. The field selector could be called 'ISSN-Hyphen' and would include a regex of /(^.{4})(.{4}$)/\1-\2/. This looks complicated but actually means 'take the first four characters of the ISSN (a standard field selector) and call it section one. The second four characters are section two. Insert a hyphen between section one and section two and thereby create a field selector called ISSN-hyphen'. This field selector can then be used, if required, to translate an incoming ISSN (from an origin) into an ISSN with a middle hyphen for systems that require this format (such as EBSCOhost EJS).

5. **Origin identifiers and categories.** To identify data transmitted from an origin, it is necessary to set up a service identifier (SID), usually provided by the origin vendor, on the WebBridge system and also allocate categories for resources to appear in. This means that in response to specified data tests being met, the system can offer relevant groups of resources (e.g. full text services in response to calls from origins which match on a coverage database). A resource can appear in more than one category and, given that the age of print is far from over, the system can also link to the home OPAC (or even regional OPACs) as a 'safety net'.

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6. **Test server.** To avoid difficulties arising from incorrect configuration, it is possible to limit use of 'targets' to the local Millennium test server. It is, however, often easier to set up or refine a resource on the live system and test it immediately to ensure it works correctly.

**Web Access management (WAM)**

WAM is authentication software, provided as part of MAP (or as a separate product) which allows the library to govern access to electronic resources. This is an increasingly complex aspect of the 'Electronic Library' and one which libraries must adhere to in order to comply with legally-binding licenses required by vendors. WAM provides two essential facilities. The first is authentication which

is currently managed at Exeter using the user's Library ID (barcode number) and library-allocated PIN, but will shortly be (making use of LDAP software installed on the library system by Innovative Interfaces) via standard university-wide IT username and password. The second facility is the proxy re-write server. This permits the library server to act as the 'home' address for IP-authenticated resources thus permitting simplified access for off-campus users running on an internet service other than Exeter (or not using the local Virtual Private Network, VPN). All WebBridge resources can be proxied and authenticated in this way if required. Resources requiring proxy are set up by library staff using a forwarding table integrated into the Millennium system which permits considerable flexibility depending on the individual resource.

**MetaFind**

MetaFind is Innovative Interfaces' 'search-all' system. While it is very simple to describe what it does, the significance of meta searching in libraries should not be understated. Innovative Interfaces uses the underlying technology of MuseGlobal in its product MetaFind for this purpose, although local profiling is accomplished by the Innovative Interfaces team in response to customer requests submitted using special online forms which govern the resource, authentication issues (using WAM) and the required category or categories.

MetaFind provides the means for cross-searching many different types of information system in a single step. Types can include catalogues, databases (local or external), web search engines, full-text resources and e-journal systems. All, of course, have different underlying design concepts and each has its own means of searching and syntax – often difficult enough to search as individual resources. The power of MetaFind is to use a single search screen to interrogate all or some of the chosen resources simultaneously, whatever the type. The main aim is to take the user to the full text of whatever is available as seamlessly as possible. The various permutations are numerous. A considerable amount of customisation is provided, including de-duplication, sorting, listing by resource and restricting results by further keywords.

By careful design of the web pages, users can decide on a number of search options. As well as a choice between a simple and Boolean-rich advanced search screen, resources are grouped according to library staff preference and might, for example, include separate categories for library catalogues, regional library catalogues, articles in full-text, Science resources, Medical resources etc. The user can decide down to the individual resource what to search; search all, search certain categories or resources selected from the entire list.

Although the resources currently profiled at Exeter are already significant (particularly grouping e-journal resources such as Science Direct, EBSCOhost EJS, JSTOR and ZETOC), many more are in the pipeline and the service, originally restricted to a user login section of the OPAC, is now cited on the home webpage as well. Where libraries already have an extensive set of MetaFind profiles, many have found it useful to re-write the web screens and pre-order the options on a subject basis. The University of Mississippi Libraries provide an excellent example (see http://umiss.lib.olemiss.edu/screens/metafind/subject.htm). Others use the standard MetaFind homepage instead of or alongside their OPACs to respond to user demands for 'everything' rather than just local offerings.

