

Stakeholder Requirements for External Content in Institutional Portals

Liz Pearce & Ruth Martin

Version 1
24 July 2003

Work Package 4

the PORTAL project is funded under
the FAIR Programme of the Joint Information Systems Committee

“ THE



Acknowledgements

The PORTAL project is funded under the FAIR Programme of the Joint Information Systems Committee (JISC).

The project is undertaken as a partnership between Academic Services Interactive Media at the University of Hull and UKOLN, based at the University of Bath.

For further information on the JISC and JISC Programmes, visit their Web site at <http://www.jisc.ac.uk/>.

For further information on Academic Services Interactive Media, visit their Web site at <http://www.acsweb.hull.ac.uk/imedia/>.

For further information on UKOLN, visit their Web site at <http://www.ukoln.ac.uk/>.

For further information on the PORTAL project itself, visit the project Web site at <http://www.fair-portal.hull.ac.uk/>.

The PORTAL project would like to extend its thanks to all those stakeholders who participated in the interviews and focus groups for this report.

Thanks also to Anne Atkins of the Western Colleges Consortium / FAIR Enough Project for her contribution to the organisation and delivery of WP4 focus groups.

Table of Contents

EXECUTIVE SUMMARY	5
INTRODUCTION	7
Methodology	7
Online Survey	8
Focus Groups	10
Interviews	11
Research Sites	11
DATA	14
EXTERNAL CONTENT	15
Potential Users	15
Providers View	15
REQUIREMENTS	17
Searching	17
Library and Quality Internet Resources Alerts	19
Careers Information	22
Internet Search	22
Professional Development	23
Access Other Email	25
News	25
Weather	26
Additional Features	26
Single Sign-On	26
Off Campus Access	28
Curriculum Information	29
Research Information	29
Fun Stuff	29
ISSUES	31
The Widening Campus	31
Relevance	31
Availability	32
Currency	33
Context	33
Access Routes	34
Cost	34
Awareness	35
CONTENT PROVIDER REQUIREMENTS	36
Branding	36
Context	36
Security	37
Inclusivity	38
Information	39
ISSUES	40

Market forces.....	40
Timescales	40
Standards	40
CONCLUSIONS	44

Appendices are available for separate download from
www.fair-portal.hull.ac.uk/deliverables.html

Executive Summary

The PORTAL project report 'Stakeholder Requirements of External Resources in Institutional Portals' outlines the views of both potential portal users and content providers on the inclusion of external resources in institutional portals. Building on the data gathered, and the conclusions drawn, from Work Package 3's 'Stakeholder Requirements for Institutional Portals' this report involved additional consultation with institutional staff and students and focused interviews with a number of content providers and brokers. In total, over 650 stakeholders participated in the project research.

Work Package 3's literature review, 'Institutional Portals: A Review of Outputs' illustrates the extent to which institutional portal developments to date have focused in large part on internal institutional information, transactions and services. Whilst potential system users were keen to access internal resources, the opportunity to also access external resources was received with enthusiasm by the majority of both staff and students.

Users expressed an interest in accessing a range of external resources via an institutional portal. Whilst the initial remit of the report was to investigate the requirements for JISC resources, so broad was the range of resources mentioned by staff and students that a more inclusive approach was taken.

Whilst interest in accessing external resources, via search facilities and current awareness alerts, was high staff and students indicated that access to personalised resources was preferable to accessing generic resources. Participants were keen to access resources of particular relevance to their subject area or area of interest.

In part due to the widespread use of internet search engines such as Google, participants expressed a preference for simple search facilities with clean and simple interfaces. A number of participants indicated that they had been put off using advanced search options due to the complexity of the interface. Participant responses to the concept of cross searching were mixed and largely unenthusiastic.

Institutional stakeholders held fairly consistent views as to their requirements with regard to alerting services. Whilst such services were valued by a number of participants their current email delivery mechanism proved problematic. The possibility of removing alerting services from users' inboxes and presenting them as channels within an institutional portal was seen as a positive development.

The views of potential portal users should be considered in light of their lack of experience of both institutional portals and using information resources via anything other than their native interfaces. The reception of the outputs of other portal projects, such as the Learning and Teaching Portal and the Subject Portal Project, along with those of PORTAL, should be monitored to inform a broader view of stakeholder requirements.

Content providers and brokers raised a range of issues with regard to the inclusion of their resources within institutional portals. The idea was received with enthusiasm, though a number of caveats were expressed. The need to maintain a level of provider branding and to ensure the security of external resources was expressed by a number of providers.

The selection of resources for inclusion within an institutional portal was raised as an issue. Whilst compliance to technical standards is key for meaningful integration, and potential users themselves were keen on the inclusion of 'relevant' resources, the dangers of limiting users' access to the full range of resources in the broader information landscape was questioned.

Providers were also keen to develop dialogues with institutional portal developments and to learn more about the standards and protocols required to enable the integration of resources. Mechanisms to facilitate such dialogue and genuine engagement should be developed.

Introduction

Work Package 4 of the PORTAL project, 'Stakeholder Requirements of National Content in Institutional Portals', aims to provide a:

"focused consultation with stakeholders, in order to evaluate their requirements of existing JISC content, offered to them through an institutional Portal"
(PORTAL Project Original Bid)

In the course of Work Package 3 participants referenced the use of diverse resources from those provided and brokered by the JISC to those available from commercial providers, other agencies (such as the NHS and the LTSN) and those available as general internet resources. The use of the broader term 'external content' in the title of this report reflects the range of resources deployed for teaching, learning and research within the UK tertiary education sector. The report explores stakeholder requirements for external content in terms both of delivery method (RDF Site Summary) and content (current affairs news) requirements. An initial task was to identifying the key stakeholders for external content provided in institutional portals. These were condensed into the following categories:

- Students
 - HE – Undergraduate / Postgraduate
 - FE
- Teaching Staff
- Researchers
- Support Staff
 - Library / Information Staff
- Learning Technologists
- Institutional Policy Makers
- National Funding Agencies
- Content Suppliers / Brokers

Methodology

This report builds on both the data gathered for, and the conclusions drawn from, the Work Package 3 report 'Stakeholder Requirements for Institutional Portals'¹.

