CREE
Contextual Resource Evaluation Environment

CREE User Testing
Results and Comment

CREE Deliverable S1D5

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JISC

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Introduction

The user testing undertaken by the CREE project represents the third strand of user evaluation within the project. Following on from the CREE Survey and CREE Focus Groups, the CREE User Testing sessions provided further feedback on and requirements for the contextual use of Internet search tools. These findings thus complement the findings of the previous two strands of evaluation and build on them to provide a body of information that can be used to inform the development of search services in a variety of different contexts.

The CREE User Testing sessions allowed for a further aspect of user feedback to be considered. The survey, carried out in September and October 2004, had collected individual responses to a range of questions in relation to the current and potential contextual use of Internet search tools. The focus groups in November and December 2004 had allowed these responses to be tested in small groups, confirming many of the individual views expressed and also providing more depth to the reasoning behind them. The results of these activities have been made available through CREE Deliverables S1D8 and S1D9, available through the CREE project website.

One drawback of the survey and focus groups was the theoretical nature of the discussions taking place in most cases. When asking about using Internet search tools in different contexts, the majority of participants were answering on the basis of what they thought they would like or dislike rather than what they had used already of even seen in action. This acted as a natural brake on discussions and the views expressed.

The Technical Development part of the CREE project, reported separately, facilitated the building of three fully functional, interactive demonstrators that we were then able to present to users and gather their reaction. The demonstrators presented Internet search tools as presented through three different contexts, as follows:

- Local web page
- Online learning environment (i.e., a Virtual Learning Environment (VLE) or Course Management System (CMS))
- Institutional portal

Users were thus able to interact with the search tools in each demonstrator before completing a questionnaire, providing practical views instead of theoretical ones. The results of these questionnaires is presented here as CREE Deliverable S1D5. They are complemented by the findings of two additional focus groups held to specifically consider the functionality developed for the institutional portal demonstrator and provide comment on this for feedback to the Technical Development partners in the project.

This report complements the previous reports for the survey and focus groups.

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Demonstrators

Three fully functional, interactive demonstrators were built to enable the CREE User Testing sessions. These allowed participants in the user testing to see what using embedded Internet search tools in different contexts might mean and respond to the possibilities of such tools being provided in this way. This feedback based on practice complements the more theoretical feedback gained from the survey and focus group strands of activity within the CREE project.

The demonstrators presented to the participants were as follows:

1. Local web page
   A web page containing a number of search boxes was created to allow participants to see how integrating Internet search tools might look and work within a local web page. The look and feel of the Library web pages at the University of Hull was used as the basis for the page, though it was stressed to those taking part that this largely for convenience, and that such search boxes might be embedded within a wide range of local web pages; appropriate feedback was gathered to this to inform future development. The web page demonstrator was created by extracting the search boxes from their native websites and integrating them within the demonstrator web page. All search boxes were functional and allowed searching to be carried out as if at the native website, within the limitations of what was possible from the search box used. Results can either be displayed in the web page or at the search tool's native website; options for the presentation of results were examined through the user testing.

2. Online learning environment
   It was notable that no VLE/CMS system available to the project was capable of integrating Internet search tools to the level required by the project. Where such integration had taken place, it took the form of a link to the external resource and its native website. No searching took place within the VLE/CMS itself. Hence, a mock-up web page of a sample view onto an Internet search tools page was developed instead. This took the same form as the web page demonstrator, but used the Sakai look and feel to give the impression that the user was in an online learning environment, containing non-functional links to discussion tools, course materials, announcements and schedule as examples of VLE/CMS activity. Sakai was used as the guideline for the demonstrator as it was new to all the participants and prevented comment being biased by knowledge of an existing environment's look and feel. The same range of Internet search tools was used as for the Local web page demonstrator, allowing for a direct comparison of feedback to be made between these.

3. Institutional portal
   The institutional portal framework used at the University of Hull is uPortal. This framework was thus used as the basis for the institutional portal demonstrator. There are a number of ways in which applications such as Internet search tools can be embedded within a portal context. As for the demonstrators built as web pages, search boxes can be taken and embedded directly within an individual channel or portlet within the portal. The

> Technical Development part of the CREE project has been working to develop portlets based on the open standards JSR 168 and WSRP. These standards are designed to facilitate the full integration of applications within an institutional portal framework, allowing the user to carry out their search completely within the institutional portal context. A combination of these techniques was used for the portal demonstrator to help gather feedback on the difference between them. The same Internet search tools as for the other two demonstrators were used wherever possible, although some differences were necessary due to availability of appropriate search boxes.

The Internet search tools used within the demonstrators were designed to offer participants a range of different types of search tool, to examine whether any difference existed in perceptions of integrating Internet search tools according to the type of tool.

The institutional portal demonstrator acted as the guide to which Internet search tools should be used within the other two demonstrators. The Technical Development part of the CREE project had included a range of search tools within its work, and portlets for the following search tools have been developed for use in institutional portal contexts:

- JAFER toolkit, a Z39.50 toolkit from the University of Oxford offering access to library catalogues. This was targeted at the University of Hull library catalogue
- GetRef, a metasearch tool from EDINA at the University of Edinburgh offering access to bibliographic databases, again mostly using Z39.50
- HEIRPORT, a subject-specific search tool from the Archaeology Data Service offering access to a range of archaeology resources, also using Z39.50
- Google

All portlets were available as either JSR 168 or WSRP services, though it was decided to use the former due to their stability and local control of the demonstrator they would afford. The nature of a development project meant that ongoing technical difficulties and necessary amendments were never far away, and these unfortunately also occurred during the user testing sessions. This resulted in the omission of the Google portlet from the demonstrator and the removal of the GetRef portlet for the later user testing sessions. The Google portlet was replaced he user testing with an embedded search box from the Google website, but was featured in the focus groups carried out to gather feedback on portlet functionality. The GetRef portlet was also made available again for the focus groups.

The portal demonstrator was built using uPortal 2.4.1, a version of the framework that supported both JSR 168 and WSRP portlets. Development at the Technical Partners also took place using this version, or the slightly later version, 2.4.2.

In addition to the portlets, a Dictionary.com search box was embedded as it was in all demonstrators to provide feedback on the provision of a reference search tool in different contexts.

The local web page and online learning environment demonstrators used the following Internet search tools within them, chosen to both match the options presented through the institutional portal and test out further integration options more relevant to a web page context:

- University of Hull library catalogue – the search box from the University of Hull's Millennium catalogue was used, matching the access provided by the JAFER toolkit though using the direct search rather than Z39.50. See http://library.hull.ac.uk/ for how the search box is presented in its native website.
- zetoc – the British Library's electronic tables of contents service, as delivered by MIMAS at the University of Manchester to the academic community. GetRef does not have a search box interface that can be easily adapted for integration in other web pages. Hence, an alternative point of access to bibliographic resources was required and zetoc was selected. The full search box from the zetoc general search page at http://zetoc.mimas.ac.uk/wzgw?f=f&form=general&id=20266906 was used. As zetoc was updated, the search box had to be refreshed in the demonstrator, as it appeared to expire with the update. This was a noticeable feature that would affect other search tools being embedded in this way potentially.
- ArchSearch – the HEIRPORT interface itself is not available for integration in other web pages. However, a direct equivalent, ArchSearch, is provided specifically for this purpose and was used accordingly in the demonstrators. This also searches a range of archaeological resources, though using direct access over the Web rather than Z39.50. See http://ads.ahds.ac.uk/ADSTools/ for details of the integration options available and http://ads.ahds.ac.uk/catalogue/search/basic.cfm for the search box in its native website. Visiting ArchSearch for the first time produces a screen requesting agreement on use of the materials found in accordance with the terms through which they have been made available. This agreement screen received a number of comments in the user testing.
- Google – the ubiquitous Web search engine was included alongside other more specific search tools for two reasons: it provided a chance to gauge reaction to using Google when presented in different contexts; and it provided an opportunity to gather reaction to using Google alongside other search tools and to discover whether this was valuable or not. See http://www.google.com/searchcode.html for the options Google provides for presenting these search boxes
- Dictionary.com – this free service on the Internet offered a useful and quick way to provide access to a reference resource within the demonstrators, and contrast the usefulness of this type of search tool against others. See http://dictionary.reference.com/tools/ for the current range of options for integrating this service in different contexts (NB. The HTML search box option used within the CREE demonstrators is now, interestingly, no longer available, being superceded by browser plugins or javascript buttons)
- Resource Discovery Network (RDN) – The RDN provides a way through the use of RDN-include to allow for an RDN search box to be embedded locally, and for the search results to be presented in the look and feel of the local website the search box was embedded in. This additional presentation feature was considered valuable to test within the local web page and online learning

environment demonstrators, although an equivalent service was not feasible within the institutional portal demonstrator at the time of testing.

The choice of Internet search tools to use within the demonstrators thus allowed the user testing to contrast access to the following types of search tool:

- Library catalogue
- Bibliographic database
- Subject-specific resource
- Internet search engine
- Reference resource
- Web resources search tool

Alongside testing reaction to the integration of a series of different Internet search tools within the demonstrators, the user testing also examined reactions to the different ways in which results from searching were displayed. This is as important, if not moreso, than the presentation of the search itself, as how the results are displayed will affect how usable they are and how valuable they become to the user. As mentioned above, the RDN offers the ability to present search results within the look and feel of the web page in which the search box was embedded. This was one of three ways in which search results could be displayed within the demonstrators, as follows:

- Within the look and feel of the demonstrator. This included the RDN for the web page-based demonstrators, and also the JSR 168 portlets within the institutional portal demonstrator
- In a separate window to the demonstrator. Those search tools that simply had search boxes embedded within the demonstrator generally opened up a new window to display the results in the native interface of the search tool. The user could then flick between the results and the demonstrator by moving from window to window
- In the same window as the demonstrator. The exception to the above was Google, which was configured to display the results in the same window as the demonstrator. Moving between the results and the demonstrator would thus involve using the browser's back and forward buttons

These differences had an impact on perception of the search tools as the results show. The results for the use of Google should also be considered in the light of the display of results obscuring the demonstrator from the screen.

Access to the demonstrators was limited to those taking part in the user testing to prevent overloading on the development server on which they resided. The local web page and online learning environment demonstrators were accessible via simple, unauthenticated URLs, whilst the institutional portal demonstrator required a login (as with all uPortal installations), which was advertised through the questionnaire being used to collect feedback and requirements. Access to the demonstrators and screenshots are available via the project website. Please note that long-term access to the demonstrators cannot be guaranteed due to ongoing development priorities. However, if you have any difficulties accessing them, please contact Chris Awre at the University of Hull (c.awre@hull.ac.uk), and access can be arranged on request.

User testing methodology

User testing sessions took place at three institutions in order to gather a wide range of views. The three institutions were the same as for the focus groups and this allowed findings to be compared between the focus groups and user testing to investigate how seeing the demonstrators had affected requirements and views held. The three institutions holding user testing sessions were:

- University of Hull
- University of Oxford
- Newark and Sherwood College

University if Hull

The University of Hull held user testing sessions during April and May 2005. A total of eight sessions were held during this period (seven at Hull, one at Scarborough), involving 17 members of staff and 30 students, 47 participants in total. The user testing sessions had been advertised on both staff and student email announcement lists and this produced a good response. Those taking part were offered a £5 voucher of their choice (Amazon, printing, photocopying) plus entry into a draw for an iPod. The sessions themselves were set up to run between 11:00am and 4:00pm, and participants were invited to attend at any time during these hours. Those responding to the advertisement were asked to nominate an individual session they could attend and a time that would be most convenient to facilitate planning. However, a number of drop-in participants did also attend.

The level of response was particularly welcome considering the time of year, immediately before exams. The publicity for the sessions realised this and promoted the idea of taking a break to help develop future library search services. The sessions were also held in tandem with a parallel activity within the Library to test the usability of the Library website. Both this and the CREE user testing were advertised together to highlight the joining up of activities and allow participants to contribute to two areas of work alongside each other.

The user testing sessions themselves followed a set routine:

- The user was introduced to the work of the project and the purpose of the current exercise
- The user was invited to look at the native websites of the Internet search tools being used in the demonstrators, so that they might be able to compare their presentation and interaction within the demonstrators with their normal situation. All participants were invited to do this before attending to save time; drop-in participants were asked to start off with this exercise by way of familiarisation
- The user was asked to test out each demonstrator in turn, searching for any terms they wished in order to mimic a live environment
- After the user testing, the user was asked to complete a questionnaire (see Appendix A) and provide comments on their impression of the demonstrators and their use of the search tools within them.

An estimate of 30 minutes was given for completion of the user testing and questionnaire. This proved to be at the lower end of times taken by participants. Many took over an hour, but an average time of 45 minutes would have sufficed for most. Participants found the exercise a valuable one and many discovered search tools they had not previously come across before, an added bonus for themselves from taking part.

At all times during the user testing sessions a member of project staff was available to check any uncertainties about the questionnaire or the demonstrators. The member of staff was also able to record verbal comments made both during and after the questionnaire had been completed to supplement the questionnaire's findings. Gathering such comments was also intended to capture those aspects of the demonstrators that had struck participants as particularly interesting and/or useful or vice versa.

The full results of the user testing can be found in the associated spreadsheet available from the CREE website.

University of Oxford

A number of user testing sessions were organized in Oxford with both university staff and students. The user testing and interviewing took place at Oxford University Computing Services (OUCS), and were facilitated by two moderators, Adina Bradeanu and Gabriel Hanganu. Tony Brett, associate head of IT Support Services at OUCS, was responsible for the Oxford management of the CREE project.

The invitations to attend the testing sessions were publicised through staff and student e-mail lists, and included personalised invitations to the participants at the previous focus groups discussions. Six dates were provided for participants to attend, although in the end only four were chosen, and two were replaced with more convenient ones. On these dates the participants were offered the choice of dropping by at the OUCS at any time between 12.00 – 2.00 or 17.00 – 18.00. With one exception, all of them chose the lunchtime slot. The timing of the user testing (June-July), slightly beyond Oxford's 'active' academic year (especially for undergraduates), raised concerns about attracting participants. Indeed from the large number of staff and students targeted only a small number of staff and students agreed to take part (two staff and six students), all of them previous participants in the focus groups. As incentives the participants were offered £10 Amazon vouchers and entry into the draw for an Apple iPod. The follow-up interviews were recorded in order to enable an accurate transcription of the participants' views.

The sessions were held in a small conference room at the OUCS provided with two laptops for trying out the demonstrators. Each session began with an introduction on the aims of the testing, outlining the confidentiality aspects of the research, and addressing the practicalities of feedback collecting. The participants were asked to read and sign the consent forms provided in the questionnaire, then were invited to proceed with the exercise as instructed. Whenever necessary the facilitators offered assistance with using the demonstrators and filling in the questionnaire.

After completing the questionnaire the users were invited to attend short semi-structured interviews, the aim of which was to supplement the feedback acquired with information on less quantifiable topics that required in-depth research. A set of interview prompters was employed on this purpose (see Appendix B). After about 20 minutes the participants were offered the chance to raise any other matters untouched upon, and make final comments.

Three members of the university staff and six students attended the Oxford user testing sessions. The organisers' sustained efforts to gather more participants were hampered by the period of the academic year, as most staff and students were either busy with the last series of exams, or have already left Oxford for the summer break. Although the number of attendees was relatively small, their mixed academic profile resulted in a fair range of views on the issues discussed.

Based on the key issues addressed in the questionnaire, and the level of interest shown by the participants, five main areas for discussion were identified:

1. The main positive/negative impressions while testing out the demonstrators
2. The contexts in which the demonstrators were embedded (web/VLE/portal)
3. The search tools included in the demonstrators
4. The online environments to which the demonstrators were associated
5. The presentation of search results

During the interviews the participants were prompted with a number of general questions, but at the same time they were encouraged to bring to the fore other issues that occurred during the natural flow of the conversation. In the conclusion of the interview each participant was offered the chance to comment on aspects that had not been touched upon.

Newark and Sherwood College

Recruitment of participants at Newark and Sherwood College during April and May proved to be problematic as this was exam time and both staff and students were very busy. Organisation and attendance of user testing sessions proved not to be possible to fit within the timetable and an alternative methodology was put in place. The questionnaire was sent out to a number of identified participants by members of College staff assisting in the organisation of the user testing. Participants were invited to complete the questionnaire in their own time. They were then invited to attend a focus group-style meeting where the results of the questionnaires were discussed and any queries answered.