**Usage**

WebBridge and WAM usage can be monitored as required through online statistics while MetaFind statistics currently have to be requested from Innovative Interfaces. The MAP portal was offered to users at Exeter without any prior notification or training from July 2003 and accessed through a single icon entitled 'additional information' with an alternative text (at origins) of 'link to Exeter's full-text subs'. As far as 'origin' resources leading into WebBridge are concerned, the year running from August 2003 to July 2004 saw over 56,000 links made using the WebBridge icon initiated from the remote database or remote catalogue. Over 23,000 (41%) of those links went on to view full-text resources or catalogue details from the pop-up panel. The most used origins for this purpose were SilverPlatter (SportDiscus, Geobase and FIAF) (45%), Web of Knowledge (12%), PsycINFO (8%) and MLA Bibliography (7%). Nearly 16,000 links were made to Crossref (28%), 6,000 to EBSCO EJS (10%), and just over 1,000 (2%) each to Business Source Premier and JSTOR respectively. 19,000 (35%) followed the default link back to the Exeter library OPAC. Between 1st January and 31 July 2004 usage by borrower category was as follows: staff 47%, postgraduates 22% (17% taught, 5% research) and 25% undergraduates. WebBridge is not only a heavily used facility – but also by all types of the university's clientele.

Using the Library OPAC to initiate 'target' links to alternative or additional information sources produced more than 100,000 links in the same period. Usage statistics show that only 5% of the resources listed in the pop-up panel were actually linked to – although that figure shows that a single resource (of the ten or so typically offered in the panel) is regularly linked to rather than all of them on a systematic basis. It doesn't mean that only 5% of those users hitting the OPAC's 'Additional Information' icon go on to link to a 'target' resource. The most popular targets were the Resource Discovery Network, EBSCOhost E-journals content search, OCLC WorldCat, Amazon, Google or Alta Vista, and Oxford Reference Online.

The University of Exeter Library offers a number of separate ways for its users to access electronic resources. All journals (including e-only titles) are catalogued on the OPAC at title level. The library also maintains extensive web pages covering both finding tools and resources, the latter particularly grouped around e-resource agents especially EBSCO and JSTOR. As Exeter collects detailed statistics on total use of these e-resources by all access points (title entry on OPAC, via website, via WebBridge or direct URL) it is possible to determine what proportion of database searching develops into full text linkage. For example, the popular SilverPlatter 'bundle' which made over 25,000 links into WebBridge as an origin between August 2003 and July 2004 was searched just over 42,000 times by all Exeter users via all means of access in the that period. In other words, 60% of all searches on those databases resulted in a WebBridge link (to full text or the Exeter OPAC). It should be noted that impressive figure has been achieved entirely by user serendipity which confirms the intuitive nature of the user interface of WebBridge. At the same time, the same functionality has been almost completely unused from Millennium library staff modules at Exeter (Acquisitions, Cataloguing, Circulation and Inter-Library loan) – largely because staff have other, more established, ways of finding the information they require. A number of other libraries which have purchased MAP make considerable use of this feature for populating online Inter-lending request forms from origins. The procedures for making inter-lending requests at Exeter have to comply with the university's model of financial devolution, and preclude this possibility locally.

Between August 2003 and July 2004, MetaFind (partially hidden in a sub-menu on the OPAC and behind WAM authentication using the Innovative Interfaces 'My Millennium' software), witnessed just

373 separate search sessions. This, of course, is a disappointingly low figure especially as it is increasingly likely that meta search engines have the potential to replace standard OPAC menus in the comparatively near future. The MetaFind system is, given its scope, comparatively fast – on a modest profile of 11 resources, the system returns results within seconds and has always completed all within ninety seconds. The actual response time is, of course, mainly a function of the target resource rather than any slowness in the MetaFind software. Ninety seconds, in comparison with individual search times on each of those resources, is in itself impressive. The University of Exeter Library home web page (http://www.ex.ac.uk/library) has just been redesigned so that MetaFind, now billed as 'Search multiple resources' appears as an obvious 'Electronic Resources' link and also on subsequent web pages. It also remains with its own menu option in the 'My Millennium' (member login) part of the OPAC. It is anticipated that this new prominence will boost its significance and usage in the university community.