¹ www.fair-portal.hull.ac.uk/downloads/stakereq.pdf

Online Survey

As part of Work Package 3 an online survey was produced to gauge the views of as broad a section of the UK tertiary education sector as possible. The survey ran from November 2002 – February 2003.

The screenshot shows a Microsoft Internet Explorer browser window displaying a survey form. The browser's address bar shows the URL 'http://www.border.hull.ac.uk/portal_survey/'. The form is titled 'Portal Survey' and includes the following fields and options:

- Email:** A text input field.
- Further Education or Higher Education :** Radio buttons for 'FE' and 'HE'.
- Institution:** A text input field.
- Department:** A text input field.
- Primary Role :** Radio buttons for 'Student', 'Post Graduate Student', 'Researcher', 'Teaching Staff', 'Administrative Staff', and 'Support Staff'.

At the bottom left, there are logos for 'JISC' and 'THE UNIVERSITY OF HULL'. A 'Next' button is located at the bottom right of the form.

Figure 1 – Users were asked to provide information about themselves prior to completing the survey

Using a condensed set of existing and planned portal functionality, including both internal and external resources, the survey aimed to measure user preferences for institutional portal functionality². Users were provided with a brief overview of what portals are and were invited to submit information about themselves (figure 1). Their sector, institution and role were compulsory fields, in order for the data analysis to provide meaningful results, and, as an additional motivation, users were invited to submit their email address in order to be entered into a prize draw. A draw for a £20 Amazon voucher was offered as an incentive to users to complete the survey.

² The selection of portal functions presented to users can be found in Appendix A of the WP3 report, available for download separately from www.fair-portal.hull.ac.uk/WP3.html

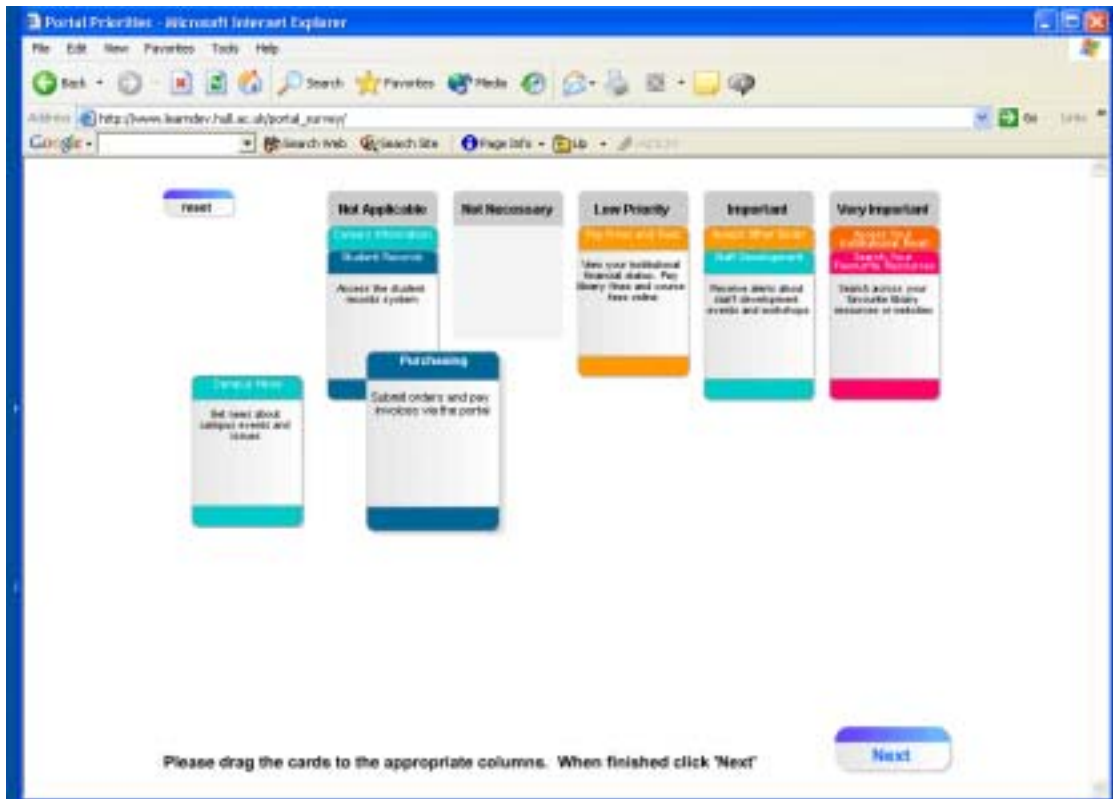


Figure 2 – Respondents completed the survey by placing cards on one of five stacks.

Respondents were asked to categorise each potential function as one of Not Applicable, Not Necessary, Low Priority, Important, or Very Important by placing a card describing the function on the appropriate stack. During analysis, scores were then allocated to the results according to the stack to which a card was assigned.

The survey was distributed through various channels in order to gain access to the widest audience. Several Learning and Teaching Support Network (LTSN) centres kindly agreed to publicise the survey via their websites and newsletters, providing access to teaching staff in a diverse range of subject areas. The survey was posted to appropriate JISCmail mailing lists and the JISC Regional Support Centres were also invited to distribute the survey to their audiences. Participants were encouraged to disseminate the survey more widely within their institutions and a number of participants emailed to say that they had done so. The survey was also publicised via the websites of the PORTAL project, the University of Hull, UKOLN and the Resource Discovery Network, enabling promotion to a range of audiences.

In order to provide qualitative feedback from as broad an audience as possible the online survey also contained a section for comments allowing participants to contribute their ideas for the portal development.

Focus Groups

Whilst the initial research plan included the intention to conduct interviews at a number of sites, the limitations of time and logistics necessitated the use of focus groups at four of the five Work Package 3 sites and at both of the Work Package 4 sites. Maguire (1998) indicates that focus groups provide relatively rapid access to a wide range of opinions and can be particularly useful in requirements specifications. Where possible, focus groups were staffed by two facilitators in order to engage and monitor participants.

Work Package 3

Participants were given a short presentation describing what institutional portals are and the variety of information and services which might be available via such systems³. Participants were invited to think about the strengths and weakness of such systems and the types of internal and external information they might require access to. Due to the arrangement of the focus groups student participants were, in two of the four sessions, drawn from only one subject area. Staff focus group participants ranged from IT and Library / Learning Resource support staff, teaching staff, senior managers and administrators. The range of academic subject areas covered included Computer Science, Fashion, Economics, Media, Pharmacology and English.