The project had built three demonstrators, and the questionnaire placed quite a lot of emphasis on the third of these, the institutional portal, as there were a greater number of issues to cover here. It was felt, however, that as an institution where staff and students had no experience of such a portal that such questions would not produce valid results, answers being based largely on theoretical views and guesswork. In order to facilitate completion of the questionnaire, a simplified and shorter version was thus sent out (see Appendix C). In the end, this was completed in pairs rather than individually in many cases, results representing joint or common views amongst those participating. Hence, in total three staff and 14 students took part, with the

students completing 10 questionnaires between them. Participants were offered the incentive of a £10 Amazon voucher plus entry into the draw for an iPod.

Key to results

Full results are available in the accompanying spreadsheet available from the CREE project website.

Results included in this report are provided to demonstrate the main findings and differences between staff and students in their perception of the demonstrators and different contexts these represent. Colour highlighting is used to emphasise majority results and the primary differences between staff and students in the results from the University of Hull. The colours used are as follows:

In the overall results tables

- The highest mark for that category
- The highest mark where two or more options have the same mark

In the staff/student tables

- Highlights differences between staff and students of >10% for questions not related to an individual demonstrator
- Highlights differences between staff and students of >10% for the local web page demonstrator
- Highlights differences between staff and students of >10% for the online learning environment demonstrator
- Highlights differences between staff and students of >10% for the institutional portal demonstrator

Categories are only included within the staff/student tables where there is a >10% difference between preferences and marks expressed and where this is indicative of a major difference of opinion between staff and students.

University of Hull

Results and findings

Questionnaire introduction

Q1. Which type of search tools have you used before?

This question was asked to gather background information on the participant's search experience and background. Subsequent answers should bear these figures in mind.

	Daily	Weekly	Monthly	Less than monthly	Never use	Did not know
Library catalogues (e.g., the University of Hull)	47.8%	41.3%	2.2%	6.5%	2.2%	-
Internet search engines (e.g., Google)	84.8%	13.0%	2.2%	-	-	-
Bibliographic databases (e.g., zetoc)	6.5%	26.1%	15.2%	23.9%	2.2%	26.1%
Subject resources (e.g., ArchSearch)	4.5%	9.1%	29.5%	15.9%	13.6%	27.3%
Reference resources (e.g., Dictionary.com)	13.0%	21.7%	21.7%	23.9%	4.3%	15.2%
Web resources (e.g., the RDN)	8.7%	17.4%	10.9%	23.9%	6.5%	32.6%

Table 1. Q1 overall results (showing highest proportions in yellow)

The results of Question 1 overall are quite revealing in there own right, but match other experiences and findings on current usage of Internet search tools. There is high regular use of the library catalogue and extremely high use of Internet search engines on a daily basis. Use then tails off for the other resources. Bibliographic resources are clearly used fairly regularly by those who know about them, though there is also quite a proportion that do not. There is a similar case for the use of subject resources, though this is also tempered by whether particular subjects had subject resources available to them for searching. There were a lot of verbal comments indicating that Dictionary.com was well known, and usage of this and similar resources appears to be at a steady rate. Use of search tools for web resources, though, was very low, and this indicated a lack of awareness of the RDN and related collections of web resources available for searching as it did usage.

The figures are slightly affected by whether the participant was a member of staff or a student. There was no different for library catalogue or Internet search engine usage, nor for reference resources, but there was some variance elsewhere.

	Daily	Weekly	Monthly	Less than monthly	Never use	Did not know
Bibliographic databases	6.3%	37.5%	25.0%	18.8%	-	12.5%
Subject resources	-	18.8%	43.8%	18.8%	12.5%	6.3%
Web resources	6.3%	18.8%	18.8%	37.5%	12.5%	6.3%

Table 2. Q1 results for staff covering bibliographic databases, subject resources and web resources

	Daily	Weekly	Monthly	Less than monthly	Never use	Did not know
Bibliographic databases	6.7%	20.0%	10.0%	26.7%	3.3%	33.3%
Subject resources	7.1%	3.6%	21.4%	14.3%	14.3%	39.3%
Web resources	10.0%	16.7%	6.7%	16.7%	3.3%	46.7%

Table 3. Q1 results for students covering bibliographic databases, subject resources and web resources

This appears to indicate that staff are more aware of the search tools available to them and that they use them on a fairly regular basis. Many students, however, are just not aware of many of the bibliographic databases, subject resources or web resources search tools available to them.

Comments on this section

Comments on this introduction part of the questionnaire were brief and limited in number. However, one or two salient points did arise:

- One of the students simply indicated that they prefer Google, a common verbal comment made amongst participants
- One member of staff indicated that with all the available resources the challenge was finding the time to keep up-to-date and do the searching in the first place
- Another member of staff wrote that their search strategy tended to start with Google before moving onto more specific databases; the library catalogue was used, but only later when looking for a specific book or journal
- A third comment reflected that different resources and search tools would be useful at different times

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The following sections offer the combined results from the equivalent question asked for each demonstrator. This allows comparison between the three demonstrators and an overview of participants' reaction to them. Demonstrator-specific questions and written comments relating to each demonstrator are reported following this comparative section.

Q. How did you find using the different search tools in this context?

This was Q2 in the questionnaire in the section on the local web page demonstrator
This was Q9 in the questionnaire in the section on the online learning environment/VLE demonstrator
This was Q15 in the questionnaire in the section on the institutional portal demonstrator

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	72.3%	25.5%	2.1%	-	-
Google	83.0%	12.8%	4.3%	-	-
zetoc	50.0%	22.7%	15.9%	9.1%	2.3%
ArchSearch	38.3%	31.9%	25.5%	2.1%	2.1%
Dictionary.com	68.1%	25.5%	6.4%	-	-
RDN	54.3%	30.4%	13.0%	2.2%	-

Table 4. Q2 overall results

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	75.6%	20.0%	4.4%	-	-
Google	71.1%	13.3%	15.6%	-	-
zetoc	54.5%	22.7%	11.4%	9.1%	2.3%
ArchSearch	39.5%	34.9%	18.6%	4.7%	2.3%
Dictionary.com	62.8%	27.9%	7.0%	2.3%	-
RDN	53.5%	27.9%	16.3%	2.3%	-

Table 5. Q9 overall results

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	37.8%	15.6%	24.4%	15.6%	6.7%
Google	40.9%	27.3%	20.5%	9.1%	2.3%
GetRef	23.1%	30.8%	20.5%	17.9%	7.7%
Heirport	18.6%	23.3%	20.9%	32.6%	4.7%
Dictionary.com	40.9%	34.1%	18.2%	4.5%	2.3%

Table 6. Q15 overall results

These overall results reveal a number of issues. Firstly, the difference between the local web page and online learning environment demonstrators is minimal. This is presumably because using the search tools in both was essentially the same experience and many participants commented that they just did the same thing. However, participants were conscious of the difference in context and this was

recorded elsewhere in the questionnaire. The other main issue to arise is that participants found using the search tools in the institutional portal less easy overall. This may well be due to the unfamiliarity of the interface being presented (certainly, even the use of Google and Dictionary.com was found to be less easy, although they both behaved exactly the same way as in the other two demonstrators) and the look and feel of the portlets and services on offer (which were, and still are, works in progress). Nevertheless, over 50% of participants found most of the institutional portal search tools still easy or very easy to use.

The differences between staff and student were striking in a number of places. For the local web page demonstrator the notable exception was the library catalogue, which staff and students found equally easy to use. Highlights are given where the difference is greater than 10%.

	Very easy	Easy	OK	Difficult	Very difficult
Google	88.2%	-	11.8%	-	-
zetoc	75.0%	6.3%	12.5%	6.3%	-
ArchSearch	52.9%	11.8%	29.4%	-	5.9%
Dictionary.com	76.5%	11.8%	11.8%		
RDN	68.8%	12.5%	18.8%	-	-

Table 7. Q2 results for staff covering all bar the library catalogue

	Very easy	Easy	OK	Difficult	Very difficult
Google	80.0%	20.0%	-	-	-
zetoc	35.7%	32.1%	17.9%	10.7%	3.6%
ArchSearch	30.0%	43.3%	23.3%	3.3%	-
Dictionary.com	63.3%	33.3%	3.3%	-	-
RDN	46.7%	40.0%	10.0%	3.3%	-

Table 8. Q2 results for students covering all bar the library catalogue

In general, staff seemed to find using the search tools in the local web page demonstrator easier than students did. This may be to do with the relative familiarity with such types of tools (as shown in Q1).

One participant commented that the zetoc interface had too much information on it and that the font was uneasy on the eyes. More than one participant commented that the agreement to terms and conditions of use screen displayed when using ArchSearch was slightly off-putting and distracting.

For the online learning environment demonstrator there was greater equanimity of usage between staff and students, though the same issue arose with most staff finding the tools very easy to use but with similar levels of difficulty arising for a small number.

	Very easy	Easy	OK	Difficult	Very difficult
Google	81.3%	-	18.8%	-	-
zetoc	56.3%	12.5%	25.0%	6.3%	-
ArchSearch	46.7%	13.3%	33.3%	-	6.7%

Table 9. Q9 results for staff covering the Google, zetoc and ArchSearch search tools

	Very easy	Easy	OK	Difficult	Very difficult
Google	65.5%	20.7%	13.8%	-	-
zetoc	53.6%	28.6%	3.6%	10.7%	3.6%
ArchSearch	35.7%	46.4%	10.7%	7.1%	-

Table 10. Q9 results for students covering the Google, zetoc and ArchSearch search tools

One comment about the display of the results in the RDN within the online learning environment demonstrator was revealing of the contrast between methods used for this. Assuming that the RDN results had similarly been displayed in a new window (like most of the other search tools) the participant had closed down the results page expecting to see the demonstrator behind it. The RDN is set to use the same window as the search tool, and so access to the demonstrator was lost.

For the institutional portal demonstrator most students tended to find the search tools easier to use, though there was a wide spread of views. More students also tended to find the search tools very difficult to use, for instance.

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	31.3%	31.3%	12.5%	18.8%	6.3%
Google	46.7%	13.3%	20.0%	13.3%	6.7%
GetRef	13.3%	46.7%	6.7%	33.3%	-
Heirport	6.3%	31.3%	25.0%	37.5%	-
Dictionary.com	33.3%	33.3%	20.0%	6.7%	6.7%

Table 11. Q15 results for staff

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	41.4%	6.9%	31.0%	13.8%	6.9%
Google	37.9%	34.5%	20.7%	6.9%	-
GetRef	29.2%	20.8%	29.2%	8.3%	12.5%
Heirport	25.9%	18.5%	18.5%	29.6%	7.4%
Dictionary.com	44.8%	34.5%	17.2%	3.4%	-

Table 12. Q15 results for students

Q. The results from using different search tools are presented in different ways. How useful are these different methods?

This was Q3 in the questionnaire in the section on the local web page demonstrator
This was Q12 in the questionnaire in the section on the online learning environment/VLE demonstrator
This was Q17 in the questionnaire in the section on the institutional portal demonstrator

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like lib catalogue)	48.9%	38.3%	6.4%	6.4%	-
In the same window (like Google)	19.1%	25.5%	14.9%	34.0%	6.4%
In the same web page (like the RDN)	29.8%	38.3%	19.1%	10.6%	2.1%

Table 13. Q3 overall results

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like lib catalogue)	47.8%	34.8%	10.9%	4.3%	2.2%
In the same window (like Google)	11.6%	25.6%	18.6%	32.6%	11.6%
In the same web page (like the RDN)	22.2%	46.7%	22.2%	8.9%	-

Table 14. Q12 overall results

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like Dictionary.com)	40.0%	42.2%	11.1%	4.4%	2.2%
In the same window (like Google)	11.4%	27.3%	13.6%	36.4%	11.4%
Within the portal (like the lib catalogue)	24.4%	35.6%	22.2%	11.1%	6.7%

Table 15. Q17 overall results

The most popular and useful method for displaying results is clearly presenting these within a separate window, allowing access to both the results and the original search box/tool by flicking between these. This is the case in over 80% with all three demonstrators and matches current practice as suggested during the CREE focus groups, where users expressed a clear preference for having a number of windows open and flicking between them. Comments backed this up: a separate window allows you to change from one results window to another to compare results; and it allowed you to minimise separate windows and keep them open.

It is interesting to note, though, that this clear preference does not necessarily preclude use of the other options as well. A small but vocal minority found having

the results displayed in the same window useful, though this was the option also found most unuseful by participants. There was also quite a high appreciation for the ability to display the results within the same look and feel of the search tool, whether using the RDN or the portal – 60% or more found this method useful or very useful. One commented downside of the RDN approach, though, was that although the search results displayed in the same look and feel, clicking on any of the URL links in the results led to the new site being displayed in the same window, losing the advantage gained. One participant was also concerned that the layout of the portal could have a deleterious effect on the display of results, depending on which portlets were present on the page.

There is clearly a high degree of personal preference being shown here, and there is also obviously no quick win for system designers trying to please everyone. However, the majority would seem to prefer the use of multiple windows. The comment made about the RDN in Q9 also suggests that consistency is important so as not to confuse the user.

There were no major differences in opinion between staff and students. The most notable difference revealed that it was staff where the majority of those preferring the same window for display of the results lay. This may reflect existing and long-standing practice of using a single browser window when compared to students, but it is factor that would need considering when planning such services.

Q. How useful would it be to have search tools like these presented through a local web page?

This was Q6 in the questionnaire in the section on the local web page demonstrator
This was Q13 in the questionnaire in the section on the online learning environment/VLE demonstrator
This was Q18 in the questionnaire in the section on the institutional portal demonstrator

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library catalogues	67.4%	26.1%	4.3%	2.2%	-
Internet search engines	58.7%	26.1%	8.7%	4.3%	2.2%
Bibliographic databases	47.8%	37.0%	6.5%	8.7%	-
Subject resources	43.5%	39.1%	13.0%	4.3%	-
Reference resources	34.8%	41.3%	17.4%	6.5%	-
Web resources	32.6%	41.3%	21.7%	4.3%	-

Table 16. Q6 overall results

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library catalogues	63.0%	23.9%	8.7%	4.3%	-
Internet search engines	45.7%	26.1%	17.4%	8.7%	2.2%
Bibliographic databases	47.8%	30.4%	19.6%	2.2%	-
Subject resources	47.8%	39.1%	10.9%	2.2%	-
Reference resources	47.8%	37.0%	13.0%	2.2%	-
Web resources	39.1%	37.0%	19.6%	2.2%	2.2%

Table 17. Q13 overall results

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library catalogues	57.8%	24.4%	13.3%	-	4.4%
Internet search engines	37.8%	26.7%	28.9%	4.4%	2.2%
Bibliographic databases	44.4%	37.8%	11.1%	4.4%	2.2%
Subject resources	35.6%	46.7%	8.9%	6.7%	2.2%
Reference resources	37.8%	33.3%	20.0%	6.7%	2.2%
Web resources	35.6%	31.1%	26.7%	4.4%	2.2%

Table 18. Q18 overall results

The results of these questions seem to suggest that there is very strong interest in having access to search boxes within different contexts. Over 80% would find access to the library catalogue in such circumstances useful or very useful across the demonstrators: there is a similar figure for subject resources, particularly if tailored to specific courses as one participant commented. Over 70% would find access to bibliographic databases and reference resources useful or very useful, 60% for web resources search tools. Internet search engines are the only category that shows any major change moving between demonstrators. Whilst considered very much as useful in the local web page (85%), it is not thought to be so useful in the online learning environment demonstrator (72%) or the institutional portal demonstrator (65%), although there is still clearly a majority of users who would find having such access useful. Whilst the most enthusiastic response was for presentation within an online learning environment, the local web page demonstrator received some of the highest levels of usefulness.

Some of these preferences were even stronger in one or other of the staff or student groups for two types of search tool in the local web page demonstrator. It is perhaps curious that there is a leaning towards bibliographic databases amongst some students, even if overall this type of search tool is found more useful by staff. The converse is true for web resource search tools amongst staff.

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Bibliographic databases	43.8%	50.0%	-	6.3%	-
Web resources	37.5%	31.3%	25.0%	6.3%	-

Table 19. Q6 results for staff bibliographic databases and web resource search tool types

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Bibliographic databases	50.0%	30.0%	10.0%	10.0%	-
Web resources	30.0%	46.7%	20.0%	3.3%	-

Table 20. Q6 results for students covering bibliographic databases and web resource search tool types

The differences were slightly altered for the online learning environment demonstrator, with the lower usefulness for Internet search engines in part due to the lower preference expressed by staff. The staff desire for access to web resource search tools remains high, though, with a greater percentage finding access to these useful compared to students within an online learning environment. The contrast between Internet search engines and web resource search tools possibly suggests that users are keen for a way to identify useful web resources without having to browse through the mass of results Internet search engines provide, even if many people start their searches using Google.