**Experiences**

As well as using quantitative data, it is possible to draw on some qualitative experiences. When Exeter's involvement with MAP began in the summer of 2003, its operation as a publicly-available service could still be described as 'pioneering'. A year has changed that position a great deal. Originally, for example, the public prompt on the Exeter WebBridge panel generally said 'You might find…' Some months ago, particularly with the introduction of the coverage databases (providing subscription matching) and a growing understanding by vendors of the complexities that can arise, the same rubric was changed to 'likely sources'. While certainty still cannot be guaranteed – mainly due to occasional technical glitches on vendor's servers, regular URL changes and some incomplete subscription information from those supplying data for the coverage databases, the year has seen a dramatic improvement in reliability and retrieval – and also worldwide sales of MAP and similar products. That can only develop further as many players in this particular market launch and hone their various products and services.

There are a number of potential ways to set-up and maintain MAP. Some libraries use teams of library staff involving both system and e-resource and serials colleagues, others use a single e-resource specialist, while others have a technical specialist who liaises with other colleagues responsible for other aspects of electronic resourcing as required. Exeter used the latter module. The advantages with this approach are that decisions can be made instantly – always useful in a test-bed environment. However, it also means that important information has to be sought from others (or missed) and that general feeling of ownership of, and involvement in, the portal by library staff is not as great as it could be. This may also have consequences for user induction and resource-use training by those same staff. It also means that new features, known issues etc. have to be carefully publicised to ensure colleagues remain up-to-date with a service they may not immediately understand at a detailed level. At Exeter this is managed by means of a standing item on the agenda of the monthly E-Info working party. The single, specialist approach also means that detailed knowledge is locked-up in one person with obvious consequences when absence strikes. In Exeter's case, a spreadsheet of system settings and staff shadowing has been employed to minimise this risk.

There is no doubt that MAP has provided a very welcome extension of Exeter's existing e-resource functionality and should not be regarded as an entirely new product. At the same time, Innovative Interfaces has marketed it very successfully to libraries running ILS supplied by other vendors as a stand-alone module. Although some modest publicity has been given to the various features provided

by MAP at Exeter e.g. through library newsletters, web pages and a revised 'Electronic Library' guide, users have generally been left to their own devices in discovery and use of this – successfully so, based on usage statistics and comments received when a particular service has become temporarily unavailable. Innovative Interfaces has a well-charted development path for the product so, based on Exeter's experiences of their proven track-record of regular and significant system developments for Millennium, it is possible to anticipate many further advances for this already highly functional portal.

**The future**

Webster (2004) points to a problem where meta searching is simply papering over the cracks caused by the proliferation of so many information types and resulting diversity of interrogation systems across so many disciplines. The argument made is that it would be better to develop comprehensive subject-based systems which can be tuned to the search characteristics of that particular literature as opposed to multi-disciplinary cross searching where the language of the search term (as just one problem) cannot easily be controlled. This is also true where use of wildcard characters, truncation etc. is not standard across all systems. The Exeter experience would suggest that MetaFind can assist high-level, subject-specific research by pointing the way quickly to likely areas for the researcher to explore further. It is also true that MetaFind is unlikely to provide the same level of depth as, for example, a twenty step search carried out exclusively in PsycINFO. That is not to say that link resolution doesn't then come into its own in that system to guide the researcher to find full-text information within a couple of mouse clicks.

An increasing number of libraries have designed their newer OPACs using 'single box' input options, often labeled 'quick search' as opposed to more traditional menus. These generally provide a simple keyword search of the local stock but also offer some optional, advanced customization. It is only one step further to suggest that meta searching tools replace these, offering yet more optional customisation in support of the quest for instant, full-text information for all but the most subject-specific of researchers. While Exeter's experience of the demand for context-based linking to targets arising from local OPAC searches shows limited take-up, linking from bibliographic databases and other information types to full-text has witnessed a meteoric rise in a short time – an increase in use of 832% between the first three months of implementation and the same period twelve months on. Authentication, always a major consideration, has been greatly facilitated by the use of WAM and will become even simpler with the impending launch of a library LDAP service. This is not just the experience of one library. Hamblin and Stubbings (2004) describe the many positive results of the introduction of the Ex Libris products SFX and MetaLib at Loughborough University. Nor is this the province of just academic libraries (although they may well have comprehensive e-resource collections) – public and special libraries also derive great benefit.