Work Package 4

Participants were given a short presentation which highlighted various means of accessing information including simple, advanced and cross searching and different forms of RSS channel⁴. Participants were invited to reflect on their likes and dislikes regarding various interfaces and think about the strengths and weaknesses of the resources they currently use. As a prompt to discussion a number of screen shots and the JISC e-Collections portfolio folder were used⁵. Due to the arrangement of the focus groups student participants were, in one of the two sessions, drawn from only one subject area. Staff focus group participants ranged from IT and Library / Learning Resource support staff, teaching staff, and senior managers. The range of subjects covered included Business Studies, Law, Computer Science, and English.

³ The presentations given at WP3 focus group sessions are available as Appendix B of the WP3 report, available for download separately from www.fair-portal.hull.ac.uk/WP3.html

⁴ The presentation given at WP4 focus group sessions is available as Appendix A, available for download separately from www.fair-portal.hull.ac.uk/WP4.html

⁵ http://www.jisc.ac.uk/uploaded_documents/eCollections.pdf

Interviews

Two 1:1 interviews were conducted with representatives of the Joint Information Systems Committee, these interviews related to both Work Packages 3 and 4.

Work Package 3

At one site in-depth 1:1 interviews were conducted with a range of staff and students. Interviews were semi-structured and loosely based on a task analysis approach⁶. By working through the basic 'tasks' which interviewees conduct, the interviews hoped to illuminate the information needs and uses of institutional staff and students. Staff and students were drawn from a range of academic subjects with students ranging from first year undergraduates to postgraduates and staff ranging from heads of department, managers, information and training staff to teaching staff.

Work Package 4

Interviews were conducted with a range of stakeholders regarding the presentation of external content within institutional portals. As institutional intermediaries, librarians were identified as a key stakeholder group and interviews were carried out with four library and learning resources staff⁷. Interviews were also conducted with representatives from content providers, agencies and brokers including EDINA, MIMAS, Resource, the Association of Learned and Professional Society Publishers, Wiley and the Institute of Physics Publishing⁸.

Research Sites

A total of seven institutions agreed to participate in qualitative sessions for the project. The institutions were intended to reflect the diversity of institutional type in the UK tertiary education sector. To encourage students to participate in interviews and focus groups each student participant was given a £15 Amazon voucher for attending the sessions.

The PORTAL project extends its thanks to staff and students at the participating institutions for their valuable contributions. We should also like to thank Anne Atkins of the Western Colleges Consortium in Keynsham, Somerset, and the JISC-funded FAIR

⁶ The guides used in interviews are available as Appendix C of the WP3 report from www.fair-portal.hull.ac.uk/WP3.html

⁷ The guides used in these interviews are available as Appendix B from www.fair-portal.hull.ac.uk/WP4.html

⁸ The guides used in these interviews are available as Appendix B from www.fair-portal.hull.ac.uk/WP4.html

Enough project⁹ for her valuable assistance in organising and delivering two of the focus group sessions.

Newark & Sherwood College

Newark and Sherwood College is a college of Further Education with its main site in Newark. The college offers a diverse range of full and part time courses to local school leavers, adult learners, companies and overseas students.

City of Bath College

The City of Bath College is a college of Further Education with a compact campus in the centre of Bath. The college offers courses ranging from hairdressing to critical thinking and engineering. The vast majority of the college's students study part-time.

Accrington and Rossendale College

Accrington and Rossendale College is a college of Further Education that serves Hyndburn, Rossendale and the Ribble Valley in Lancashire from five site locations. The college offers a range of full time and part time courses offering their students everything from basic skills training to degree level qualifications.

London Institute

The London Institute is a federation of five London based Colleges of art and design and related activities. The Institute operates across 18 sites within Central London. The Colleges of the Institute offer a range of diploma, degree and postgraduate level courses.

University of Lincoln

The University of Lincoln is a post-1992 University operating at three campuses within the city of Lincoln and one in the city of Hull.

University of the West of England

The University of the West of England is a post-1992 University operating at four campuses in and around the city of Bristol. The institution has over 23,000 students and offers a range of undergraduate, postgraduate and short courses as well as a number of Continuing Professional Development courses.

University of Hull

The University of Hull is a 'red brick' institution founded in 1927. The University operates at two sites, the Hull campus and the Scarborough campus.

⁹ www.fairenough.ac.uk/

University of Bath

The University of Bath was founded in 1966. The University operates at two sites, the Bath campus and University of Bath in Swindon.

Data

The findings in this report are based on the data gathered during the course of Work Package 3. In addition four focus groups at two institutions and a further 10 1:1 interviews have been conducted. A simplified view of the data gathered is illustrated in the table below.

Category	Completed Survey	Survey Included Portal Comment	Focus Group	Interview
All Results	557	44	71	31
All HE	470	42	42	29
All FE	86	2	29	2
All Students	265	14	36	10
All Staff	291	30	35	21
Content Providers / Agency / Broker	-	-	-	6

The data gathered is heavily biased toward HE preferences due to the low survey response rate from the FE sector. This must be recognised as a weakness in the study.

External Content

Potential Users

Despite the high ranking of a number of features related to accessing external content in the 'Your Portal Priorities' survey, a limited number of research participants expressed scepticism regarding the inclusion of such resources in institutional portals. Describing the ideas behind their institution's portal deployment one institutional policy maker indicated that access to external resources would be peripheral to the core information resources

"internal stuff for us is the driving force – we might develop a library of external sites like the BBC or the weather, for those that wanted it" Senior Support Service Manager, University B

Reacting to a screenshot illustrating the inclusion of a news channel another participant agreed that internal information should be the focus an institutional information system.

"it takes you into things that are very much peripheral to your course... I find it strange to have external things so prominently displayed" Teaching Staff, Institute of Higher Education

Others felt that being presented with access to external resources would either compound their feelings of information overload

"It's a question of me having too much up-to-date stuff rather than not enough" Teaching Staff, University A

Or function as a distraction from their core work

"I've got rid of voicemail and if I could stop people knocking on the door I might get some work done, the last thing I want is all these external distractions" Teaching Staff, University B

Whilst such views were voiced as genuine concerns by participants the majority of those involved in the research felt that access to pertinent external resources would enhance the institutional information environment.