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Internet search engines	31.3%	37.5%	12.5%	12.5%	6.3%
Web resources	43.8%	37.5%	6.3%	6.3%	6.3%

Table 21. Q13 results for staff covering Internet search engines and web resource search tool types

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Internet search engines	53.3%	20.0%	20.0%	6.7%	-
Web resources	36.7%	36.7%	26.7%	-	-

Table 22. Q13 results for students covering Internet search engines and web resource search tool types

This comparative loss of usefulness of Internet search engines amongst staff is further exhibited in the institutional portal demonstrator. The preference for access to bibliographic students amongst students is also again evident. All other types of search tool are affected by staff caution in the potential usefulness of search tools in general within the portal, though overall both staff and students remain keen.

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Internet search engines	23.5%	23.5%	35.3%	11.8%	5.9%
Bibliographic databases	29.4%	52.9%	5.9%	5.9%	5.9%
Subject resources	23.5%	52.9%	5.9%	11.8%	5.9%
Reference resources	23.5%	41.2%	17.6%	11.8%	5.9%
Web resources	29.4%	35.3%	17.6%	11.8%	5.9%

Table 23. Q18 results for staff covering all search tool types bar library catalogues

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Internet search engines	46.4%	28.6%	25.0%	-	-
Bibliographic databases	53.6%	28.6%	14.3%	3.6%	-
Subject resources	42.9%	42.9%	10.7%	3.6%	-
Reference resources	46.4%	28.6%	21.4%	3.6%	-
Web resources	39.3%	28.6%	32.1%	-	-

Table 24. Q18 results for students covering all search tool types bar library catalogues

It is noticeable that there is a very small proportion of users who would find access to search tools in different contexts unuseful. It would be useful to examine further why this is the case and what their reasons are. Anecdotal evidence in passing suggests that such users prefer to recognise individual systems and websites for specific purposes: hence, searching is done through one location and other activities are carried out through another.

Q. If search tools were presented via a local web page, would you be more or less likely to use these there instead of at their home websites?

This was Q8 in the questionnaire in the section on the local web page demonstrator
This was Q14 in the questionnaire in the section on the online learning environment/VLE demonstrator
This was Q19 in the questionnaire in the section on the institutional portal demonstrator

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	39.1%	28.3%	26.1%	6.5%	-
Internet search engines	23.4%	23.4%	40.4%	10.6%	2.1%
Bibliographic databases	43.5%	30.4%	19.6%	6.5%	-
Subject resources	51.1%	27.7%	12.8%	8.5%	-
Reference resources	39.1%	26.1%	23.9%	10.9%	-
Web resources	31.1%	31.1%	26.7%	8.9%	2.2%

Table 25. Q8 overall results

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	37.8%	35.6%	17.8%	4.4%	4.4%
Internet search engines	20.0%	31.1%	26.7%	13.3%	8.9%
Bibliographic databases	44.4%	31.1%	11.1%	11.1%	2.2%
Subject resources	44.4%	35.6%	13.3%	4.4%	2.2%
Reference resources	40.0%	35.6%	15.6%	6.7%	2.2%
Web resources	31.1%	35.6%	17.8%	11.1%	4.4%

Table 26. Q14 overall results

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	28.3%	28.3%	23.9%	10.9%	8.7%
Internet search engines	17.4%	21.7%	26.1%	23.9%	10.9%
Bibliographic databases	28.3%	43.5%	15.2%	4.3%	8.7%
Subject resources	34.8%	37.0%	13.0%	8.7%	6.5%
Reference resources	26.1%	39.1%	15.2%	13.0%	6.5%
Web resources	23.9%	39.1%	17.4%	10.9%	8.7%

Table 27. Q19 overall results

The most interesting aspect of these results is the contrast with how useful participants in the user testing said they found the different types of search tools. From a figure of over 80% across all demonstrators finding access to the library catalogue useful or very useful, those likely or far more likely to use this access is down to between 56% and 73%. The figures for Internet search engines are even lower, at between 38% and 51%. While still good numbers (there were still more participants saying they would use them than not), when actually put on the spot about whether they would use the search tools, practicality and current practice has kicked in and initial enthusiasm seems to have waned.

However, the figures also show that it is only for certain search tool types that the figures have dropped considerably. Subject resource search tools are likely or far more likely to be used within the demonstrators by over 70%, with only the institutional portal registering anything like as big a drop as for library catalogues or Internet search engines. Bibliographic databases again receive over 70% support, showing no drop between the level of usefulness and likelihood of use. Reference resources would be used by over 65%, a small drop, and web resource search tools would be used by over 60%. Hence, certain search tools are favoured over others when it comes down to which ones would actually be used.

Looking at the figures for Q1, this likelihood of use is the converse of the level of previous usage of different search tool types. Commonly used tools like library catalogues and Internet search engines would not as popular to use when presented in different contexts than those search tools not previously used. Verbal comments reflected that this is partly explained by the lack of awareness of where to access such search tools. Participants know where the access the library catalogue, they know where to access Google. What benefit is there in accessing them in different contexts when I know where to access them anyway? Many did see this benefit, but clearly others were happy with how they currently used these search tools. For the other search tool types, anecdotal comments suggested that making these available within the online learning environment, within the institutional portal would

make users aware of them and provide a point of local access that could be easily referenced rather than having to go hunting for them on the Web. This was particularly the case with bibliographic databases and subject-specific resources, where many participants said they would love to know about relevant search tools for them in these categories, and direct access through a local context would assist with this. This does lead to the requirement that some selection of search tools to present needs to take place: where the responsibility for this role lies is uncertain.

Enthusiasm for the use of all search tools when presented within different contexts was, overall, high. The online learning environment received the highest vote for usefulness in presenting search tools, and also gains the highest preference on likelihood of usage. Students commented that having the search tools alongside their learning activities would be helpful; staff commented that presenting the search tools within an online learning environment might help to raise awareness of them and encourage their use.

Across the demonstrators both staff and students in their own responses highlighted the overall figures: staff were less likely to use Internet search engines within different contexts and students more likely on balance to use bibliographic databases, subject-specific resource, reference resource and web resource search tools. Staff in particular were also not as keen to use search tools within the institutional portal, though students had little hesitation.

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Internet search engines	11.8%	17.6%	41.2%	23.5%	5.9%
Bibliographic databases	41.2%	41.2%	11.8%	5.9%	-
Subject resources	41.2%	35.3%	17.6%	5.9%	-
Reference resources	29.4%	29.4%	29.4%	11.8%	-
Web resources	23.5%	41.2%	23.5%	5.9%	5.9%

Table 28. Q8 results for staff covering all search tool types bar library catalogues

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Internet search engines	30.0%	26.7%	40.0%	3.3%	-
Bibliographic databases	44.8%	24.1%	24.1%	6.9%	-
Subject resources	56.7%	23.3%	10.0%	10.0%	-
Reference resources	44.8%	24.1%	20.7%	10.3%	-
Web resources	35.7%	25.0%	28.6%	10.7%	-

Table 29. Q8 results for students covering all search tool types bar library catalogues

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Internet search engines	20.0%	13.3%	26.7%	20.0%	20.0%
Bibliographic databases	33.3%	26.7%	13.3%	20.0%	6.7%
Subject resources	33.3%	33.3%	13.3%	13.3%	6.7%
Reference resources	26.7%	33.3%	20.0%	13.3%	6.7%
Web resources	26.7%	33.3%	6.7%	20.0%	13.3%

Table 30. Q14 results for staff covering all search tool types bar library catalogues

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Internet search engines	20.0%	40.0%	26.7%	10.0%	3.3%
Bibliographic databases	50.0%	33.3%	10.0%	6.7%	-
Subject resources	50.0%	36.7%	13.3%	-	-
Reference resources	46.7%	36.7%	13.3%	3.3%	-
Web resources	33.3%	36.7%	23.3%	6.7%	-

Table 31. Q14 results for students covering all search tool types bar library catalogues

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	11.8%	35.3%	35.3%	5.9%	11.8%
Internet search engines	-	23.5%	23.5%	35.3%	17.6%
Bibliographic databases	11.8%	52.9%	23.5%	-	11.8%
Subject resources	11.8%	52.9%	23.5%	5.9%	5.9%
Reference resources	5.9%	47.1%	29.4%	11.8%	5.9%
Web resources	5.9%	47.1%	23.5%	11.8%	11.8%

Table 32. Q19 results for staff

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	37.9%	24.1%	17.2%	13.8%	6.9%
Internet search engines	27.6%	20.7%	27.6%	17.2%	6.9%
Bibliographic databases	37.9%	37.9%	10.3%	6.9%	6.9%
Subject resources	48.3%	27.6%	6.9%	10.3%	6.9%
Reference resources	37.9%	34.5%	6.9%	13.8%	6.9%
Web resources	34.5%	34.5%	13.8%	10.3%	6.9%

Table 33. Q19 results for students

As with the question on usefulness, there were a small number of participants who were against integrating search tools in different contexts and were far less likely to use them in these contexts. The reluctance of staff to use them within an online learning environment might be explained by the purpose of such tools being more targeted at students (though staff might also wish to search in such a context when preparing learning materials). Reluctance to use such tools in the institutional portal reflects as before the dividing up of purposes and roles between systems. Some commented suggested that the portal was seen as an administrative tool, and searching would not necessarily fit in alongside any of the other activities undertaken there. But this was the minority, and most did feel that they would use search tools if presented in these different contexts.

Q10. Would you prefer using search tools via a separate screen or alongside other search tools on the context of a VLE (the library catalogue is given as an example)?

Q16. Would you prefer using search tools via the Home page, via a separate screen or alongside other search tools on the context of an institutional portal (the library catalogue is given as an example)?

These two questions are specific to their demonstrator, but are seeking the same information. They are thus covered together here.

	Much preferred	Preferred	Either is fine	Would prefer not
Alongside others	39.5%	25.6%	16.3%	18.6%
On a separate screen	15.4%	17.9%	25.6%	41.0%

Table 34. Q10 overall results

	Much preferred	Preferred	Any are fine	Would prefer not
On Home page	22.0%	24.4%	19.5%	34.1%
Alongside others	35.7%	35.7%	11.9%	16.7%
On a separate screen	14.3%	26.2%	16.7%	42.9%

Table 35. Q16 overall results

There is a clear preference expressed here for using search tools alongside others within the online learning environment and institutional portal contexts (this question was not asked of the local web page as there were no obvious alternatives other than another website, covered by Q7). The demonstrators offered access to the same search tool (the library catalogue) in the places proposed in the questionnaire and participants were able to search in all these circumstances to see what the effect would be like. Whilst there are a small number of participants who favoured any of the options (and one other commented that having the library catalogue on the front page of the portal for quick reference would be useful), the preference for having all search tools together on one screen was very much the favourite. This has implications for screen layout and design, as the screen can get very crowded very quickly if too many search tools are presented alongside each other. One participant commented that in the portal you would have to limit access to 2/3 search tools to prevent the layout getting too cluttered. The screen tended to jump when returning search results, sometimes requiring a user to scroll down to see the results if the search tool was near the bottom of the original screen or the results list was long.

Within an online learning environment there was no real difference of opinion between staff and students (other than a slightly more even set of views amongst staff), but in the institutional portal, staff were more open to accessing search tools on the portal homepage and even less likely to want to use them via a separate screen.

	Much preferred	Preferred	Either is fine	Would prefer not
On Home page	20.0%	33.3%	13.3%	33.3%
On a separate screen	18.8%	12.5%	18.8%	50.0%

Table 36. Q16 results for staff covering Home page and separate screen options

	Much preferred	Preferred	Either is fine	Would prefer not
On Home page	23.1%	19.2%	23.1%	34.6%
On a separate screen	11.5%	34.6%	15.4%	38.5%

Table 37. Q16 results for students covering Home page and separate screen options

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Q11. Would you like search tools to be available separately or on the same screen as other VLE functionality (e.g., discussion forums, course materials)?

Q20. Would you like search tools to be available separately or on the same screen as other portal functionality (e.g., staff/student services, admin information)?

As with Questions 10 and 16, these two questions are demonstrator-specific but have a similar intention and are thus treated together here.

	Much preferred	Preferred	Either is fine	Would prefer not
On their own	24.4%	36.6%	17.1%	22.0%
Alongside other VLE functions	17.5%	22.5%	20.0%	40.0%

Table 38. Q11 overall results

	Much preferred	Preferred	Either is fine	Would prefer not
On their own	42.9%	28.6%	14.3%	14.3%
Alongside other portal functions	24.4%	12.2%	14.6%	48.8%

Table 39. Q20 overall results

For both the online learning environment and institutional portal, it would seem that accessing search tools on their own and not alongside other functionality is the preferred option. This is very strong for the portal. Although nearly a quarter of participants would prefer access alongside other portal functionality, matching the openness to having search tools on the Home page of the portal expressed in Q16, this figure derives mostly from student preferences and not staff, contrasting with the finding from Q16. This could possibly be put down to the interpretation of 'other portal functionality', which may not be regarded as the home page but functions elsewhere in the portal. However, further examination of this is warranted to clarify preferences.

The preference for accessing search tools on their own is also strong for the online learning environment, where participants would appear to prefer the search tools to be simply one of the functions available to them rather than have them directly presented alongside learning activities.

Q22. Would you be more or less likely to make use of relevant web pages, the VLE or the institutional portal if access to Internet search tools were available as one of the services on offer?

This question stands alone in its own right, but encapsulates a comparison between the three contexts presented through the demonstrators. It is thus included here as a conclusion to the comparison exhibited between the three contexts more widely through the previous questions.

	Far more likely	Likely	Wouldn't alter use	Not likely	Far less likely
Web pages	21.4%	31.0%	47.6%	-	-
VLE	30.2%	23.3%	41.9%	2.3%	2.3%
Institutional portal	31.8%	43.2%	22.7%	2.3%	-

Table 40. Q22 overall results

For over half the participants, having search tools as one of the services on offer would make it likely or far more likely for them to use the context in which they were delivered. The institutional portal would be used more by over 70% of participants if search tools were available. This very encouraging and suggests that the delivery of search tools within different contexts is very much a worthwhile aim and activity. A note of caution needs to be sounded, however. Nearly 50% of participants would not alter their use of local web pages or the VLE/online learning environment as a result of such additional functionality.

It is useful to read these results alongside those from the questions on the likelihood of use of search tools in different contexts (Q.8, 14 and 19). There, it appeared as if the local web pages and online learning environment were preferred. The figures for this question need to consider existing usage of the contexts presented to get a relative result. Local web pages and the VLE are widely used already. Hence, even if search tools were provided this would not necessarily increase usage, as these contexts are already being used. The institutional portal is perhaps not used as much, and although the likelihood of use of search tools within an institutional portal was not as high, their presence would clearly attract users to make use of this context more.

The figures need to be further considered by breaking down staff and student preferences. This shows that students would be drawn to using these contexts more than staff would, where there are enthusiastic individuals, but mainly those happy with the status quo. It is encouraging that both groups would use the institutional portal more if these additional search services were provided, though.

	Far more likely	Likely	Wouldn't alter use	Not likely	Far less likely
Web pages	35.3%	11.8%	52.9%	-	-
VLE	23.5%	11.8%	52.9%	5.9%	5.9%
Institutional portal	11.8%	47.1%	41.2%	-	-

Table 41. Q22 results for staff

	Far more likely	Likely	Wouldn't alter use	Not likely	Far less likely
Web pages	12.0%	44.0%	44.0%	-	-
VLE	34.6%	30.8%	34.6%	-	-
Institutional portal	44.4%	40.7%	11.1%	3.7%	-

Table 42. Q22 results for students

Local web page demonstrator section

Q4. Where the results are displayed at the home website of the search tool, would you prefer to carry out subsequent searches via the search boxes or via the home website?

This question, although applicable to all demonstrators, was asked just the once as it was anticipated that the response would be the same regardless of context.