Twenty five years ago, information professionals were getting used to networked online catalogues. While a number of bibliographic databases were available online, the technology was mainly slow and often unreliable. The Internet was already in full swing but the World Wide Web was (literally) a pipe-dream at CERN. There were very few full-text, online sources. In contrast, five years ago, online, web-based OPACs were the norm for many libraries, most major databases were online as were a number of journals (albeit in limited scope). The information world has come a very long way in that time. Today, there are integrated information portals which simply, seamlessly, and increasingly reliably, link all these resources to guide even the most uninitiated users through the labyrinths of the unregulated

profusion of online information. The Minotaur – characterized by slow response times, confusing and diverse systems and multiple authentications – is fast being forced out of a job.

**References**


Boss, R. W. (2002), "Library web portals". Public Library Association, American Library Association. http://www.ala.org/ala/pla/plapubs/technotes/librarywebportals.htm/

Davidson, L. (2001), Integrating access to digital collections: MAP from Innovative Interfaces. *Vine*, No. 125, pp. 49-55

Hamblin, Y. and Stubbings, R. (2004), "How to make your e-resources earn their keep". *Serials,* Vol.17 No. 1, pp. 25-30

Innovative Interfaces Inc. (2004), 'MAP – Millennium Access Plus'. http://www.iii.com/pdf/lit/eng_map.pdf

Stubbings, R. (2003),"MetaLib and SFX at Loughborough University Library". *Vine,* Vol. 33 No. 1, pp.25-32

Van de Velde, E.F. (2001), "Statement from NISO on patents and the OpenURL standard". NISO Committee AX. http://library.caltech.edu/openurl/

Webster, P. (2004), "Metasearching in an academic environment". *Online,* Vol. 28 No. 2, pp. 20-23.