Providers View

The potential of institutional portals to be used as an innovative means by which to raise users' awareness of information resources was acknowledged by a representative of the Joint Information Systems Committee

"there is a steady upward trend (in the uptake of JISC services) but it's a very gentle one and I think if we were satisfied with slow culture change that would be alright but we are constantly looking for ways to move that forward and to encourage that trend" JISC Representative

In discussion with content providers and brokers there was a general level of enthusiasm regarding the delivery of their resources via institutional portals.

"that's where the institutional portal can come in, it can home in on quality resources, directed at particular constituencies in their institution and I think that's where huge value come in, with the institution taking control of a lot of that" MIMAS

A representative of the Association of Learned Publishers and Scholarly Presses (ALPSP) indicated that many of their members acknowledge that for users accessing content via a number of individual publishers sites is potentially unattractive and were

"extremely keen that content be made visible through these portals" ALPSP

Indeed one of their members stated that he was

"very keen – the more places that people can find our content the better speaking as a publisher, I don't mind if my content is made available from 180 institutional portals instead of just one or two subject portals." Institute of Physics Publishing

A view shared by a representative of the Joint Information Systems Committee

"When we get a chance to talk to content providers and publishers about that [presenting resources via portals] they are generally very happy with the idea... we're persuading publishers that its a good idea and worth their while working with us, widening access to the information they hold" JISC Representative

A representative of Resource stated that, in his view, the 'guerrilla marketing' approach provides a potentially effective way of highlighting resources through other services' interfaces. Acknowledging that many people may not choose to go to a cultural resource site to look for information the concept of presenting resources via third parties, including institutional portals, was appealing.

Requirements

The online survey, 'Your Portal Priorities', developed as part of Work Package 3 invited participants to rate a number of potential portal features. These features included access to both internal and external resources. The table below indicates the survey ratings afforded to the external resources included.

<i>Feature</i>	Rating by All Participants
Search Your Favourite Resources	1 st
Library & Quality Internet Resources Alerts	5 th
Careers Information	13 th
Internet Search	18 th
Conference Alerts	19 th
Jobs	20 th
Teaching & Learning Information	24 th
Access Other Email	29 th
News	37 th
Weather	38 th

In addition to these features participants mentioned interest in accessing Curriculum Information (a particular issue for FE staff), Research Information, Travel Information and the ability to access resources via single sign-on.

Searching

Access to search facilities was the top rated feature in the online survey. 84% of respondents thought that the feature was important or very important. The feature was highly rated for both staff (1st for HE staff and 5th for FE staff) and all student groups (6th for FE students, 5th for HE undergraduates and joint 1st for postgraduate students).

Participants were keen to access 'clean and simple' search interfaces such as that provided by the Google search engine simple search feature. Such uncluttered interfaces were preferred to crowded or brightly coloured screens, such as that provided by Yahoo which

"is good, but brings up too much clutter on the screen – too many graphics."
Teaching Staff, FE College B

The speed of response to search queries was also highly valued by participants.

Simple v Advanced Searching

Whilst the ability to search was a popular requirement and participants were familiar with standard 'simple' search options responses to the concept of advanced searching were mixed. The majority of participants preferred the use of simple or keyword search facilities and many were unaware of the existence of advanced search options, even in popular resources such as Google. A number of participants struggled to suggest ways in which they felt that an advanced search would be more useful than a simple search and others had been put off by advanced search options because they "look daunting" or "seem too complicated". One student stated clearly that:

'If it requires advanced searching, it is off limits' Student, FE College B

On the other hand a more limited number of participants were enthusiastic about advanced search features and one HE student remarked that:

"if I'm in a hurry an advanced search will be better because you'll get your information quicker" Student, University D

Whilst largely unfamiliar or unenthusiastic about advanced search interfaces many participants indicated that filtering options were valuable. The ability to filter content by type (images; PDF files, sound files); by geographical region; and by type of user (children) were all cited as options which participants found useful.

Cross Search

The idea of cross-searching multiple information resources was a new concept to the vast majority of participants. In each of the WP4 focus groups, some participants confused the concept with that of a meta-search engine. When the idea of cross-searching was explained participant reactions were mixed. Some responded positively:

"I've never used this before but this appeals to me for research purposes - put in specific keyword and search across disciplines, I like that idea" Teaching Staff, University D

"I find that if you have a lot of different databases then you would often check two or three, but if there's a dozen databases you won't trawl through all of them, so it would be good to just go in once." Teaching staff, University D

Favourable comments had been made about cross searching by Work Package 3 participants, one of whom indicated that:

"cross-searching is one of the important things for research activity" Teaching Staff, University A

But other participants were less sure: one student from FE College B found it hard to think of a reason why cross-searching would be useful; and some participants were concerned that cross-searching would produce an overwhelming number of results. The research indicated that whilst some participants were keen on cross searching and the vast majority of the focus group participants were not opposed to the idea, levels of enthusiasm regarding the function were not high. Such feelings were, perhaps, due in part to the novelty of the concept. The dissemination of the cross search outputs of projects such as the Subject Portals Project¹⁰ and Xgrain¹¹ will be vital in developing a realistic view of user behaviour with regard to cross search functions.

Library and Quality Internet Resources Alerts

A total of 73% of respondents deemed library and quality internet resource alerts to be either important or very important. The feature rated in the top 10 for staff and students in both HE and FE. The feature was rated more highly by staff (rated 5th by HE staff and 2nd by FE staff), than by students (rated 4th by postgraduate students, 8th by undergraduates, 9th by FE students), and was the top-ranking feature amongst teaching staff.

A limited number of staff expressed concern that receiving such alerts would add to their feeling of information overload and compound the time pressures they face:

"I just feel I'd be overwhelmed - I tend to keep them at arms length until I need them and then I look - for me, any more coming at me on my desktop would be just too much" Teaching Staff, University A

"some journals have email alerts where they send you their table of contents and you think 'oh god I want to read that' or 'I should read that..'. So it's major guilt factor -" Teaching Staff, University A

However, in common with the results of the online survey the majority of staff, and some students, indicated that alerts and current awareness services were valuable

"I think these things are useful, if you don't want to look at it you delete it. There are things that come up - it has been useful" Teaching Staff, University A

Student participants from the Institute of Higher Education indicated that receiving current awareness alerts from resources served two functions; providing them with useful information and reminding to return to look at the resource itself.