	Much preferred	Preferred	Either is fine	Would prefer not
Search boxes	25.0%	18.8%	31.3%	25.0%
Home website	24.3%	13.5%	43.2%	18.9%

Table 43. Q4 overall results

This question revealed an almost equal split between the options on offer. The anticipated response was that the native website would be preferred once the user was taken there. However, it is clear from the responses that users saw equal value in using the alternative contexts in which search boxes were displayed as the starting point for searching. The largest preference was for either option, though this admittedly may reflect an uncertainty in how search tools in different contexts might be used in everyday life as opposed to a test environment such as this one.

Part of the equal level of responses was actually the result of differences between staff and students. Staff tended to have stronger feelings either way, preferring the native website rather more than the search boxes, though. Students were more easy-going, although keener to try the search boxes.

	Much preferred	Preferred	Either is fine	Would prefer not
Search boxes	10.0%	30.0%	30.0%	30.0%
Home website	30.8%	7.7%	30.8%	30.8%

Table 44. Q4 results for staff

	Much preferred	Preferred	Either is fine	Would prefer not
Search boxes	31.8%	13.6%	31.8%	22.7%
Home website	20.8%	16.7%	50.0%	12.5%

Table 45. Q4 results for students

One comment received indicated that the choice would depend on other factors than simply the presentation of the search tools. The availability of a search history facility would guide one participant, which is likely to be the native website.

Q5. There is a link on the main page to a set of links to other search tools and resources. Is the presentation of search boxes more or less useful than presenting these links?

Far more useful	Useful	Don't know	Not useful	Far less useful
36.2%	44.7%	12.8%	6.4%	-

Table 46. Q5 overall results

This one-off question referred to a link to the existing University of Hull Library Electronic Resources web pages. These, as with so many other academic library websites, currently present a series of links to external search tools presented largely through their native websites. Participants were asked whether or not such links are preferable to the presentation of search boxes, or vice versa. The response is a very encouraging one for the use of search boxes as a means of providing access to search tools. Participants commented that they found having direct access to search tools was more valuable and reduced the number of screens you had to click through to get to the resource elsewhere. This response was also in the context of presenting a full web page containing a number of search tools together, which was also considered to be very helpful as a way of bringing together different types of search without having to go hunting for them separately. This view was qualified by one participant, though, who registered that the provision of such a web page would probably not include all the useful ones for everyone, and could end up containing too many.

There is, thus, clear value to presenting search boxes, though further consideration would have to be given as to which ones and which audience was being targeted.

There was no difference of opinion between staff and students.

Q7. Bearing in mind your response to Q6, where would it be useful to present these search tools?

A specific question to the local web page demonstrator, this question sought to take participants outside the confines of the library-based demonstrator and consider other websites that might benefit from having search tools embedded within them.

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library website	64.4%	24.4%	6.7%	4.4%	-
Departmental website	33.3%	42.9%	14.3%	7.1%	2.4%
Personal website	17.1%	29.3%	34.1%	17.1%	2.4%
University website	28.9%	37.8%	22.2%	8.9%	2.2%
Other	See below				

Table 47. Q7 overall results

Whether biased by the demonstrator or not, the Library website was regarded by far as the most useful place to locate embedded search boxes. More than one person commented on how having a single URL they could go to access a range of search tools inside the University would be very useful indeed. Having said that,

departmental websites and the main University website were also considered as possible candidates, although there were also a number of comments about how unuseful this would be due to the confusion of information and options presented. Personal websites are not considered an option for many, partly due to the number of people who have these, and also possibly by the role such websites would have (presenting information to others rather than being used as a worksite).

Bearing in mind the stage of the questionnaire this question was asked (prior to the online learning environment and institutional portal sections), the suggestions given under 'Other' reflected these alternatives, with the local VLE system and portal suggested as options. A web page full of search boxes was also considered possibly useful as a homepage, providing easy access to a range of search tools as soon as the browser was launched.

Staff and student differences were quite different over a couple of the locations. Staff did not want to commit to using their departmental websites, though did on the whole consider this useful, almost reluctantly. They also had less desire to use the University website.

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Departmental website	-	73.3%	13.3%	6.7%	6.7%
University website	12.5%	62.5%	18.8%	6.3%	-

Table 48. Q7 results for staff covering Departmental and University website options

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Departmental website	51.9%	25.9%	14.8%	7.4%	-
University website	37.9%	24.1%	24.1%	10.3%	3.4%

Table 49. Q7 results for students covering Departmental and University website options

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Comments on this section

Comments on the use of the local web page demonstrator can be found in the results spreadsheet on the CREE website. Key themes to emerge from these were:

- The benefit of having a local web page location that can easily be referenced if specific web addresses are not known. One participant even said that they would use a local web page rather than the native website if the search would be as fast. The convenience of having an easy-to-access local site where searching could take place was welcomed.
- Having all the search tools on one page was also considered valuable, allowing searching of different resources and different types of resources.
- Some participants commented that they already used some search tools (notably library catalogues and Internet search engines) regularly via their native website and for additional functionality as well. They would be unlikely to change their established practice as a result. However, one

participant indicated they might change their homepage back from Google to a local search page.

- The presentation of search boxes in context (e.g., adding access to Law resources on the Law website) was considered valuable, as was personalisation (though this was more related to the portal).
- Explanations of the search tools would be required for efficient use, and there would need to be care taken to avoid the search tools being presented being the only ones then used (rather than a selection based on particular criteria).

Online learning environment demonstrator section

There were no specific questions only relating to the online learning environment demonstrator. Please refer to earlier sections for the questions related to this demonstrator. A number of comments were, however, made on the presentation of search tools in this context and they are reported below.

Comments on this section

Comments on the use of the online learning environment demonstrator can be found as part of the results spreadsheet available on the CREE website. Key themes to emerge from these were:

- The convenience of being able to search whilst in the online learning environment/VLE was a big point to come out. It would save time and also raise awareness of search tools that were not previously known about. Having a single location to go to for different searches was also welcomed.
- One participant did comment that they would use embedded search tools for academic work, but not necessarily for non-academic work. Another considered searching a separate activity to using a VLE and would focus their search activity outside this context.
- Staff members welcomed anything that broke down access barriers to using search tools and considered that presenting them within an online learning environment would prompt students to make use of them.

Institutional portal demonstrator section

There were no specific questions only relating to the institutional portal demonstrator, although subsequent questions in the questionnaire referred to both the cross-search functionality presented there and the use of RSS feeds within the portal. See these sections of the report for information on results gathered. Please also refer to earlier sections for the questions directly related to this demonstrator. A number of comments were also made on the presentation of search tools in this context and they are reported below.

Comments on this section

Comments on the use of the institutional portal demonstrator are available as part of the CREE user testing results spreadsheet, available via the CREE website. Key themes to emerge from these are:

- The home page of the portal was felt to be too cluttered, with too much information being presented in one place. It was interesting that the focus should be on the home page and not the page containing the search tools, although the home page is what is first seen and therefore the first image that sticks. It is acknowledged that the institutional portal demonstrator did have a cluttered home page, partly due to the look and feel used for the user testing, which had not itself been tested with users.
- A key element of searching in the portal was the jumpiness of the results, commented on a member of staff. When a search is carried out, the portal refreshes the whole page, returning the user to the top of the page afterwards. If the search portlet is halfway down the page, then additional scrolling is required each time to view the results. Presenting the search tools at the top of a portal page addresses this, but places limits on how many search tools can be effectively presented on one page.

Cross-searching section

Q21a. How useful is the ability to search multiple bibliographic resources using the GetRef search tool?

Very useful	Useful	Not important	Not useful	Very unuseful
32.5%	40.0%	15.0%	12.5%	-

Table 50. Q21a overall results

The GetRef search tool in the institutional portal demonstrator was one of the search tools adapted for presentation in this context using JSR 168 as an individual portlet. This offers a slight variant on the native website interface available at http://www.edina.ac.uk/getref/, making it more suitable for use within an institutional portal. Comments on this portlet are available in the 'Portlet comments' section of this report. The search tool itself offers the ability to search across a range of bibliographic databases. The portlet was configured to search across three such databases for the user testing sessions. This question was intended to examine the desire by participants to carry out such cross-searching, or metasearching as it is commonly referred to now. Attendees at the focus groups had welcomed this functionality as a means of saving time, though students in particular had expressed caution, their concern caused by the uncertainty of how the results would be displayed and the risk of receiving too many results to deal with.

The user testing showed that metasearching was largely welcomed as a function of search tools, with over 72% finding it useful or very useful. The same difference of views between staff and students again occurred, though, with staff being more in favour and students expressing some reserve. NB. Those taking part in the user testing overlapped with the focus group attendees by just three people.

Very useful	Useful	Not important	Not useful	Very unuseful
33.3%	53.3%	13.3%	-	-

Table 51. Q21a results for staff

Very useful	Useful	Not important	Not useful	Very unuseful
32.0%	32.0%	16.0%	20.0%	-

Table 52. Q21a results for students

Q21b. If a similar search tool was available that could search multiple resources in other categories, would you be more or less likely to use this instead of individual search tools?

This question sought to connect the use of cross-searching or metasearching with the different search tool types used within the demonstrators. How valuable is it to be able to search across many different resources in each of these?

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	22.7%	20.5%	27.3%	27.3%	2.3%
Internet search engines	22.7%	13.6%	36.4%	25.0%	2.3%
Bibliographic databases	31.8%	25.0%	34.1%	9.1%	-
Subject resources	34.1%	27.3%	29.5%	6.8%	2.3%
Reference resources	29.5%	27.3%	34.1%	9.1%	-
Web resources	27.3%	18.2%	45.5%	6.8%	2.3%

Table 53. Q21b overall results

The answer to the question asked appears to be a big indication that whereas cross-searching is a valuable activity and area of functionality that participants would use, they would not abandon the use of individual search tools, but would tend to use both equally according to need. Only for subject resources is a stronger preference for cross-searching indicated, although even here views are quite widely spread. But the use of cross-search tools is on the whole likely to be used as opposed to unlikely. It is interesting to note that the likelihood of cross-searching library catalogues or Internet search engines is lower than for other resources, mirroring the findings in earlier questions about the use of these two search tool types in different contexts generally.

The different staff and student preferences can explain some of theses findings. The increased preference for cross-searching subject resources is driven by staff when compared to their non-committal views on other types of search tool. The lower likelihood for cross-searching library catalogues is down to students, who may have less cause to access library catalogues outside of their own institution.

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	18.8%	25.0%	37.5%	12.5%	6.3%
Subject resources	31.3%	25.0%	37.5%	-	6.3%
Reference resources	18.8%	25.0%	50.0%	6.3%	-
Web resources	31.3%	12.5%	50.0%	-	6.3%

Table 54. Q21b results for staff, covering all search tool types bar Internet search engines and bibliographic databases

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	25.0%	17.9%	21.4%	35.7%	-
Subject resources	35.7%	28.6%	25.0%	10.7%	-
Reference resources	35.7%	28.6%	25.0%	10.7%	-
Web resources	25.0%	21.4%	42.9%	10.7%	-

Table 55. Q21b results for students, covering all search tool types bar Internet search engines and bibliographic databases

Comments on this section

Comments on the use of cross-searching can be seen in the results spreadsheet accompanying this report on the CREE website. Key themes to emerge from them were:

- The overwhelming feeling expressed in comments was an uncertainty about exactly why you would want to cross-search and the benefits of it. Were the multiple resources the right ones? Were they relevant enough? Was it user-friendly in its own right? Would the results be unwieldy? Introduction of any cross-search functionality would need to consider these issues to encourage users to make use of it.
- Having said that, the idea of cross-searching was also welcomed as offering a simpler and potentially more efficient and quicker way of searching.

RSS section

Q23. On the Home page in the institutional portal there is a newsfeed of headlines from the BBC in the left-hand column. Such newsfeeds are available for many general and subject-specific sources and can be delivered via web pages, VLEs, and institutional portals. How useful would you find such newsfeeds?

Q24. Bearing in mind your response to Q23, where would you find it useful to have the newsfeeds feeds displayed?

Although not part of the main body of questions on search tools, the presence of the BBC headlines newsfeed on the home page of the portal demonstrator (which was a copy of that used live at the University of Hull) offered the opportunity to gather some views on the use of RSS feeds, how valuable they are considered and what type of newsfeeds participants would find useful.

	Very useful	Useful	Not bothered	Not useful	Very unuseful
General newsfeeds (e.g., BBC)	22.2%	31.1%	31.1%	8.9%	6.7%
Subject newsfeeds (e.g., SOSIG[1])	30.2%	39.5%	23.3%	2.3%	4.7%
University newsfeeds (e.g., Library)	24.4%	53.3%	13.3%	4.4%	4.4%

Table 56. Q23 overall results

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library website	9.5%	26.2%	28.6%	26.2%	9.5%
Departmental website	14.6%	34.1%	26.8%	9.8%	14.6%
Personal website	12.5%	17.5%	37.5%	15.0%	17.5%
University website	19.0%	42.9%	28.6%	4.8%	4.8%
VLE	20.0%	35.0%	32.5%	2.5%	10.0%
Institutional portal	23.3%	46.5%	20.9%	4.7%	4.7%
Other	See below				

Table 57. Q24 overall results

Newsfeeds appear from these results to be a welcome feature. Of the suggestions made for the types of newsfeed available, only the BBC newsfeed was commonly known by participants through the University of Hull institutional portal. This, oddly, received the lowest backing, with a number of participants commenting on its length and the fact that if they wanted the news they went to the BBC website. Subject newsfeeds were seen as potentially very useful, though few knew of any newsfeeds specific to their subject. Interestingly, it was University newsfeeds (where the Library was given as an example) that received the highest backing, indicating a desire for greater intra-institution communication.

[1] SOSIG, the Information Gateway to web resources for the social sciences. See http://www.sosig.ac.uk/about_us/rss.html for details.

The General and University website indications were backed by the staff student split and revealed that it was staff who felt most strongly about these two preferences than students.

	Very useful	Useful	Not bothered	Not useful	Very unuseful
General newsfeeds (e.g., BBC)	17.6%	17.6%	35.3%	17.6%	11.8%
University newsfeeds (e.g., Library)	17.6%	70.6%	5.9%	5.9%	-

Table 58. Q23 results for staff covering all bar the subject newsfeeds option

	Very useful	Useful	Not bothered	Not useful	Very unuseful
General newsfeeds (e.g., BBC)	25.0%	39.3%	28.6%	3.6%	3.6%
University newsfeeds (e.g., Library)	28.6%	42.9%	17.9%	3.6%	7.1%

Table 59. Q23 results for students covering all bar the subject newsfeeds option

Moving on to Q24, considering the preference expressed for University newsfeeds, making these available through the Library website was not favoured, indicating that it was not library newsfeeds that participants had in mind when responding Q23. Likewise, and in keeping with the responses to Q7 on the presentation of embedded search boxes, personal websites do not receive as much backing as other locations. All the other locations received around 50% support as either useful or very useful places to position newsfeeds. The highest mark was for institutional portals, indicating that the presentation and dissemination of news is a role associated with the portal by participants.

One participant was a fan of the Sage RSS reader that can be used as a plugin for Firefox and proposed this as a location to surface newsfeeds. This use of a specialist newsfeed reader was not covered by this questionnaire as it was out of scope. However, a more detailed assessment of RSS usage would need to compare presentation of RSS newsfeeds across both websites and specific RSS readers to get a fuller picture.

Staff and student differences on their preference for location were striking at times. Staff favoured the library website more (presumably showing a preference for library-based RSS), but were cautious about using departmental websites, but more positive about the portal. Students, on the other hand, were perhaps more open to accessing newsfeeds via their own personal website.

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library website	6.3%	43.8%	12.5%	37.5%	-
Departmental website	-	46.7%	13.3%	20.0%	20.0%
Personal website	12.5%	18.8%	18.8%	25.0%	25.0%
Institutional portal	12.5%	62.5%	18.8%	6.3%	-

Table 60. Q24 results for staff covering all bar the University website and VLE options

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library website	11.5%	15.4%	38.5%	19.2%	15.4%
Departmental website	23.1%	26.9%	34.6%	3.8%	11.5%
Personal website	12.5%	16.7%	50.0%	8.3%	12.5%
Institutional portal	29.6%	37.0%	22.2%	3.7%	7.4%

Table 61. Q24 results for students covering all bar the University website and VLE options

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Comments on this section

Comments of the possible use of RSS feeds are available as part of the results spreadsheet accompanying this report. Key themes to emerge from them were:

- The benefit of contextualised newsfeeds was felt to be greater than more general ones. This points more to the use of RSS readers over displaying RSS newsfeeds via websites, as it is then easier to contextualise and personalise the newsfeeds provided.
- One student commented that the most valuable newsfeeds are those that provide institution-specific information, as information available via others, such as the BBC, can be found elsewhere instead.