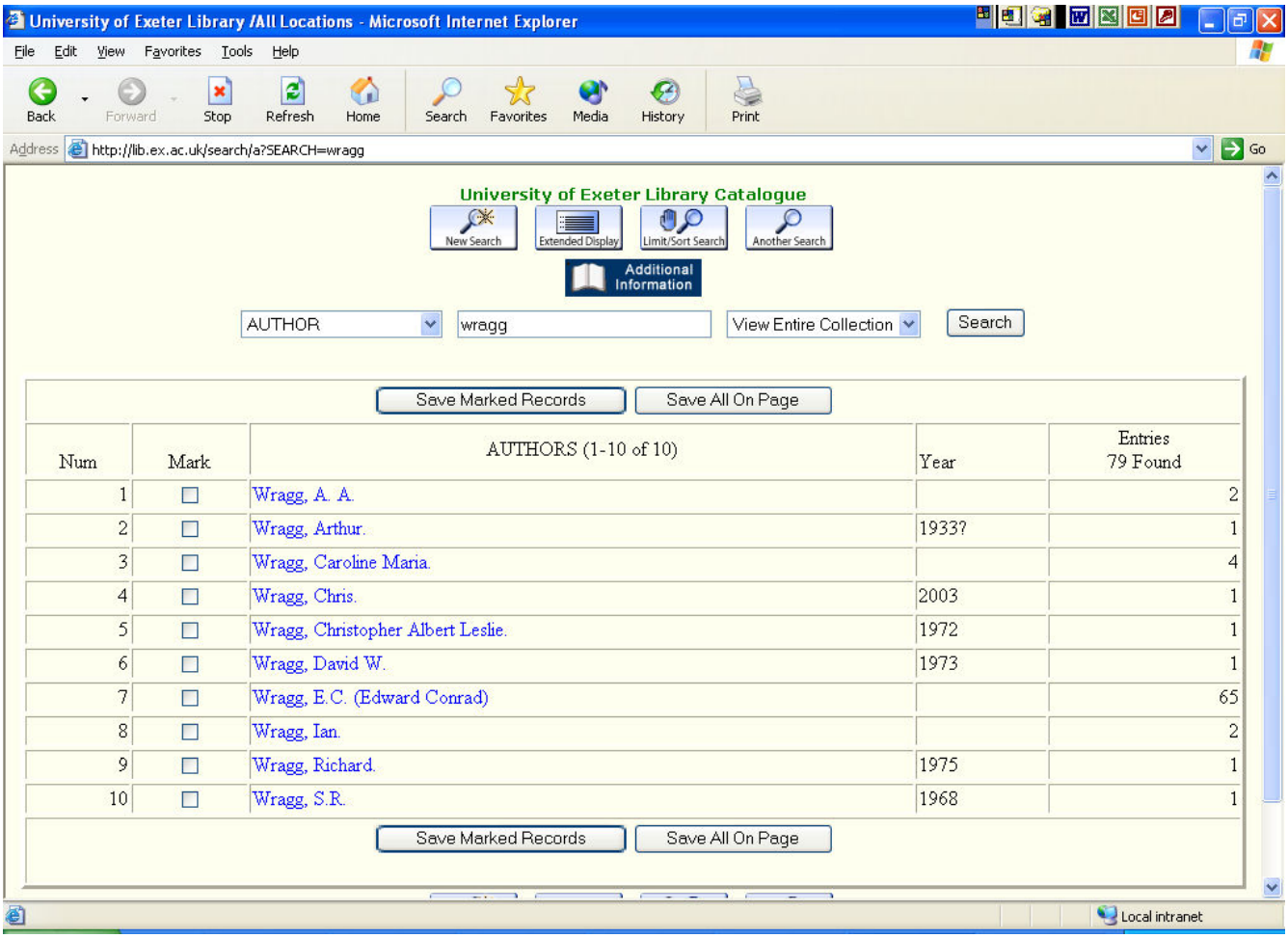


Fig 1. Browse level OPAC search result display. WebBridge is enacted through the ‘Additional Information’ icon