¹⁰ Subject Portals Project www.portal.ac.uk/portal/

¹¹ Xgrain project www.edina.ed.ac.uk/projects/joinup/xgrain/

Participants raised a number of issues regarding the delivery, form and content of alerts.

Control

Control over the frequency of alerts was raised as a requirement for a number of participants

“Could you set the frequency of receiving alerts? Once a week would be OK for me ... they must be current and specific” Teaching Staff FE College B

Staff at a number of institutions welcomed the idea of having alerts, as long as individuals are able to turn them off and on.

"alerting services would be good - as long as you aren't overloaded and as long as you can change them - could control it more or less" Teaching Staff, University A

The suitability of alerting services for students on different courses was raised at two of the participating sites. One Higher Education student indicated that his courses covered different topics each week therefore alerts would always be out of date, another indicated that alerts would be useful as his course covered topics for 12 weeks at a time. Students at University D could see the value of receiving alerts – so long as users were able to terminate the delivery of alerts on a particular topic.

“We might be researching something for a particular assignment – we're not going to want alerts after that assignment is complete” Student, University D

Transparency

Focus groups illustrated the need for users to both easily control the regularity with which alerts were received and to be able to understand how the features work. Another aspect of the issue of control raised by participants was the need for current awareness services to be simple and transparent for end users. At University D two focus group participants had set up, and were happy to receive, alerts from a well known publisher but were confused as to why alerts had stopped arriving.

Delivery Method

Whilst alerting services themselves were popular their current delivery method proved problematic for some users

"I find that having alerts of any sort coming through your email box just ties your email up – you spend all day just going through your email and not having the time to do what you actually sat down to do...I find that quite a pain ... [if it was in a portal] as and when you were interested in what's new you could go into that certain area" Student, University D

"[receiving alerts] would be ok, as long as it doesn't flood my email" Teaching Staff, University D

The need for information resources to be presented in clearly defined locations was also perceived to be an important issue for those with limited access to hardware.

"the teaching staff, who have limited access to a computer, have a hard enough job keeping up with their e-mail ...If they were to log on to a portal, there would have to be a very specific reason why they were doing so. People are very focused on their own area" Support Staff FE College B

RSS

Whilst not a familiar concept for the majority of participants, one interviewee was clear that RSS provided a useful way to cope with accessing information.

"I read a lot of stuff in RSS at the moment because I get sick to death of 50,000 emails. I find it's a much better way for me cope with the amount of information I have to read." Support Staff, University A

The concept of accessing dynamic news regarding external resources appealed to a number of staff participants in both Further and Higher Education. Some staff were keen to find ways to provide students with a means to access up to date information

"if there were a way of feeding [industry news] to our students that would be really useful" Teaching Staff, University A

Focus group participants were largely consistent in their view of the format of RSS channel content. The majority of participants felt that for RSS channels 'less is more'. Participants suggested that the date, subject coverage and perhaps authorship (where appropriate) would be the key information they would require to establish the relevance of an item.

"I think that a one liner is enough – even just the title really would be enough in finding out if you want to read further" Teaching Staff University D

Some participants felt that information about items in an RSS channel would better be described in keywords whilst others felt that free text descriptions would be more valuable with keywords or resource features included in bold.

“often in law you can’t really get the gist of what an article is about from one line – if it was keywords that would give you a better idea” Teaching Staff, University D

Such features would enable users to scan through a list of resources and identify potentially useful information.

Careers Information

Careers information was substantially more popular with FE students (rated 3rd) and postgraduate students (rated 8th) than with undergraduate HE students (rated 12th). Whilst 67% of FE student respondents judged it either important (43%) or very important (24%) and 68% of postgraduate students thought it important or very important, only 57% undergraduate student respondents rated it so. This may be due to the shorter duration of some FE and postgraduate courses (given that the nearer to the end of the course the more pressing the need for careers information).

In interviews and focus groups a number of aspects of careers information were discussed. Whilst news of careers events or workshops were not mentioned by participants access to information regarding jobs, gaining additional qualifications and sources of funding for further study were variously raised by all categories students.

Students in both further and higher education indicated that their main requirement for the careers information was that it should be concise and focus on the facts they need to know.

“some university websites have too much information and you have to spend hours slogging through, there is just too much” Student, FE College A

“Most University websites don’t tell you what you need to know – what’s the course like and what grades you need to get on it” FE College B

Internet Search

A total of 59% of respondents thought searching the Internet via the portal was either important or very important. FE respondents rated its importance (16th) somewhat more highly than HE respondents (18th), while the profile of All Staff (17th) and All Student (18th) responses was roughly similar.

As may be expected, the single most frequently cited search tools were internet search engines, and the most popular of these proved to be Google, although AltaVista, Ask Jeeves, and Yahoo were also mentioned by the participants. For some participants internet search engines provided their main source of resource discovery.

"Google is god... it finds everything" Student, FE College A

"since I started using Google I hardly use any other resources" Teaching Staff, University D

A number of participants indicated that if internet search facilities were to be included within an institutional portal they would be keen to either access a range of internet search engines or have their 'favourite' engine included.

Whilst all except one of the qualitative research participants were regular users of internet search engines a number of participants were aware of the need to access quality assured resources in an academic environment

"I was looking for information on the book *The Naked and the Dead* – simple Google searching was just too dangerous!" Student, FE College B

Such concerns were based on the poor quality of some general internet sites and staff in both WP4 focus groups expressed concern both about how commercial search engines ranked results and the opportunities for companies to buy higher ranking positions.