Portlet comments

Participants in the user testing sessions were invited to provide additional comments on the individual portlets available through the portal demonstrator. These are available in full in the accompanying spreadsheet, and summarised here by portlet.

Library catalogue portlet (delivered using the JAFER toolkit portlet)

Users generally found the portlet easy to use, appreciating its immediate availability within the portal.

The library catalogue was very useful. It helped me find what I was looking for very easily.

On the other hand, others found the portlet either difficult to use or not the type of service they would use, either due to design or preference for the native interface of the library catalogue.

I prefer the layout and design of the library catalogue where it is now, and I'd normally access it via one university homepage.

The design of the portlet, its look and feel, would clearly require attention for any live service.

Great. Bolding of title and separation of title/author would help scanning (of results). Book (logos) and underlining distract - bold and colour better for scanning. Text labels useful for (navigation) icons - they are not altogether clear.

The level of detail available in the results was frequently commented upon. The records returned were fairly basic in their structure, and greater detail was requested, especially holdings and availability.

The results should be fuller and the complete library result.

The functionality that was well used within the native interface of the catalogue, e.g., holds, advanced search, was also requested.

The "HOLD" book function is lost, it is the MOST IMPORTANT function as a student.

Easy to use, however more options such as advanced search, keywords search etc. as is found on the library homepage would be more useful.

Some wondered whether it would be worthwhile simply taking the user to the native interface for the display of results (following a thin portal approach), as then the level of detail required would not be lost.

After searching it would be better to go to the usual results page of the library catalogue, where you can see the location of the book and whether it is available.

This balance between increasing availability and maintaining access to functionality will be key in developing the library catalogue portlet into a live service.

The library portlet had been presented on the portal demonstrator's home page, alongside other search tools and on a screen of its own. The home page location was not favoured, nor was the use of multiple locations (which were set up for the test).

On the (portal) homepage far too confusing to use; OK on own tab and works well here.

It also seems pointless to have the catalogue available on two pages.

There remains the possibility of providing a link to the native interface and allowing the user to have both the portal and native interface open in separate windows, for use as required.

Prefer it to open in a separate window. Would also be useful if the library cat pages were open so I could use the full search options after the initial search in title/author.

HEIRPORT portlet

Many comments made on the HEIRPORT portlet reflected the fact that archaeology was not the subject of participants, and this did affect the responses to the portlet. As with the library catalogue portlet, there were mixed views taking this into account.

Not my discipline! But seems okay.

Found this hard to figure out but have never used before. Liked the icons and labels combo. Layout good and usable.

Home search page seemed unfamiliar. Not as easy to use as Heirport previously when presented elsewhere.

There was also a distinction between those who found the search interface complicated and those who liked the approach taken and way the portlet worked.

Heirport's search method was slightly confusing. Instead of a simple screen it had a "what, where, and when" search that felt over complicated.

I've never used this before but using it in this way was easy and simple to understand even as a first time user.

The level of detail did cause some confusion, though this was largely due to a lack of explanations that might be further added to the portlet to assist users.

Lack of descriptions of target databases is confusing, although perhaps unnecessary for experts in the field. Help or information/directions page would be useful, at least as an optional link.

The speed of searching was also commented on, a known limitation with the use of Z39.50 against certain targets.

Unfortunately, even the 'fast' databases weren't particularly fast.

In principle, though, the concept of having a subject-specific search tool available in the portal was welcomed, even if this needed to be targeted closely to the individual.

Something subject specific is useful on the portal because it can be a central location for searching subject work.

I would prefer a subject-specific engine for my course, taylor-made (sic) for me.

GetRef portlet

In keeping with the varied responses to the portlets and the portal environment overall, comments on the GetRef portlet were mixed, though largely favourable in nature. Ease of use again topped the comments being made, and on the whole participants did find GetRef easy to use.

I liked this, it was easy to use and looked nice.

Simple and functional.

As suggested in the first of these comments, the design and layout was much appreciated for this portlet.

I liked how it was laid out.

I liked the layout, have no preference for improvement.

Notwithstanding this, a frequent comment related to the need to log in to the portlet/GetRef service using ATHENS before searching could take place. This was considered a barrier to use.

Having to sign in before being able to access the search was frustrating, especially for a quick search. Would be less likely to use the search if ATHENS sign in was required.

Would be better if logged into ATHENS when log into portal, then could do direct search.

The balance between simple and detailed searching was also raised, as well as the lack of information about the databases being searched.

Need an explanation of each database and its content. Very simple search options - could be a limitation for experienced users or those wanting to carry out precise searches.

Interestingly, some participants could not see a use of the service, perhaps reflecting the doubt about cross-search services expressed in the questionnaire results.

Not sure I have a lot of use for this.

The additional functionality provided by the GetCopy link was also sought by participants (this functionality was unavailable at the time of testing with some participants).

Would be nice to be able to link to full article through either library catalogue or ATHENS.

General comments

A number of the comments made related more to the generic use of the portlets and the way they worked. The positioning of the library catalogue portlet on the portal home page has already been commented on. Having search tools together on the same page was considered a useful way of presenting them.

It was good that all the options are presented on the same screen. The more links you go through the more frustrating it becomes.

The use of individual tabs was not favourably compared to this.

Portal very busy page - different pages for specific searches seems odd.

Not surprisingly, the issue of customisation came up, in order to better suit individual needs.

The site should have a customisable toolbar down one side as different people use very different tools.

Notwithstanding the preference for having multiple search tools on the same page, there were quite a few comments about results causing the page to jump, in part due to refresh screen that is required whenever a portal screen changes.

Didn't like results in portal - horrible - makes the screen jump.

After searching, it would also be good to be able to get back to the starting search point for each portlet so a user could start again.

It would be great to have a single button to get us back to the beginning/clear search.

For effective use of search results, effective output options are also required, the notepad extension in the HEIRPORT portlet being a simple example. Help would also be appreciated, as clearly stated in comments on individual portlets as well.

Output options would need to be available, e.g., email, browser-friendly printing. Help options would be useful.

Finally, although the options for individual portlets (minimise, detach, close etc.) were not mentioned or advertised, where participants found these they very much liked the control they gave them.

The options [for the portlets] are great (minimise, close etc.).

I would like this in a separate window so I don't lose it (then noticed you could detach portlet).

Portlet functionality focus groups

In addition to the user testing carried out, two focus groups were held to highlight some of the additional portlet functionality that had been developed by the CREE technical partners. Much of this functionality had not been addressed in the user-testing questionnaire as this focused very much on search. These focus groups offered an opportunity to discover whether the additional functionality built into the portlets (both real and proposed) was valuable to users.

The focus groups took the format of an introductory presentation on the work of CREE followed by a demonstration of each of the specific areas of functionality to be covered. Comments were invited after each demonstration. The discussion covered many general areas related to searching and how this should be made available as well as comments on the specific functionality being shown.

The functionality demonstrated was as follows:

- The ability to locate an article after finding it within GetRef using the "Attempt to locate article" button, which invokes the GetCopy service
- The ability to display results alongside the search page, including results from different resources searched at the same time (as demonstrated using a JAFER screenshot)
- The ability to display information in more than one portlet to facilitate display and access to different sources of information (provided by the map extension to the HEIRPORT portlet)
- The ability to export references once they have been found (provided by the notepad extension of the HEIRPORT portlet)
- The ability to provide additional preferences and help within the portal (as provided by the Google portlet)

<u>The ability to locate an article after finding it within GetRef using the "Attempt to locate article" button, which invokes the GetCopy service</u>

This functionality becomes apparent when an abstract is displayed within the GetRef portlet. A button labelled "Attempt to locate article" is presented at the bottom of the abstract. Clicking on this pulls up a list of possible locations for the article. These locations include library catalogues for paper copies of the journal the article is in, and full-text journal resources. The user may choose to link on any one of these and are then taken to the individual service within a separate window. For the most part the user then has to search for the item in question again, as details of the article cannot yet be passed through automatically (the native GetCopy service can do this with some resources and not with others, dependent on the resource permitting deep linking).

The ability to link users from bibliographic resources to full-text resources was, overall, welcomed.

The more we can get closer to the content, the better.

But presenting a full range of possible full-text resources was found to be confusing, especially where this might include full-text sites that the local institution doesn't subscribe to. Having them in the list received a mixed response. Some favoured having them present, but with a more personalised or localised message making it clear why access had been rejected where this occurred. Others found that being told an item was available at another library, for example, wasn't helpful, though the localised service (searching the local University of Hull library catalogue) was valuable. In addition to this, available full-text resources and then locations that there is an inter-library loan link to would also be useful as options.

What would be more useful would be to be able to filter say by things that either we can get electronically in full-text, or that are in the library, or that I can then get on inter-library loan.

One participant even suggested that if the system could learn which resource was most applicable to an individual (through repeated use), this could then appear at the top of the list and would make linking more straightforward.

It was noted that when searching a service like EBSCO it is possible to access article directly. This contrasted with the option often presented by GetCopy of carrying out another search of the journal provider to locate a copy. The fact that the data on discovered items hadn't been passed onto, e.g., the Taylor & Francis service was met with some surprise, although it was accepted that GetCopy itself could not necessarily know institutional subscriptions.

It was recognised, though, that even when searching full-text resources such as ProQuest, not all journals are available in full-text.

So it cannot be sure that I can read the whole text from this search? Just like ProQuest, right, some have full-text, some just have abstract.

It was queried about whether the ATHENS login to the GetRef portlet would carry through into the full-text services where this was required.

<u>The ability to display results alongside the search page, including results from different resources searched at the same time (as demonstrated using a JAFER screenshot)</u>

This screenshot of the JAFER portlet demonstrated the possibility of how search results could be displayed in separate windows from the search itself. Currently, the search results replace the search box in the portlet display, whereas if JAFER is to search multiple resources (as it can), alternative results scenarios are required. The screenshot offers one possible solution, that of displaying search results in separate portlets (one resource per portlet) that are generated in response to the search. This is not yet possible using the current JSR 168 or WSRP specifications, but is offered as a possible future solution.

The separation of the search and results on the screen was generally welcomed. It was also recognised that there is a limit, though, to the number of resources that could

be searched without generating too many results portlets. Five or six would easily start filling up the screen.

On participant indicated a desire to select the priority in which resources were searched, and the results portlets displayed according to that priority. This fitted in a sense of personalisation that was also considered beneficial more widely in accessing search tools through an institutional portal.

The screenshot had suggested displaying results by the database/catalogue they were found in. This was not always considered the most useful way: for books it didn't matter which catalogue had them so long as a link to the item's holdings could also be accessed; for journals, though, the database had to be named in order to get some sense of authority about its origin.

But instead of listing results by resource, listing them by material type was considered a far more valuable way to help manage search results.

What matters is the type of resource, are these journals, are these books.

This was particularly relevant where a mixture of databases were being cross-searched.

<u>The ability to display information in more than one portlet to facilitate display and access to different sources of information (provided by the map extension to the HEIRPORT portlet)</u>

The HEIRPORT portlet allows the searching of a range of archaeological resources using Z39.50. After carrying out a search the brief results are displayed within the portlet. A 'map extension' has also been developed, which sits in a separate portlet alongside (i.e., it pre-exists, not generated). This is blank for the most part. If a user requests a detailed record, however, this is displayed in the map extension portlet, alongside a map showing where in the country the artefact in question was found.

The concept of having two portlets alongside each other to support the display of information discovered was welcomed, especially where a visual element might be included. An earlier discussion related to searching in general had raised the issue of visualisation of results, with regard to how much space this would take up or even save. The HEIRPORT dual portlet approach offered one possibility of achieving this, with the bonus of having not lost the original search.

But you haven't lost the original information. It's still on the screen and you can presumably click on another [brief results] and get it.

One example of more general use suggested was the possibility of having a PDF Preview portlet that could display the full-text when an abstract or reference was clicked on, where this was available. The ability to display thumbnails of images when searching an image database was also considered useful. Two portlets might also play a role in allowing access to different views onto resources, perhaps from teaching and research viewpoints to suit different roles.

It was noted that having the two portlets alongside each other was similar to the use of frames within plain HTML pages.

The ability to export references once they have been found (provided by the notepad extension of the HEIRPORT portlet)

The notepad extension allows a user to save results retrieved from the HEIRPORT portlet search to a separate file that can viewed. The file can then also be exported for later use, currently as an XML file, though consideration is being given to alternative formats using XSL transformations.

Exporting references was not a common activity amongst participants, who tended to use what they found and go back and find it again if they needed it. However, the value of exporting was recognised.

If you could export that kind of information of where it came from, something like that, that would help.

The possibility of using detached portlets to save references as you were going along was also raised, with each one then displayed in a separate window to refer to whilst writing a document, for example.

The ability to provide additional preferences and help within the portal (as provided by the Google portlet)

Each portlet has three modes: View, Edit and Help. The View mode is the one seen generally, in the case of Google the search box and results screens. The developers of the Google portlet made extensive use of the other two modes as well, though, offering configurable options through the Edit mode (e.g., language and number of results to display) and context-sensitive help through the Help mode. Such options can be offered for any portlet as required.

The use of Help in particular was considered valuable to support the use of portlets, especially where the service being offered was unfamiliar or where individual portlets are doing very different things (to help explain the role of each one). Help needed to be unobtrusive, though. It was noted, though, that at times Help could be hindered by having to have a minimum of knowledge to start before you can use it intelligently. Trial and error rather than using Help was proffered as a common solution.

The ability to customise the portlet fitted in with the general preference for personalisation.

Any sense you give people that that have some control over the way in which they manage the interface is going to give people that greater degree of confidence in it.

Newark and Sherwood College

Results and findings

The numbers of people taking part in user testing at Newark and Sherwood College was low (three staff, 14 students completing ten questionnaires). The results are not, therefore, valid for analysis in the same way as those from the University of Hull. Comments are provided based on the results given in the associated spreadsheet.

Questionnaire introduction

Q1. Which type of search tools have you used before?

Students were largely users of Google and Internet search engines over any other resource. This reflected the lack of availability to a certain extent, but also a lack of awareness of other types of tools. Some had come across reference search tools and had made use of these, though. Staff, on the other hand, were for the most part frequent users of a range of tools across the spectrum described in the questionnaire.

The following sections offer the combined results from the equivalent question asked for each demonstrator. This allows comparison between the three demonstrators and an overview of participants' reaction to them. Demonstrator-specific questions relating to each demonstrator are reported following this comparative section.

Q. How did you find using the different search tools in this context?

This was Q2 in the questionnaire in the section on the local web page demonstrator
This was Q7 in the questionnaire in the section on the online learning environment/VLE demonstrator
This was Q13 in the questionnaire in the section on the institutional portal demonstrator

Q2.

Students, not surprisingly, found using Google within the local web page demonstrator extremely easy, as this was a very familiar search experience for them. For the other tools there was a wide spread of responses from very easy through to very difficult. Those that were found to be easier overall were the library catalogue, Dictionary.com and the RDN. It is notable that these three, alongside Google, offer the simplest search interfaces, compared with zetoc and ArchSearch – they offer the opportunity to type in a term in a single search box and get results immediately.

Staff did find all the tools easy to use, with two clearly finding interaction with the demonstrator easier than one other.

Q7.

The students taking part in the user testing were not familiar with VLEs, and the feedback showed this, with even the use of Google being found difficult by one, even

though the presentation was the same as in the local web page. Only the library catalogue and Dictionary.com were still found to be relatively easy to use by half or more students.

Staff also felt the difference. Although they still found the tools relatively easy to use the response was less enthusiastic.

Q13.

The portal demonstrator offered a very different interface to the others. Half the students still found the library catalogue easy to use, and Google and Dictionary.com also received high marks (these were not JSR 168 portlets, but simply embedded search boxes as with the other two demonstrators). The GetRef portlet was unfortunately not available during this testing, but the HEIRPORT portlet was found to be quite difficult to use. Notwithstanding this, verbal comments suggested that if the equivalent to HEIRPORT was available in their subject they would welcome it: the structure and aim was thought a valuable one even if the example was not considered that usable.

Staff also found the search portlets harder to use than the search tools in the previous demonstrators, indicating difficulty with more than one.

Overall, it was clear that the local web page, the environment with which all participants were familiar, was the favoured option. Different environments were found to be more confusing and/or more difficult in general to use. It was notable, though, that those tools that remained the same in each demonstrator, Google and Dictionary.com, continued to have high marks, revealing a high level of usability of the tool itself regardless of the environment in which it is located.