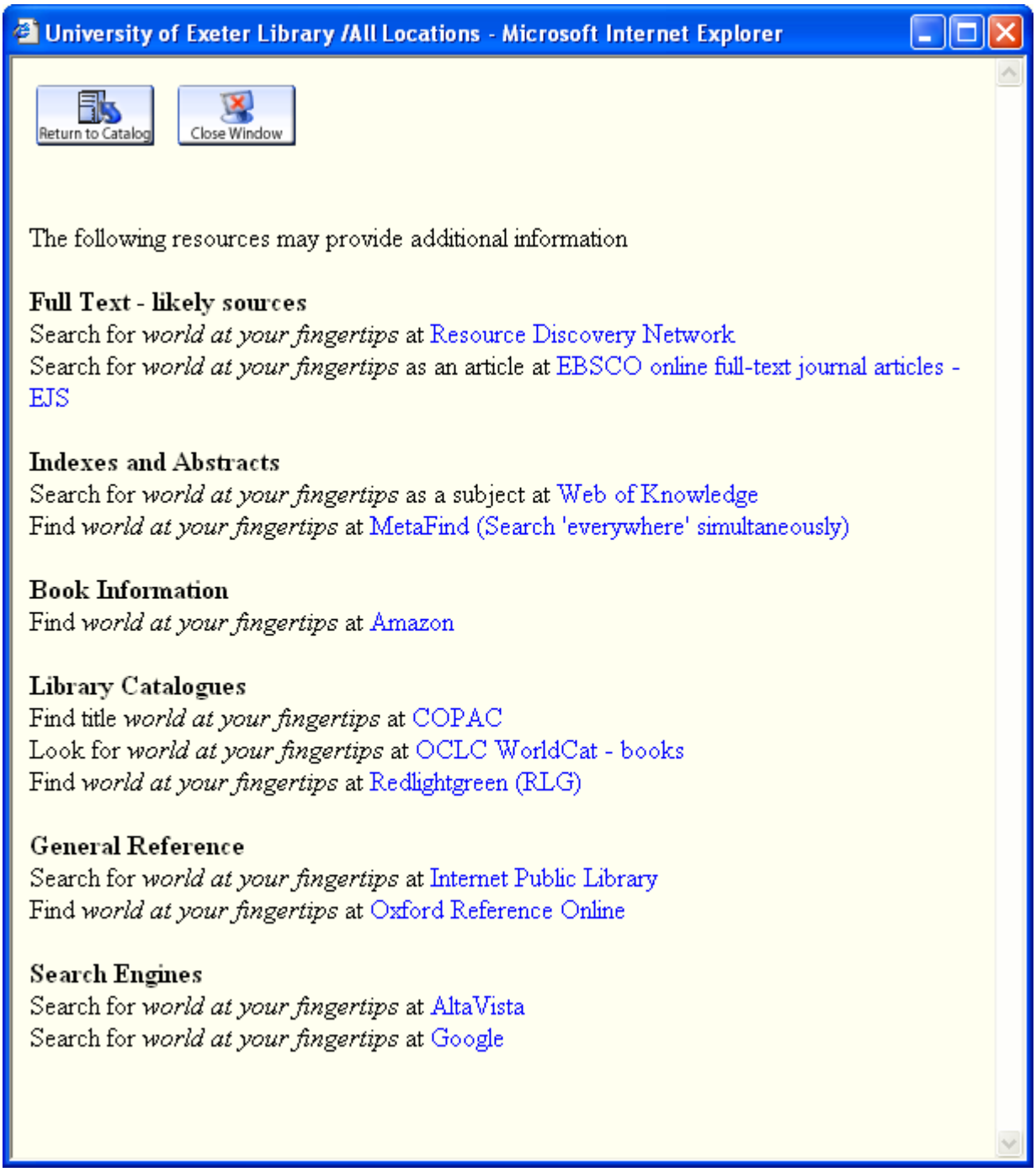


Figure 2: Browse level  WebBridge pop-up panel based on OPAC title search ‘world at your fingertips’