The support staff interviewees were asked whether they would welcome the inclusion of an Internet search box in an institutional portal. The Virtual Library which has been developed at College C already uses a Google box to allow users to search the internal library pages and the wider internet. However, the Librarian at University D was strongly opposed to including Google in an institutional portal:

"My major concern about that as a Librarian is that I feel that students already are too keen to go straight to Google to do what they think is research for academic information. I think that if we offered them that with a high profile within a portal, it would further increase the number of students who already use it for academic purposes and decrease their tendency to go and look at more academic sources of information that we pay quite a lot of money for. Even though I can see it would be convenient, I have concerns that it would send out a bad message and encourage inappropriate use of general search engines". Librarian, University D

She indicated that this inappropriate use of Google as an academic research tool was a "major concern" of the University's teaching staff, not only because students had a tendency to use the search engine ineffectively, but because their skills to evaluate the information discovered were lacking. The fact that the inclusion of Google, or any other general search engine, within an institutional portal could be taken as a sign of "official endorsement" of its use as an academic research tool should be considered.

Professional Development

Access to professional development information for staff was rated highly; conference alerts were rated 19th over all, jobs were rated 20th and teaching and learning

information was rated 24th. A number of agencies and associated websites were mentioned by staff in interviews and focus groups as useful sources of professional development information. These sites included Institute of Learning Technology, the LTSN subject centres, the JISC Regional Support Centres, FERL, the Higher and Further Education Funding Councils, the Association of University Teachers, NISS, Deliberations, Ariadne and the Chartered Institute of Library and Information Professionals. A number of staff were keen to have more direct access to resources provided by such sites included in the portal.

Commenting on the inclusion of a series of teaching and learning links in one institution's portal a member of teaching staff commented:

“from a teaching and learning point of view I found the links to what's going on in education very good and to have them in one place rather than have to go search for them myself would be really useful” Teaching Staff, Institute of Higher Education

Conference Alerts

Rating 12th for 'all staff', conference alerts were rated important or very important by 56% of staff. The feature rated in the top five (5th) most popular facilities among researchers. Staff indicated that current access to conference information is via disparate resources such email discussion lists, journals and websites.

Jobs

Access to information about jobs rated more highly with students (14th) than it did with staff (29th). Few staff mentioned access to employment information in interviews and focus groups. Where the issue was raised staff indicated that resources such as jobs.ac.uk, the Guardian Online, the Times Higher and monster.co.uk were useful resources.

Teaching & Learning Information

As one might expect, access to teaching and learning information did score in the top five most popular facilities for teaching staff (5th), with 77% of teaching staff judging it important (43%) or very important (34%). The feature rates slightly higher for FE staff (15th) than it did for HE staff (18th). There was a widespread awareness of LTSN centres amongst HE staff and the JISC Regional Support Centres and FERL amongst FE staff. The development of the JISC / LTSN Learning and Teaching portal¹² may provide an effective means by which institutions can include relevant learning and teaching resources within their institutional portals.

¹² www.ltsn.ac.uk/genericcentre/index.asp?id=18264

Access Other Email

Access to other email was highly rated by less than half of respondents (47%), with 30% judging it not applicable or not necessary. Despite the widespread use of external email addresses, both HE and FE students rated the feature 17th in the online survey, several places behind 'Access institutional email'. A higher proportion of staff than students downgraded the importance of this requirement and FE staff downgraded the importance of the feature slightly more than HE staff.

One survey participant indicated that access to personal email could be a 'distraction' in the workplace.

"I have down graded the importance of activities such as collecting personal webmail because I am concerned that too much functionality in a portal not related to my work at the University could distract me from what I really need to get on with" HE Administrative Staff, Survey ID179

The widespread use of external email by students indicated that accessing external email was a regular part of students' online activities. The access to external mail may have been downgraded as it could readily be accessed elsewhere.

In common with several staff participants, who indicated that they liked to keep personal and work emails separate, a number of students indicated that they used their separate accounts for distinct activities.

News

Access to current news stories was seen as important or very important by only 23% of all respondents, with 41% judging it to be a low priority. The feature was afforded a low rating by staff and students across sectors and roles.

Access to newsfeeds received a mixed response from WP4 focus group participants. Some staff felt that access to the news would be helpful but a number of both staff and students were clear that newsfeeds would provide the most benefit if they were related to specific subject areas rather than generic current affairs.

Staff at FE College B indicated that for subjects like business studies and economics relevant news items could be used to illustrate issues and topics. One member of staff indicated that if the news was not directly related to the student's area of study that newsfeeds :

"Could be more distracting than valuable" Teaching Staff, FE College B

Similarly, a business studies student at University D indicated that if news were organised by category (education news, health news) that

“I would use specific areas – it would help me to keep up to date...” Student, University D

In contrast a more limited number of participants felt that access to news would be of limited value for students

“I don't think that news is that valuable for FE students. If a student is doing a project involving things going on in the news, they know to go to a news service” Support Staff, FE College B

Similarly, a mature student at University D indicated that whilst she would value access to current affairs information she did not think that the majority of undergraduate students would use such a service.

“I think from the student perspective generally they wont be interested in [accessing news from within the portal]”

Weather

Access to the weather was the lowest rated feature across sectors and categories. Access to the weather was the only feature to achieve a negative card score across every respondent type and role, with 51% of all respondents deeming it either not applicable or not necessary, with the majority of the rest giving it only low priority. As with those attending WP3 interview and focus group sessions, WP 4 participants were unsure as to the value of accessing weather information and many thought that the feature had been included as a joke.

Additional Features

Beyond the features included in the online survey participants had a number of requirements relating to the inclusion of external resources within institutional portals.

Single Sign-On

Single sign-on had emerged as a key requirement for both internal and external resources during interviews and focus groups conducted as part of work package 3

“It would be wonderful if users didn't have to use a number of different passwords to access services, whether they be internal services or services provides by outside organisations” Teaching Staff, Institute of Higher Education

The problem of remembering and using multiple passwords for resources was raised by a number of participants

“with Athens you have to remember what your Athens password is, I also have to remember what my WGSN password is and you end up with a whole list of passwords and usernames. I lost all my passwords and had to start again” Teaching Staff, Institute of Higher Education

Along with the difficulties encountered by individual users the perceived password burden has produced problems for institutional staff including teaching staff

“students use [not remembering their password] as an excuse ... it’s a great excuse for them not to access information” Teaching Staff, University D

and support staff

“Our experience as library staff is that managing passwords is one of the most difficult things for students: it’s probably the single most common query that we get, both at our enquiry desk and by e-mail.” Librarian, University D

So great was this problem perceived to be that both staff and students admitted that they might actively avoid using a resource that required password entry,

“I use EBSCO which has things like CINAHL largely, and I will admit this, because it has easy access. We don’t have to go through passwords – it’s a bit lazy but I’ll start with somewhere I don’t have to use passwords” Teaching Staff, University A

Even if this meant using an inferior resource instead:

“To be honest, if I come across something that needs a password, I tend not to bother with it.” Student, FE College B

Whilst participants from University D also acknowledged that passwords are a nuisance:

“it’s a pain for me – I’d prefer things to be free in terms of access, I lose track of passwords” Teaching Staff, University D

For a number of focus group attendees at University D the requirement for a password was taken as a signal of quality, indicating that a resource was of better quality than those generally available.