Q. The results from using different search tools are presented in different ways. How useful are these different methods?

This was Q3 in the questionnaire in the section on the local web page demonstrator
This was Q10 in the questionnaire in the section on the online learning environment/VLE demonstrator
This was Q14 in the questionnaire in the section on the institutional portal demonstrator

Q3.

When responding to this question in the context of the local web page, by far the favourite response was to display the results in the same window, overwriting what was previously displayed (and relying on the Back button to navigate). All options (including the use of a separate window and use of the same web page) were found to be useful by at least some of the respondents, but use of the same window came out on top.

Staff responses suggested they were happy with all the proposed display options presented, offering positive responses for all three.

Q10.

The same conclusions and preferences were expressed in the context of the VLE demonstrator.

Q14.

Conversely, in the portal, more students preferred the use of a separate window. The use of the same window was also highly marked, but not as much. Display of the results in the portal (i.e., within the portlet) was not welcomed, with 6/10 expressing the neutral position of not being bothered about this approach.

Staff again tended to suggest they were happy with any of the option offered, although use of the same window was slightly preferred.

Overall the FE students in particular contrasted with those from HE in preferring to stick to the single window. This may just be a reflection on the individuals taking part, but may also be a reflection on the computing environment available at Newark and how participants found this to use, or a reflection on the general technique for browsing the web, which is often done entirely within the same window. It should be noted alongside this that the focus group at Newark earlier in the project had discovered that more students accessed computers from home than did staff.

Q. How useful would it be to have search tools like these presented through a local web page?

This was Q4 in the questionnaire in the section on the local web page demonstrator
This was Q11 in the questionnaire in the section on the online learning environment/VLE demonstrator
This question was not asked of this audience in the context of the institutional portal demonstrator. It was felt that the lack of awareness for such an environment would not allow an accurate response to this question.

Q4.

Notwithstanding the relatively low use of search tools amongst the participants, the enthusiasm for integrating tools of a variety of search types was high, with all categories receiving good support. The only slight dip was for bibliographic databases, which may not be seen as being as relevant to this audience but still received good backing. Verbal feedback suggested that this environment was the favourite one of the three amongst those taking part, and the results certainly suggest this.

Staff were, likewise, enthusiastic for the possibilities that integrating search tools locally offered.

Q11.

The differences highlighted between the local web page and VLE demonstrators in earlier questions were again evident here. Enthusiasm was again high for the integrating of search tools in this context. However, this enthusiasm was not was widespread.

Staff followed suit and expressed enthusiasm for integrating search tools within a VLE, but not as much as for a local web page.

In general, there was a keen interest and perception of value in taking advantage of this integration scenario and this extended across different types of search tools.

Q. If search tools were presented via a local web page, would you be more or less likely to use these there instead of at their home websites?

This was Q6 in the questionnaire in the section on the local web page demonstrator
This was Q12 in the questionnaire in the section on the online learning environment/VLE demonstrator
This question was not asked of this audience in the context of the institutional portal demonstrator. It was felt that the lack of awareness for such an environment would not allow an accurate response to this question.

Q6.

The findings from Q4 were mirrored in Q6, with high enthusiasm for actually making use of search tools in the context of a local web page. Greatest enthusiasm came for Internet search engines, subject resources and reference resources.

Staff gave a slightly more guarded response, indicating a likelihood for using such tools in the local web page environment, but just not as high as the students.

Q12.

The results for the VLE demonstrator revealed a common enthusiasm and likelihood for using search tools embedded within a VLE, but not as high an enthusiasm. In particular, the likelihood of using embedded bibliographic search tools was not considered high in this instance.

Staff, likewise, were just not as fussed about using search tools in this context.

The relative results may again be related to the context at Newark. There is no VLE in place as such, but there is Microsoft Class Server, which carries out some similar functions. Integrating search tools within this, though, is clearly not regarded as being of as much value as in the Newark website.

Q16. Would you be more or less likely to make use of relevant web pages or the VLE or the institutional portal if access to Internet search tools were available as one of the services on offer?

The interest in the use of local web pages was also revealed by this question, where students in particular indicated that they would use these resources more frequently if search tools were available within them. There was support also for VLE and institutional portal alternatives, but it was the web pages where the attention mostly lay.

The staff were split in their opinion of whether they would use the different environments more if there were search tools available. As such, the choice of

whether to use one or more of these environments was related to other factors as much as the addition of search services.

Local web page demonstrator section

Q5. Bearing in mind your response to Q4, where would it be useful to present these search tools?

This question focussed further on the location of the search tools whilst embedded within local web pages.

Students' main enthusiasm for which local web page search tools would be best situated in was for College website, closely followed by personal websites and departmental websites. The lowest backing was for the library website. It is presumed that the IT background at Newark and the current availability and usage of local web pages affects these results.

Two staff members both suggested the County website as an alternative location, presumably reflecting their use of this resource for other tasks and information already. This would be a good example of how taking the search tools to the user can assist staff/students in whichever environment that may be.

Online learning environment demonstrator section

Q8. Would you prefer using search tools via a separate screen or alongside other search tools on the context of a VLE (the library catalogue is given as an example)?

The response to this question offered a variety of opinions without any coming strongly to the fore. The use of search tools alongside each other was equally favoured and disliked, whilst the use of a separate screen for each search tool was mildly preferred.

Staff, on the other hand, mildly preferred siting search tools alongside others. Further investigations would be required to ascertain which option would be best.

Q9. Would you like search tools to be available separately or on the same screen as other VLE functionality (e.g., discussion forums, course materials)?

In contrast to the above result, the views on the siting of search tools alongside other VLE functions was much clearer. Students favoured having them on their own, with other VLE functions available elsewhere.

Staff took the opposite view, preferring to have search tools associated with other VLE functions. The difference between the use of the VLE for learning and teaching may have an influence here, leading to different emphases on the benefits the location of search tools offers.

Cross-searching section

Q15. If a search tool was available that could search multiple resources in the categories listed, would you be more or less likely to use this instead of individual search tools? For example, a tool that could search more than one library catalogue etc.

Most students could see benefits in searching more than one resource at the same time, though it was notable that most indicated likely use of such a cross-search tool rather than 'Far more likely'. Greatest enthusiasm lay in the ability to search across subject resources and reference resources.

Staff also gave the impression of finding the idea useful, though without completely committing to it. Greatest enthusiasm for the staff was for access to library catalogues and web resources in this way, seemingly related to finding resources to teach with.

University of Oxford

Results and findings

Main findings

The interviews organized with staff and students at the University of Oxford further detailed a number of themes addressed in the user-testing questionnaire. They revealed a number of issues that will need to be taken into account in the subsequent phases of adjusting and refining the demonstrators into full-blown products. Here are the main results of these discussions:

1. Main positive/negative user testing impressions

The participants unanimously welcomed the developers' effort of bringing a selection of search tools together, and highly valued what one of them termed 'the prospect of a one-touch resource centre'. They saw the benefit of being prompted with potentially useful new resources, and appreciated the concern for creating searching environments flexible enough to address the needs of various categories of users. However some participants considered that the final step towards 'a unique simple field for all searching' was still not made yet. Other criticism included the fact that the demonstrators were not built around the Oxford-specific library context, and on a more technical note, the annoying practice of repeatedly hitting the `Back` button after having checked the search results displayed in the same browser window.

2. Context of demonstrator integration (web/VLE/portal)

The portal-based tool was the most appreciated of the three searching environments tested. The users considered it superior in terms of customizability, ease of use, and possibility of tracking previous searches. The VLE demonstrator was seen as fairly flexible but with limited possibility to make a significant impact on the users' searching habits, due to the reduced local VLE activity and the cumbersome use of the tabs. The web-based demonstrator was perceived as less useful, fairly redundant, inflexible and rather complicated to navigate. Nevertheless several participants emphasised that beyond any structural or technical appreciation, their preference for one demonstrator or another depended to a large extent on their familiarity with the respective online tool.

3. Choice of demonstrator search tools

Locally specific search tools, such as library catalogues and bibliographic references, were found to be the most useful for integration within online tools, as they were usually the most difficult to locate and search by themselves. On the contrary, more widely accessible ones, such as web resources and Internet search engines, proved to be less appealing to the users. In addition to selecting the most appropriate search tools, the participants were equally concerned with issues related to presentation, customization, and added value of the demonstrators. They wished to be able to add to the screen various search tools depending on the kind of search they performed, and at the same time to avoid the cluttering of the screen with too many search boxes. They were also aware of the added value of getting various search tools together, and

were interested in exploring specialized filtering in order to get the most relevant results to their particular contexts first, before the more general ones.

4. Associated online environment

Searching was mainly associated by the interviewees with library and personal webpage contexts. The library was either considered 'the natural intuitive association', or a neutral space, especially in the particular Oxford context, with people having different views on where they mainly belonged (university? college? department?). The association of searching with the personal web space was mainly understood in terms of users being able to customize their searching architecture from within their personal web pages. Especially considered in portal-based context, a sort of `my profile` type of personalization was discussed, through which users wished to be able to choose the search tools active in one's library-related space. Association with the departmental web space was also mentioned, especially in the context of envisaged specialist filtering, while the University web space particularly in relation to its high accessibility from everywhere in the world.

5. Presentation of search results

There was little convergence of opinions concerning the presentation of search results. Some participants emphasized that search activity was never linear, and therefore search environments should be flexible enough to allow for that continuous back-and-forth movement. That was in their view quite well served by the practice of displaying search results in separate pop-up windows. The solution was considered convenient, safe, and providing the best control of multi-task browsing. Others however favoured the presentation of search results `in the same web page`, which in their view was more user friendly, speedy, provided reasonable space for presenting results, and offered better monitoring of the previously employed search terms. Finally yet another opinion held that the choice of presenting search results should in fact depend on the purpose of searching: if the results page was something one wanted to keep coming back to, then that should open `in the same window`, while if it was something one only wanted to check and then clear out, then `pop-up windows` were more appropriate.

6. Other comments

The final comments addressed a couple of issues that had not been touched upon during the rest of the interviews. One participant mentioned that for interdisciplinary work a single search that could check various types of resources at once would be extremely beneficial. Another emphasized that in addition to making the most appropriate search tools and resources easily available to the users, one had to properly advertise them through trusted authorities and peers (otherwise they won't be used). Other issues included the importance of providing access to search tools for university members while they were away from the university campus, and the need to develop language tools for multiple search tools use, possibly following the models provided by Yahoo and Google.

Detailed interview discussions

1. Main positive/negative user testing impressions

The participants appreciated that the efforts of integrating a selected number of search tools in the demonstrators was highly valuable. They perceived it as an important step in preparing the ground for a future one-stop-shop in terms of resource searching, which at the same time prompted them with potentially useful new resources:

I find that there's good reason to put more emphasis on search engines, as that is really vital for the staff members who are doing research. And it's really good to have a one-touch resource centre where you can get info just by touching up a button. I really appreciate that.

If someone else has tried it and said to me 'this page is good', then it's always nice to try that, but I will not go and check for a certain page personally because I may be just satisfied with something else. But if that page which is better is available through a portal and given me as an option then I would definitely go and see it.

However one participant thought that the final step in creating what he termed 'a unique simple field for all searching' was still not made yet:

The concept of bringing all the search engines together is definitely positive, but what seems to be missing was having a go at just one field where you can type something in and away it goes. Sort of GetRef-style thing, and then your results come out, and only then maybe you can say, OK, this one came from the catalogue or from another source. So, still, it isn't terribly useful, even if you have them all together in one place, to have to go and type things into different fields and repeat that over and over again.

The developers' concern for elaborating search environments flexible enough to address the needs of the various categories of users was emphasised as a very positive feature of the demonstrators:

This is probably something which is going to make a difference with respect to all other types of already existing lists of websites or collections of links. Because different people, even those working on similar subjects, have different needs about what databases they search, whether to search them at all, how to save the results. So, ideally, the maximum flexibility should be the goal.

However one user mentioned that the variable searching contexts explored induced a sense of lack of consistency:

You want to have a portal where you can quickly have that kind of info, but if you want detailed info you just have to branch off and go somewhere else. I see the point of the questionnaire but having some stuff opening in the same context, some opening in a different window, and some overriding everything – that was pretty annoying, because you want to have some consistency. But that's not to say that for all uses you want to stay within that context. Say, you may want to start a multiple search engine or you may want to break Google off and go on a different window and play with that.

Other criticism included the fact that the demonstrators were built around non-Oxford-specific contexts:

I found it a bit weird having to go to Hull University and not to Oxford University. I guess it would be much better if that would be much Oxford specific. […] Also, Oxford has a certain structure of the departments. We have Arts, Science and so on. My point is that different units have different requirements of search. That is, the search requirements for a scientist would be different from the search requirements for an arts person. An arts person would like to see more image data, more artistic content, while we, the scientists, would like to go more specific, we would need more bibliographic kind of stuff.

Another user mentioned he was unsure if the occasional faulty functionality (including some broken links) of the demonstrators was the result of some intentional design feature or of the technical side not having been perfected enough:

Some of the links which were there didn't work, which was rather annoying… especially when you're rigorously looking for some information and something doesn't work.

I wasn't quite sure of whether [the interfaces] were fully ready yet, so for example, on the VLE one, if you searched the library catalogue and came up with the result and then you followed up with that result, it would very nicely keep it within the same context, it will save all the information, but it won't have a shelf mark … and there's no other way of getting more information on that reference.

Another reportedly annoying practice was that of having to use the browser's `Back` button after having checked the search results displayed in the same window:

With something like Google it was annoying when it took my screen, and then went to Google and I had to hit 'Back'.

Also, it might mean that you have less trouble than some of us encounter when we hit the 'Back' button and we get errors. And sometimes those errors would just come from Microsoft IE, and you would hate to lose search info only because you back buttoned and your browser failed to reload. That's unpleasant.

2. Context of demonstrator integration (web/VLE/portal)

All users indicated the portal as the most appropriate environment for their searching needs:

I prefer the portal section in all respects. That was very good because when we're looking at a particular portal usually it's for a particular reason, and search engines, either related to the subject or general search engines such as Google are very useful when we're doing referencing and so on… So, if we have all the options there, I find that very useful.

The portal was by far the easiest one to use. I basically spend my life switching from one thing to another and just having it all nicely together, just like this, is great. So, I am definitely for the portal approach.

The portal demonstrator was considered superior in terms of customizability, ease of use, and possibility of tracking previous searches:

I did like the way in which [the portal] worked, being able to minimize some windows, and I'm sure that you'd be able to save those preferences, so that when you come in what you wanted was always there.

The thing that I would emphasize is that it would be ideal if you could personalize your institutional portal as well, so you could pick what you need. For instance, we obviously wouldn't use any of the archaeological tools, so we would move that out of our page, but we might have something else that we would use a lot, such as LAWCat or FINDLaw if that was something we would use a lot.

Unlike the portal, the VLE demonstrator was mainly discussed in relation to the degree of VLE intake in Oxford, which was perceived as fairly limited. The interviewees considered unlikely that a VLE-based tool would make a significant impact on the users' searching habits. As one of the participants pointed out,

I like the idea of VLEs, but those would not be useful unless you bring the tutors on board and that doesn't seem too likely to happen. If you could bring the tutors and teachers on board of the VLEs I would say they would chunk institutional portals, because then you would have more of the 'all in one place' sort of thing and you could have an online discussion with other students and someone had a point of reference and then you could just click to the other tabs, look it up and then come back and keep the discussion going. But if there's no added value there it's not going to be useful at this stage.

Another user commented about the different ways of conveying information through VLEs as compared to portals, and speculated that in the context of searching and displaying search results across the university the users' preference for portals might be related to the 'knowledge-sharing' vs. 'knowledge-imparting' distinction:

One of the problems that are an issue for me is that more and more of the VLE content is or ought to be contained in a secure area which is access-protected even within the department. Especially with the recent developments in digitization it will get easier to protect things on VLEs as digital objects. The corollary of that is that that info would only be available to people who will pay the licence fee to use them. So I'm seeing the VLE as more focused down on the immediate teaching and learning objectives. And that is a very special area. Apart from the issues of breaking out and doing other things there's a whole range of other issues such as what's public/ private space, and so on. That makes me think of how is that going to be managed in a useful way. Obviously, some of this is behind passwords and the like, and everyone will eventually have his own ATHENS passwords and the like. But this is the sort of thing which makes me think that [the portal] is a knowledge-sharing environment, whereas the VLE is a knowledge-imparting environment. But actually I'm not saying 'don't do that'. I'm just saying that is not something that I would, a) use or b) see as

the best approach. I've been looking at some of the issues around the VLEs such as whether there's a place for a library VLE or not. And what we are saying is that we want all that we're putting there to be generally available with no hidden content.