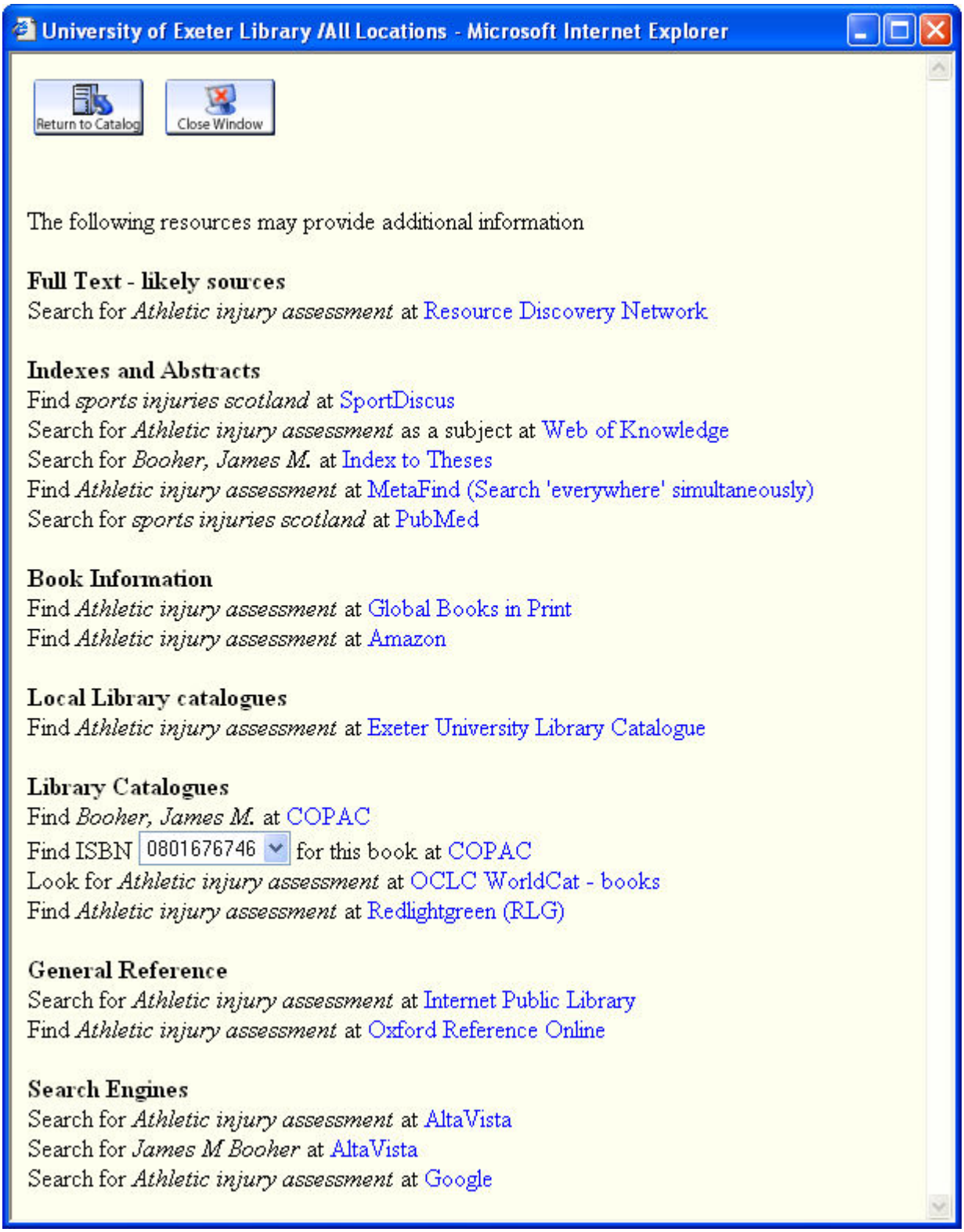


Figure 3. Bibliographic level search using WebBridge via local library OPAC – searching using Booher, J. M. and Thibodeau, G. A. (1994). *Athletic injury assessment*. London : Mosby and an original OPAC 'Word' search on 'Sports injuries in Scotland'

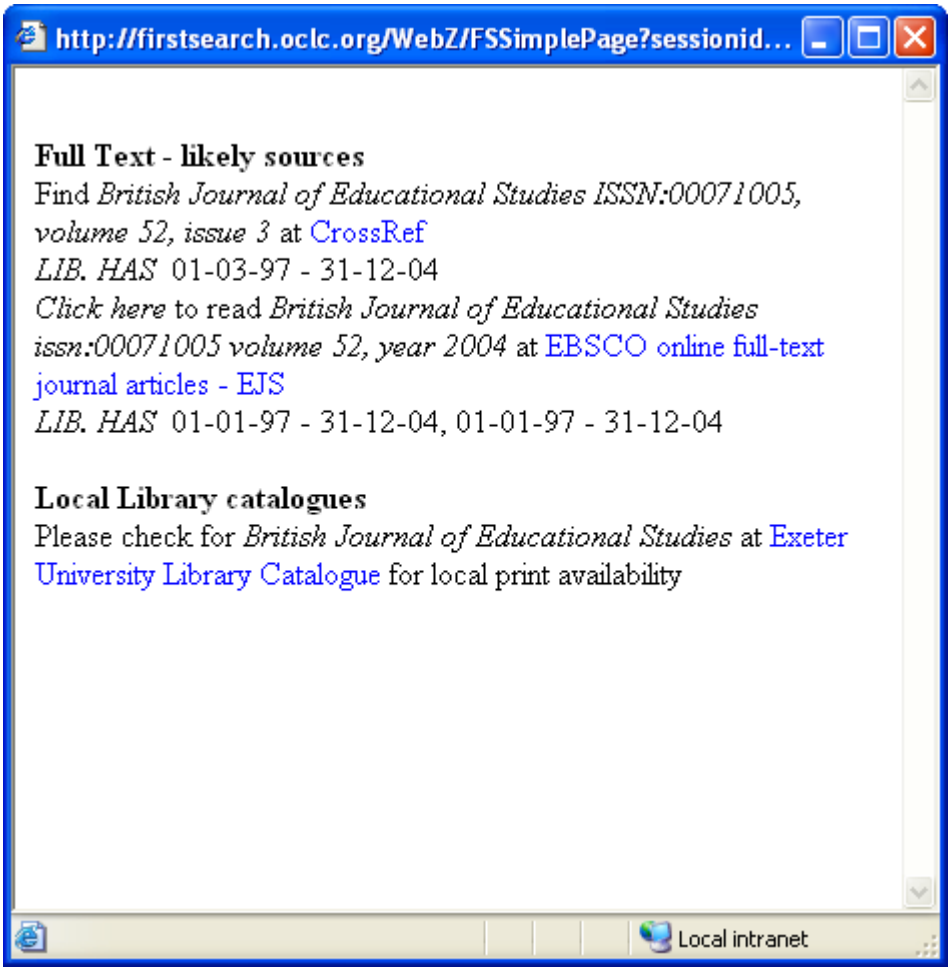


Figure 4. WebBridge pop-up panel from an 'origin' database search