“most of the databases that the University subscribes to for professional journals require a password and I guess that makes it seem to have added value because not everyone can get into it... it has perceived value” Teaching Staff, University D

“I prefer password entry... because if it’s password entry then not everyone’s allowed to use it...it’s not just any old thing. If there’s a password you know that it’s there for a specific reason and [the resource] is for specific people, and you’re going there for that reason” Student, University D.

However the student focus group at University D contained a large proportion of mature students who claimed that their younger colleagues may not share their view and might avoid password protected resources.

Efforts to reduce the password burden experienced by users had led University D to undertake a policy of actively encouraging content providers to participate in standardised password initiatives. The Librarian at University D spoke of the library's policy of promoting Athens to content providers:

"We try to encourage as many data providers as possible to use Athens to the extent that we have a standard letter that we send to the data providers who don't use Athens saying that this might jeopardize the sale of that resource to this University." Librarian, University D

All the focus group participants agreed that the Athens Single Sign-On service, or something similar that enabled users to access multiple resources from a single password entry would be a significant benefit to them, and would make them more likely to use password protected information resources.

"Athens should be a suite – once you've logged on to one Athens database you should be into all of them." Teaching Staff, University D

"Athens Single Sign-On will be fantastic for us when it arrives!" Librarian, FE College D.

Off Campus Access

The issue of off campus access to institutional portal systems had been raised as part of WP3 and the issue of access to resources specifically was raised as part of WP4. Both staff and students were keen to be able to access the same resources from home as they were from on-campus terminals.

"what I think is a problem is that the databases that we can get access to internally we can't get access to externally like fast first view we can't get access to latest collection for our course work" Student, Institute of Higher Education

"If you are working from home you should be able to access the same resources you could get if you were working in the college." Librarian, FE College B

Increased computer ownership, the greater flexibility in staff working patterns and the continued drive for widening participation in higher and further education mean that off campus access to institutional portal systems and the content they provide was a key requirement for many users.

Curriculum Information

Of particular relevance to FE colleges was access to curriculum and quality information. Whilst within Higher Education course syllabi are largely internally developed, the Further Education sector works to syllabi developed by external awarding bodies. Access to updates, news and search facilities for such bodies would be high priority with FE staff, particularly teaching staff. Again, access to such resource may be streamlined by the developments surrounding the Learning and Teaching portal.

Research Information

Whilst information regarding teaching and learning was included as a feature in the online survey, research information was not. Access to news about funding calls, deadlines and research areas was suggested as a useful feature by a number of staff in HE sites.

"What we don't get and what we would quite like are regular updates from the research office here on research opportunities that may be off the main track"
Teaching Staff, University A

Staff indicated that personalisation would be needed in order to provide information regarding research opportunities relevant to their subject areas and interests.

Fun Stuff

There was a limited demand for the inclusion of "fun" features within the portal. Those resources which were suggested included Amazon, the online book, music and video store, (which may have been suggested as a way to facilitate the purchase of course textbooks), online pizza ordering; "and finally"-style fun news stories; jokes; and personal ads ("for a laugh"). Many of the students involved said that they did not use the Internet to plan their social activities, and as reported, the inclusion of news and weather in a portal were the least popular of the services included in the portal survey. The ability to develop "stickiness" through such peripheral resources may be something of a myth. The inclusion of 'fun' features raised little enthusiasm amongst staff or students and some institutional support staff were actively opposed to the inclusion of 'fun' content within the portal.

"Portals need an academic focus – it would confuse the focus to have the fun stuff" Librarian, FE College C

"I do feel ambivalent about cluttering the academic nature of [the portal], cluttering it up with "fun" things. I don't think that's appropriate myself ...I probably don't have the same perspective as students. But I think that whatever we have, it needs to be clear what's there and what it's for, and that things that aren't specifically relevant to the academic environment are a bit of extraneous clutter really." Librarian, University D

Whilst featuring in a number of institutional portals, 'fun' content did not appear to be of significant interest to potential system users in this study.

Issues

The Widening Campus

A developing stakeholder group with an interest in using external information resources are participants in lifelong learning initiatives. Their information needs were raised by the Librarian of FE College B:

“...we’ve just become a Learndirect centre and a UK Online centre. I don’t exactly know what this is going to mean for us. It will probably mean having members of the public coming into the college and requiring internet access.... We’re on the cusp of a lot of change, and we will have to broaden out the services that we offer, so maybe there would be a role for [an institutional portal] to help us do that.”

It would appear that there is a need for institutional portal developers to consider new and emerging stakeholder groups when selecting external resources and planning the functionality for institutional portals.

Relevance

The need for the external resources presented through an institutional portal to be relevant to the needs for users was raised by a number of participants.

“one of the things that would be really useful from the library / learning resources end is that we get sent a printed up date for new stock which is new stock for everything – it would be nice to be able to pick out the areas that you are interested in rather than everything” Teaching Staff Institute of Higher Education

Other participants agreed that whilst receiving current awareness alerts would be useful, resources would need to be subject specific. One Business Studies student (University D) indicated that even receiving alerts regarding ‘everything new in business studies’ would be too generic, she had appreciated the categories into which Biz/ed had grouped resources and thought that these might be useful ways to organise awareness services.

Similarly whilst some participants felt that access to current affairs news was of value others indicated that services would be more valuable if they could be subdivided into sections, in the same way that many newspapers are divided into business, lifestyle, and education sections.