Otherwise, beyond the issue of the local VLE intake, the VLE-based demonstrator was appreciated as fairly flexible, although one participant found the use of tabs rather cumbersome.

By contrast, the web-based demonstrator was less well received by the users:

The website was a little less useful, in the sense that generally there are a lot of useful websites and you bookmark them anyway, and then you go through your list of useful websites and say to yourself 'shall I go here, or shall I go there', or that kind of thing.

Others found it 'fairly redundant', 'inflexible' and 'rather complicated to navigate'. The inaccurate presentation of the search boxes was also mentioned by one user:

I didn't really like the whole approach that you have everything dotted about the screen in no particular order. I felt it was unsorted.
Why is that?
Because it's such a mess. See, none of this is standard, they're all different and in spite of that they're all occupying the same space, they are not compartmentalized. While in this one they each got their own space and therefore it doesn't matter that they look slightly different. So, it's a matter of presentation.

3. Choice of demonstrator search tools

Locally specific search tools, such as library catalogues and bibliographic references, were found to be the most useful for integration within online tools. As one of the participants highlighted,

This kind of resources are university-specific and it's always a bit difficult to find them. For example, to get to the library catalogue starting from the university website you have to jump through 4-5 links before you hit the right URL for the search. To me, it would be convenient if those things would be presented in a single frame. Then, if you want to search, you automatically go to the link alone and you chose the features that you want to search, such as the library or the subject specific database. That would be more convenient compared to jumping around various links. Whereas for things like Google or for other web resources, almost any person who knows about the Internet knows about Google, which means that it just doesn't make much difference to anybody if it's here or there.

Library catalogues were perceived as the most useful in this context, as they allowed the performing of quick general searching and were widely accessible:

I feel that when you have the library catalogue then you can immediately go into your search, while if you want to go more detailed you go into another one which is smaller. I think the Library Catalogue is very useful, as it gives you quick access from anywhere. Later on you can do specific searches.

More widely accessible search tools, such as web resources and Internet search engines, proved to be less appealing to users:

It's kind of nice to have them in the same place with the other work you're doing, but I think people are in a default where they tend to go to the source directly anyway.

In addition to selecting the most appropriate search tools, the participants were also concerned with issues related to presentation, customisation, and added value of the demonstrators. For instance they were concerned with avoiding the cluttering of the screen with too many search boxes, but at the same time wished to be able to add to the screen various search tools depending on the kind of search they were performing:

I liked the option that you could choose what would be important, so that obviously at different points during your research different types of databases could be more useful, such as bibliographic databases, at which point you could then move them onto your screen and have them there. Otherwise, they would just be taking up your space, if at the beginning you were only looking up for general things.

One of the users also commented on the added value of getting various search tools together, and was interested in exploring specialized filtering in order to get the most relevant results for their particular contexts first. As he put it,

Everything is useful, but the most useful thing would be things like the information resources directly relevant to me in this institution, and only then come the more general things, which are useful but not critical. If I can use Google within that context it's fine, but I'm quite happy to use Google entirely out of the institutional context. While, if we come to something like SOSIG, I might really expect to see that really in a work environment, very specific…
So, personalization is important to you?
Not as much personalization, but rather focus and added value. I mean, the point of bringing them together is because this is more useful information than what you get from just starting a Google.

4. Associated online environment

The interviewees associated the idea of searching mainly with library and personal webpage contexts. The library was perceived by some as the searching environment by default:

Search engines should go where they belong: in the library website, quite clearly. That is mainly devoted to conducting searches and facilitating searches.

Others saw it as a more neutral space, unlike the university, college, or departmental ones, especially in the particular context of Oxford, with people expressing different views about their main affiliation:

See, in Oxford people have the most different views on where they belong. In many cases, for the students, where they belong is a college. On an undergraduate level you're not really in a department, you're on a course… Some of the courses run across departments… You're more department-focused in the sciences than in the

humanities… In the humanities, some people don't really know what department they are really in … So, there's a mixture…Which makes me say that the best option would be an institutional one, because not everyone here believes in a department.

Associating searching with the library environment was given yet another reason by an interviewee. According to her, if one had failed to find something in the library catalogues one would be easily tempted to try out other search tools if presented at hand within the same page:

When you look for some info in the library and that is maybe not available you may decide to try another search tool to find out what's available online, for instance. And then, if something is available online you may decide to follow up to find out what other materials or references are available and you can immediately go into that.

The association of searching with the personal web space was mainly understood in terms of users being able to customize their searching architecture from within one's personal page. Thus, in relation to the portal-based context, one interviewee mentioned, *'a sort of `my profile` type of personalization', through which one can choose the search tools active in one's library-related page.*

The association between searching and personal and library environments was discussed by one of the participants along the same lines with integrating library practice with personal use of computers in library context. As he put it,

One of the things that people do quite often in the libraries is look at their email, and quite often when you've done your library search you've got a duplicate and you've got your email and you want to dump that into your essay or so… So, I'm not saying that a separate library one is the best thing. What I'm saying is that one of the benefits would be to integrate it with one's personal use of the computer resources.

The association with departmental web sites was also mentioned, especially in the context of subject-specific filtering, while that with the University web space, mainly in relation to its accessibility from everywhere in the world.

5. Presentation of search results

Participants had quite different views about the most appropriate ways of presenting search results. Some favoured their displaying in separate pop-up windows, arguing that that was the best way of addressing the non-linear character of searching. According to her,

Search activity is never linear. You're always back and forth, back and forth, and the environment should be flexible to allow this 'back and forth' rather than give you lot of trouble to go back and then loosing the 'forth' and not allowing you to go further … So I think that clearly pop-up windows facilitates this 'back and forth' more than anything else.

Other users considered this solution convenient as well. According to them, presenting search results in separate pop-up windows avoids using the browser's `Back` button, which often generates errors, is relatively safe, as it avoids the risk of

losing data by mistakenly closing the window, and provides the best control of multi-task browsing through windows minimized on the task bar.

With something like Google it was annoying when it took my screen and then went to Google and I had to hit back, 'cause frankly, if I was only to use Google I would have just gone there. The value of having them all in one page would be to pop-up a Google screen and find some general information, and then go 'right, what I really need to look for in the library catalogue is X', and then just click over to the library catalogue and do my thing there. So, generally, for most of them, I came down in favour of separate screens […] Also, it might mean that you have less trouble than some of us encounter when we hit the `Back` button and we get errors. And sometimes those errors would just come from Microsoft IE, and you would hate to lose search info only because you back buttoned and your browser failed to reload. That's unpleasant.

Others however favoured the presentation of search results `in the same web page`, which in their view was more user friendly, speedy, provided reasonable space for presenting results, and offered better monitoring of the previously employed search terms. They found the pop-up windows solution 'irritating':

Having separate windows is irritating because whenever you try to do several searches in parallel they end up just taking over your taskbar. I use Firefox, and if I was going to do that, say I had a bunch of Google results and I wanted to follow several of them, I opened them in different tabs so they stayed in the same application window. It bothers me when the program opens a new window […] You end up with 20 browsers in your task bar and you have to close them all and you lose track of which was what.

Most users disliked the presentation of search results `in the same window`, due to what one of them called 'the nightmare of hitting the `Back` button':

It's a matter of time. You have to go back and I don't know whether it displays what you punched in, that is, what you searched for. I don't know whether it actually shows that, but I know that I don't like to go back, it's basically time and efficiency.

However one user pointed out that he found that solution very convenient when he performed a series of searches, for as soon as the first search was completed he only needed to enter the new search term:

If you want to modify the search you just need to type the term again. That is much more convenient for me. While in the other case, if you want to do another search you have to go back first.

Finally yet another participant held that the choice of presenting search results should in fact depend on the purpose of searching. According to him, if the results page was something one wanted to keep coming back to, then that should open `in the same window`, while if it was something one only wanted to check and then clear out, then `pop-up windows` were more appropriate.

My answer to that is `it depends`. For example, it's very useful that when I do a search in the library catalogue I get half a dozen pages of results and then I can deal with them individually. When it comes to the dictionary, if I want to check the meaning of a word, I would check that meaning, pop up a window, then clear it, so that leaves me free again. So it's a different purpose: I'm approaching these for different reasons and what I want back depends on those reasons. […] That is, what's the purpose of looking at that, what do you want to do? If there's something that you want to keep coming back to, then you want it to open up there permanently and possibly within the same window. If it is something that you want to check and then leave, you can pop it up in a new window and then get rid of it. That's my basic feeling.

Another user further elaborated on this idea, particularly in relation to performing parallel searches within the portal context:

I found it difficult to answer those questions about whether I'd like a webpage to pop-up or to open in the same window. That is because you sometimes want the webpage to come out as a different one while some other times you want everything to be there so that you don't clutter you desktop.[…] For instance, when I work simultaneously with two different search engines I want them both to be opened at the same time and see the results at the same time. But some other times I don't want that: I just want a web page and that's all, I just want to concentrate on that… The portal is nice if I want two results at the same time. For me, that happens quite often. Like, for example, you want to have a sequencing program running in the background and you want this particular portal to open. So, in that context, I want both browsers to be there… both web pages to come.

6. Other comments

In the resuming of the interviews the participants were encouraged to raise issues that had not been touched upon in conversation. The topics discussed ranged from searching in the context of interdisciplinary research, to advertising search tools and resources through the appropriate channels in order to maximise their intake. For instance one participant mentioned that for him a one-box search tool able to check various types of resources at once would be extremely beneficial:

I do interdisciplinary work, and due to that I never perceive myself as located in a camp or another, which means that I don't have strong feelings precisely because I don't have enough stature in one field to be able to say 'you're doing all wrong'. But for the same reason I say that a single search which can do all the resources would be fantastic. Because, in my case, I usually take info from Lexus Nexus, and from journals, and from books, and from different disciplines, and I don't know which disciplinary journal search engine I should use.

Another user pointed out that, in addition to making the most appropriate search tools and resources available to the users easily and in the right location one must properly promote them via trusted channels and peers:

A particular search engine may be available to you, but you would only know it if someone had given it to you as an option.

Would that mean that you need someone to signal things to you as potentially useful? Yes, probably. Like I told you about the system that we have in our internet pages, that you can communicate through the web and tell others: 'this page is useful for our type of research and it would be useful having it in the pull-down menu so that, when you're looking for something, that will come up'.

Other issues included the importance of providing access to search tools for university members while they were away from the university campus, and the need to develop language tools for multiple search tools use, possibly following the models provided by Yahoo and Google:

I did not try, but what about the language tools? I mean, on Google, you can put things on different languages… Sometimes I am looking for subjects in different languages […] For instance, sometimes I do want to make searches in the French literature and you don't get a lot of French archaeology, sort of low-level sites over here.

Appendices

Appendix A: Questionnaire used at the Universities of Hull and Oxford

CREE Investigation into the Use of Search Tools in Different Contexts

Questionnaire

The CREE project is being undertaken by the Universities of Hull, Oxford, York, and Edinburgh, plus Newark and Sherwood College, to investigate the use of Internet search tools. A national survey and focus groups have provided a body of information on how such search tools are currently used and how they might be used in a range of different contexts (see http://www.hull.ac.uk/esig/cree/documents.html).

The current phase of the work has developed a number of interactive search interface demonstrators. These are being used to investigate user reaction to the presentation of a range of Internet search tools within different contexts. This questionnaire will help record your views, opinions and ideas on these search tools.

Please follow the instructions for using each demonstrator before completing the associated questions. Space is provided for comments, though please use the reverse side of the form as well if need be. All views will be noted and fed into the overall results for the project. All answers and comments made will be treated in confidence and anonymised in all reporting of the findings.

Where feasible, a researcher will sit with you whilst you complete the exercises and questionnaire and can answer any questions you may have. Please reflect verbally what you are thinking when going through the exercises, as this reaction will be valuable and feed in alongside the recorded findings on the questionnaire.

In order to ensure a full and proper record of such sessions, comments made will be audio recorded for later transcription. These recordings will be kept solely for the purpose of transcription, writing up and reporting of the findings from the CREE project, which completes in July 2005. All recordings will subsequently be destroyed. To comply with the terms of the Data Protection Act, please complete the form below. Thank you.

Please contact Chris at c.awre@hull.ac.uk or x5441 if you have any queries regarding this or any other aspect of the user testing. Further information on the CREE project can be found at http://www.hull.ac.uk/esig/cree

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I agree to the CREE Project user testing session I am attending being audio recorded for later transcription and writing up of the findings. I understand that such use will be confined to the period of the CREE project, which runs until July 2005.

Name: Signature:

Department: Staff/student:

Email (for entry into iPod draw):

Preferred voucher (Amazon, photocopying, printing):

Part 1: Access to search tools via their home website

Please visit the following links and briefly familiarise yourself with the Internet search tools available at these websites, particularly those you are unfamiliar with. An awareness of these websites and search tools will help with the rest of the questionnaire.

The University of Hull Library Catalogue – http://library.hull.ac.uk
The local library catalogue, holding information on all materials held, physically and electronically, by the University of Hull Library

Google – http://www.google.co.uk
The popular generic Internet search engine

zetoc – http://zetoc.mimas.ac.uk
This is a general bibliographic database containing references to the journal literature

ArchSearch - http://ads.ahds.ac.uk/catalogue/search/basic.cfm
An archaeology resources search tool, based at the Archaeology Data Service in York. *Note this is used purely as an example of a subject resource*

Dictionary.com - http://dictionary.reference.com/
A free-to-use online dictionary and thesaurus service

Resource Discovery Network – http://www.rdn.ac.uk
The RDN provides access to a series of catalogues containing details of high quality web resources by subject

GetRef - http://www.edina.ac.uk/getref
A search tool providing access to multiple subject-based bibliographic databases, including zetoc. This requires your ATHENS username and password.

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1. Which type of search tools have you used before?

	Daily	Weekly	Monthly	Less than monthly	Never use	Did not know
Library catalogues (e.g., the University of Hull)	☐	☐	☐	☐	☐	☐
Internet search engines (e.g., Google)	☐	☐	☐	☐	☐	☐
Bibliographic databases (e.g., zetoc)	☐	☐	☐	☐	☐	☐
Subject resources (e.g., ArchSearch)	☐	☐	☐	☐	☐	☐
Reference resources (e.g., Dictionary.com)	☐	☐	☐	☐	☐	☐
Web resources (e.g., the RDN)	☐	☐	☐	☐	☐	☐

Comments:

Part 2: Access to search tools via a local web page

i. Please go to **http://www.eservices.hull.ac.uk/creedemo/lib_index.html**. This page presents a range of search tool boxes within a local webpage – this could be library or departmental.

ii. Please carry out a search of your choice in each search tool.

iii. Click on 'Search the RDN' in the left-hand column. This presents an individual search tool form for the Resource Discovery Network.

iv. Please carry out a search of your choice with this search tool.

v. Please answer the questions below on the basis of your searching. You can toggle between the two web pages using the bottom link in the left-hand column if you wish to search whilst answering the questions.

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2. How did you find using the different search tools in this context?

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	☐	☐	☐	☐	☐
Google	☐	☐	☐	☐	☐
zetoc	☐	☐	☐	☐	☐
ArchSearch	☐	☐	☐	☐	☐
Dictionary.com	☐	☐	☐	☐	☐
RDN	☐	☐	☐	☐	☐

3. The results from using the different search tools are presented in different ways. How useful are these different methods?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like lib catalogue)	☐	☐	☐	☐	☐
In the same window (like Google)	☐	☐	☐	☐	☐
In the same web page (like the RDN)	☐	☐	☐	☐	☐

4. Where the results are displayed at the home website of the search tool, would you prefer to carry out subsequent searches via the search boxes or via the home website?

	Much preferred	Preferred	Either is fine	Would prefer not
Search boxes	☐	☐	☐	☐
Home website	☐	☐	☐	☐

5. There is a link on the main page to a set of links to other search tools and resources. Is the presentation of search boxes more or less useful than presenting these links?

Far more useful	Useful	Don't know	Not useful	Far less useful
☐	☐	☐	☐	☐

6. How useful would it be to have search tools like these presented through a local web page?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

7. Bearing in mind your response to Q6, where would it be useful to present these search tools?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library website	☐	☐	☐	☐	☐
Departmental website	☐	☐	☐	☐	☐
Personal website	☐	☐	☐	☐	☐
University website	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

If Other, please specify: _____

8. If search tools were presented via a local web page, would you be more or less likely to use these there instead of at their home websites?

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

Comments:

Part 3: Access to search tools via a virtual learning environment (VLE)

i. Please go to **http://www.eservices.hull.ac.uk/creedemo/index.html**. This page presents a mock-up of how search tools might be presented within a VLE, e.g., Blackboard or Merlin. Currently, such systems are unable to effectively present search tools in this way. However, please consider your use of a VLE when interacting with this demonstrator.

ii. Please carry out a search of your choice in each search tool.

iii. Click on 'RDN search' in the left-hand column. This presents an individual search tool for the Resource Discovery Network.

iv. Please carry out a search of your choice with this search tool.

v. Click on 'Catalogue search' in the left-hand column. This presents access to the library catalogue on a screen of its own rather than alongside all the other search tools.

vi. Please carry out a search of your choice with this search tool.

vii. Please answer the questions below on the basis of your searching. You can toggle between the two web pages using the links in the left-hand column if you wish to search whilst answering the questions.

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9. How did you find using the different search tools in this context?

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	☐	☐	☐	☐	☐
Google	☐	☐	☐	☐	☐
zetoc	☐	☐	☐	☐	☐
ArchSearch	☐	☐	☐	☐	☐
Dictionary.com	☐	☐	☐	☐	☐
RDN	☐	☐	☐	☐	☐

10. Would you prefer using search tools via a separate screen or alongside other search tools on the context of a VLE (the library catalogue is given as an example)?

	Much preferred	Preferred	Either is fine	Would prefer not
Alongside others	☐	☐	☐	☐
On a separate screen	☐	☐	☐	☐

11. Would you like search tools to be available separately or on the same screen as other VLE functionality (e.g., discussion forums, course materials)?

	Much preferred	Preferred	Either is fine	Would prefer not
On their own	☐	☐	☐	☐
Alongside other VLE functions	☐	☐	☐	☐

12. The results from using the different search tools are presented in different ways. How useful are these different methods?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like lib catalogue)	☐	☐	☐	☐	☐
In the same window (like Google)	☐	☐	☐	☐	☐
Within the VLE (like the RDN)	☐	☐	☐	☐	☐

13. How useful would it be to have search tools like these presented through a VLE?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

14. If search tools were presented via a VLE, would you be more or less likely to use these there instead of at their home websites?

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

Comments:

Part 4: Access to search tools via an institutional portal

i. Please go to **http://www.hull.ac.uk/esig/cree/portal_login.html**. This is a login page for the CREE test institutional portal, which uses the same system as the University of Hull port.hull service.

ii. Login using 'staff' as both username and password (minus the quotes)

iii. The portal offers a number of tabs, as follows:

- Home – an institutional portal homepage containing the library catalogue search tool and other information/services
- Library – which contains all the search tools below on one screen
- Catalogue – a library catalogue search tool
- Heirport – a variation on the ArchSearch tool presented earlier
- GetRef – a multiple bibliographic database search tool, including zetoc
- Google
- Dictionary – the Dictionary.com service presented earlier

GetRef requires your ATHENS username and password. Please use hulacscla and jupal44tab if you do not have/know yours

iv. Please carry out a search of your choice in each search tool on the different tabs.

v. Please answer the questions below on the basis of your searching. You can move between search tools if you wish to search whilst answering the questions.

---

15. How did you find using the different search tools in this context?

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	☐	☐	☐	☐	☐
Heirport	☐	☐	☐	☐	☐
GetRef	☐	☐	☐	☐	☐
Google	☐	☐	☐	☐	☐
Dictionary	☐	☐	☐	☐	☐

16. Would you prefer using search tools via the Home page, via a separate screen or alongside other search tools on the context of an institutional portal (the library catalogue is given as an example)?

	Much preferred	Preferred	Any are fine	Would prefer not
On Home page	☐	☐	☐	☐
Alongside others	☐	☐	☐	☐
On a separate screen	☐	☐	☐	☐

17. The results from using the different search tools are presented in different ways. How useful are these different methods?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like Dictionary.com)	☐	☐	☐	☐	☐
In the same window (like Google)	☐	☐	☐	☐	☐
Within the portal (like the library catalogue)	☐	☐	☐	☐	☐

18. How useful would it be to have search tools like these presented through an institutional portal?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

19. If search tools were presented via an institutional portal, would you be more or less likely to use these there instead of at their home websites?

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

20. Would you like search tools to be available separately or on the same screen as other portal functionality (e.g., staff/student services, admin information)?

	Much preferred	Preferred	Either is fine	Would prefer not
On their own	☐	☐	☐	☐
Alongside other portal functions	☐	☐	☐	☐

Please provide feedback on your use of the following search tools within the institutional portal context. Suggestions for improvement are also welcome.

Library catalogue Heirport GetRef Google Other

21a. How useful is the ability to search multiple bibliographic resources using the GetRef search tool?

Very useful	Useful	Not important	Not useful	Very unuseful
☐	☐	☐	☐	☐

21b. If a similar search tool was available that could search multiple resources in other categories, would you be more or less likely to use this instead of individual search tools?

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

Comments:

Part 5: Additional questions covering all contexts

22. Would you be more or less likely to make use of relevant web pages, the VLE or the institutional portal if access to Internet search tools were available as one of the services on offer?

	Far more likely	Likely	Wouldn't alter use	Not likely	Far less likely
Web pages	☐	☐	☐	☐	☐
VLE	☐	☐	☐	☐	☐
Institutional portal	☐	☐	☐	☐	☐

23. On the Home page in the institutional portal there is a newsfeed of headlines from the BBC in the left-hand column. Such newsfeeds are available for many general and subject-specific sources and can be delivered via web pages, VLEs, and institutional portals. How useful would you find such newsfeeds?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
General newsfeeds (e.g., BBC)	☐	☐	☐	☐	☐
Subject newsfeeds (e.g., SOSIG[2])	☐	☐	☐	☐	☐
University newsfeeds (e.g., Library)	☐	☐	☐	☐	☐

24. Bearing in mind your response to Q23, where would you find it useful to have the newsfeeds feeds displayed?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library website	☐	☐	☐	☐	☐
Departmental website	☐	☐	☐	☐	☐
Personal website	☐	☐	☐	☐	☐
University website	☐	☐	☐	☐	☐
VLE	☐	☐	☐	☐	☐
Institutional portal	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

If Other, please specify: _____

Comments:

[2] SOSIG, the Information Gateway to web resources for the social sciences. See http://www.sosig.ac.uk/about_us/rss.html for details.

Appendix B

CREE user testing interview prompters (used at the University of Oxford)

1. What did you find the most positively/negatively striking in the user testing?

2. Compare the functionality of the search tools demonstrators in the three contexts (web page/ VLE/ institutional portal).

3. Elaborate on the selection of search tools included in the demonstrators (library catalogues, Internet search engines, bibliographic databases, subject resources, reference resources, web resources).

4. Expand on the most appropriate location for presenting these search tools (library website, departmental website, personal website, university website, other)

5. Discuss the presentation of search results (separate window, same window, same webpage).

6. Any other comments or suggestions?

Appendix C: Questionnaire used at Newark and Sherwood College

CREE Investigation into the Use of Search Tools in Different Contexts

Questionnaire

The CREE project is being undertaken by the Universities of Hull, Oxford, York, and Edinburgh, plus Newark and Sherwood College, to investigate the use of Internet search tools. A national survey and focus groups have provided a body of information on how such search tools are currently used and how they might be used in a range of different contexts (see http://www.hull.ac.uk/esig/cree/documents.html).

The current phase of the work has developed a number of interactive search interface demonstrators. These are being used to investigate user reaction to the presentation of a range of Internet search tools within different contexts. This questionnaire will help record your views, opinions and ideas on these search tools.

Please follow the instructions for using each demonstrator before completing the associated questions. Space is provided for comments, though please use the reverse side of the form as well if need be. All views will be noted and fed into the overall results for the project. All answers and comments made will be treated in confidence and anonymised in all reporting of the findings.

Please contact Chris at c.awre@hull.ac.uk or 01482 465441 if you have any queries regarding this or any other aspect of the user testing. Further information on the CREE project can be found at http://www.hull.ac.uk/esig/cree/

Name: Signature:

Department: Staff/student:

Email (for entry into iPod draw):

Part 1: Access to search tools via their home website

Please visit the following links and briefly familiarise yourself with the Internet search tools available at these websites. Some may be more familiar to you than others. These are the search tools used within the demonstrators and an awareness of them will help with the questionnaire. Each is an example of a particular type of search tool. This questionnaire concentrates on these types, and not the particular search tools themselves.

The University of Hull Library Catalogue – http://library.hull.ac.uk
This library catalogue holds information on all materials held, physically and electronically, by the University of Hull Library

Google – http://www.google.co.uk
The popular generic Internet search engine

zetoc – http://zetoc.mimas.ac.uk
This is a general bibliographic database containing references to the journal articles

ArchSearch - http://ads.ahds.ac.uk/catalogue/search/basic.cfm
An archaeology subject-specific resources search tool, based at the Archaeology Data Service in York

Dictionary.com - http://dictionary.reference.com/
A free-to-use online dictionary and thesaurus reference service

Resource Discovery Network – http://www.rdn.ac.uk
The RDN provides access to a series of catalogues containing details of high quality web resources by subject

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1. Which type of search tools have you used before?

	Daily	Weekly	Monthly	Less than monthly	Never use	Did not know
Library catalogues (e.g., the University of Hull)	☐	☐	☐	☐	☐	☐
Internet search engines (e.g., Google)	☐	☐	☐	☐	☐	☐
Bibliographic databases (e.g., zetoc)	☐	☐	☐	☐	☐	☐
Subject resources (e.g., ArchSearch)	☐	☐	☐	☐	☐	☐
Reference resources (e.g., Dictionary.com)	☐	☐	☐	☐	☐	☐
Web resources (e.g., the RDN)	☐	☐	☐	☐	☐	☐

Comments:

Part 2: Access to search tools via a local web page

i. Please go to **http://www.eservices.hull.ac.uk/creedemo/lib_index.html**. This page presents a range of search tool forms within a local webpage – this could be library or departmental. NB, please note that there is an _ in lib_index in this URL.

ii. Please carry out a search of your choice in each search tool.

iii. Click on 'Search the RDN' in the left-hand column. This presents an individual search tool form for the Resource Discovery Network.

iv. Please carry out a search of your choice with this search tool.

v. Please answer the questions below on the basis of your searching. You can toggle between the two web pages using the bottom link in the left-hand column if you wish to search whilst answering the questions.

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2. How did you find using the different search tools in this context?

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	☐	☐	☐	☐	☐
Google	☐	☐	☐	☐	☐
zetoc	☐	☐	☐	☐	☐
ArchSearch	☐	☐	☐	☐	☐
Dictionary.com	☐	☐	☐	☐	☐
RDN	☐	☐	☐	☐	☐

3. The results from using the different search tools are presented in different ways. How useful are these different methods?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like lib catalogue)	☐	☐	☐	☐	☐
In the same window (like Google)	☐	☐	☐	☐	☐
In the same web page (like the RDN)	☐	☐	☐	☐	☐

4. How useful would it be to have search tools like these presented through a local web page at Newark?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

5. Bearing in mind your response to Q4, where would it be useful to present these search tools?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library website	☐	☐	☐	☐	☐
Departmental website	☐	☐	☐	☐	☐
Personal website	☐	☐	☐	☐	☐
College website	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

If Other, please specify: _____

6. If search tools were presented via a local web page, would you be more or less likely to use these there instead of at their home websites?

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

Comments:

Part 3: Access to search tools via a virtual learning environment (VLE)

i. Please go to **http://www.eservices.hull.ac.uk/creedemo/index.html**. This page presents a mock-up of how search tools might be presented within a VLE, such as Class Server. Please consider your use of Class Server when interacting with this demonstrator.

ii. Please carry out a search of your choice in each search tool.

iii. Click on 'RDN search' in the left-hand column. This presents an individual search tool for the Resource Discovery Network.

iv. Please carry out a search of your choice with this search tool.

v. Click on 'Catalogue search' in the left-hand column. This presents access to the library catalogue on a screen of its own rather than alongside all the other search tools.

vi. Please carry out a search of your choice with this search tool.

vii. Please answer the questions below on the basis of your searching. You can toggle between the two web pages using the links in the left-hand column if you wish to search whilst answering the questions.

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7. How did you find using the different search tools in this context?

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	☐	☐	☐	☐	☐
Google	☐	☐	☐	☐	☐
zetoc	☐	☐	☐	☐	☐
ArchSearch	☐	☐	☐	☐	☐
Dictionary.com	☐	☐	☐	☐	☐
RDN	☐	☐	☐	☐	☐

8. Would you prefer using search tools on a separate screen or alongside other search tools in the context of a VLE (the different library catalogue search boxes are an example of the options)?

	Much preferred	Preferred	Either is fine	Would prefer not
Alongside others	☐	☐	☐	☐
On a separate screen	☐	☐	☐	☐

9. Would you like search tools to be available separately or on the same screen as other VLE functionality (e.g., discussion forums, course materials)?

	Much preferred	Preferred	Either is fine	Would prefer not
On their own	☐	☐	☐	☐
Alongside other VLE functions	☐	☐	☐	☐

10. The results from using the different search tools are presented in different ways. How useful are these different methods?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like lib catalogue)	☐	☐	☐	☐	☐
In the same window (like Google)	☐	☐	☐	☐	☐
Within the VLE (like the RDN)	☐	☐	☐	☐	☐

11. How useful would it be to have search tools like these presented through a VLE?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

12. If search tools were presented via a VLE, would you be more or less likely to use these there instead of at their home websites?

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

Comments:

Part 4: Access to search tools via an institutional portal

i. Please go to **http://www.hull.ac.uk/esig/cree/portal_login.html**. This is a login page for the CREE test institutional portal. Such a portal offers a way for institutions to bring together many different services and resources for staff and students. NB, please note the _ in portal_login in the URL.

ii. Login using 'staff' as both username and password (minus the quotes)

iii. The portal offers a number of tabs, as follows:

- Home – an institutional portal homepage containing the library catalogue search tool alongside other information/services
- Library – which contains all the search tools below on one screen
- Catalogue – a library catalogue search tool
- Heirport – a variation on the ArchSearch tool presented earlier
- Google
- Dictionary – the Dictionary.com service presented earlier

iv. Please carry out a search of your choice in each search tool on the different tabs.

v. Please answer the questions below on the basis of your searching. You can move between search tools if you wish to search whilst answering the questions.

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13. How did you find using the different search tools in this context?

	Very easy	Easy	OK	Difficult	Very difficult
Library catalogue	☐	☐	☐	☐	☐
Heirport	☐	☐	☐	☐	☐
Google	☐	☐	☐	☐	☐
Dictionary	☐	☐	☐	☐	☐

14. The results from using the different search tools are presented in different ways. How useful are these different methods?

	Very useful	Useful	Not bothered	Not useful	Very unuseful
In a separate window (like Dictionary.com)	☐	☐	☐	☐	☐
In the same window (like Google)	☐	☐	☐	☐	☐
Within the portal (like the library catalogue)	☐	☐	☐	☐	☐

Comments:

Part 5: Additional questions covering all contexts

15. If a search tool was available that could search multiple resources in the categories listed, would you be more or less likely to use this instead of individual search tools? For example, a tool that could search more than one library catalogue etc.

	Far more likely	Likely	Use both equally	Not likely	Far less likely
Library catalogues	☐	☐	☐	☐	☐
Internet search engines	☐	☐	☐	☐	☐
Bibliographic databases	☐	☐	☐	☐	☐
Subject resources	☐	☐	☐	☐	☐
Reference resources	☐	☐	☐	☐	☐
Web resources	☐	☐	☐	☐	☐

16. Would you be more or less likely to make use of relevant web pages, the VLE or the institutional portal if access to Internet search tools were available as one of the services on offer?

	Far more likely	Likely	Wouldn't alter use	Not likely	Far less likely
Web pages	☐	☐	☐	☐	☐
VLE	☐	☐	☐	☐	☐
Institutional portal	☐	☐	☐	☐	☐

Comments:

THANK YOU!