“the key thing for the portal is to offer educational services – what is important for teaching and learning – the news should relate to educational subjects”.
Teaching Staff FE College B

The use of personalisation technologies would be vital in providing relevant resources to users and also raises the possibility of presenting resources for different cohorts of users.

However, some respondents were sceptical with the very concept of supplying resources for “categories” of users:

“Personally I think that if you promote resources as being available for particular groups of students it means that other groups of students who might benefit from them don’t use them. If you say “this is for undergraduates” that may be true, but it may also be appropriate for first year postgraduates who have certain needs. What’s important is what someone’s previous experience has been and their current needs. Not necessarily the “category” of student they fall into.” Librarian, University D

The participant indicated that this was a particular challenge for the service at the moment due to the large number of international students enrolling in courses, the librarian indicated “they approach things in different ways from many of the other students” – while not appearing to categorise information resources as being specifically “for them”, since this might deter other students from making use of them. Another member of support staff expressed similar views regarding targeting resources for ‘non traditional learners’.

Availability

The availability of resources to include in institutional portals was raised as an issue by participants. Two FE College support staff who were interviewed indicated that whilst presenting such resources via a portal may be useful, locating appropriate resources could prove problematic. The staff noted that many information resources are not correctly targeted at the FE sector. Partly due to the fact that the resources are too advanced for some FE students:

“There’s almost nothing available for basic skills training except the BBC Skills Wise packages, and there’s a complete gap at the vocational level, especially NVQ levels 1 and 2. They all start at NVQ level 3, which is A-level equivalent, or NVQ level 4 which is degree level equivalent. So we give most of them [the resources] up as a bad job.” Librarian, FE College D.

or because the focus of the resources do not keep up with the rapid pace of the FE curriculum, described by the FE College D Librarian as “changing year on year”.

A member of support staff (University A) noted that the discrepancy between the structure and functions of the RDN hubs have left gaps in the nature and the focus of its coverage. One member of support staff indicated that staff in her department were unimpressed by their RDN hub.

"they've tried it - its not that they don't know about it but there just aren't enough resources, some areas there's hardly anything" Support Staff University A

Currency

The need for the external information resources included in the portal to be current and dynamic was noted by a number of participants. One member of support staff indicated that the staff she worked with had been unimpressed by the frequency with which new resources were added to their RDN hub.

"people here have not been that enthusiastic – it's not updated often enough - I'm not very impressed by how often things are being added, I bookmark new resources every day. " Support Staff, University A

Context

Providing access to external resources in an appropriate context was raised by a number of participants. One member of teaching staff, who indicated that many of their students were making inappropriate use of internet resources, stated that

"I think it will be a good idea if we put copyright information and information about how to cite information properly and make references appropriately in the portal" Teaching Staff, University B

Staff at FE College B also raised the issue of displaying information about how to cite and evaluate resources alongside the resources themselves.

Several members of support staff indicated that portals could provide a useful means by which to highlight institutional support services in an appropriate context. Many support staff were open to using online training resources and were accustomed to using innovative methods to target users.

"We do two inductions, the second one using the [Resource Discovery Network] Virtual Training Suite. We run publicity campaigns; create online guides; offer one-to-one assistance in the library; run research workshops for the HE students; target specific user groups etc, etc. It's very staff-intensive, but you have to try all sorts of things to grab their attention." Librarian, FE College D

Whilst many institutions produce their own online training documentations the RDN's Virtual Training Suite (www.vts.rdn.ac.uk/) was also extremely popular with support staff (described variously as "excellent", "spot on", and "at the right level") indicating that these tutorials may be a useful addition to institutional portal developments.

Staff at FE college A raised the issue that the inclusion of external resources alone may not enhance a student's learning experience. They questioned the extent to which resources without clearly associated learning objectives or indications of their level and

content may provide little value for some students. Only when presented in an appropriate context could resources provide benefit.

Access Routes

A number of staff and students in the focus groups mentioned that they accessed external resources via a number of routes: users described going straight to a resource, accessing it via the library web pages, departmental website or VLE. A member of support staff at FE College B referred to these multiple access routes as a potential challenge to the uptake of institutional portals:

“So many different services crop up, and the students find out about them from different people so that they get confused about how they connect together. At the moment we have an intranet, internet resources guide, and a VLE” Librarian FE College B

The Librarian at University D also discussed the University’s aspiration that its virtual learning environment (Blackboard) should connect seamlessly with its internal web pages, and a project is currently underway to create an over-arching framework which could be described as an “institutional portal”:

“I think the idea of a one-stop-shop is good – one of the problems for students is how fragmented things have got. And because things are available in lots of different formats now it’s got quite difficult for them. It depends on the student knowing where to go and what format things are in, and something that offers them just one place to go would simplify life for a lot of people.” Librarian, University D.

The issue of the relationship between institutional portals and VLEs will be explored in greater depth in Work Package 12 of PORTAL; “Institutional Portals and VLEs”.

Cost

Discussions with support staff indicated that cost, balanced against the relevancy and the coverage of the resources was a significant factor in the selection of appropriate resources.

“Coverage is more important to us than cost, although of course some things are simply out of our price range. For instance, we subscribe to EBSCO because it covers most of our HE programmes. We could subscribe to more specific resources for the different subject areas, but this would get too expensive. We’d rather have EBSCO that covers them all.” Librarian, FE College D

Whilst somewhat beyond the scope of this study, the staff at FE college A indicated that the cost of certain resources was a prohibitive factor in the presentation of the appropriate resources. Staff were aware that a number of special FE deals had been brokered but felt that prices were still prohibitive and acted as a barrier to the use of some external resources within the college.

Awareness

One of the primary reasons for including external resources within an institutional portal is the desire to raise users' awareness of resources and make those resources more accessible. In the course of the research it became clear that many participants' awareness of quality assured resources was low. A number of participants indicated that the names of resources bore no relation to their content (JSTOR was used as a case in point) or were potentially misleading (Web of Science). When the coverage of a number of quality assured resources were explained several participants wrote down their names and seemed keen to find out more. This would suggest that more could be done, including surfacing their resources within an institutional portal, by content providers to promote the content and coverage of their resources to their potential users.

Content Provider Requirements

As indicated, one to one interviews were conducted with a number of content suppliers and brokers. Interviews examined a range of issues including their views with regard to presenting resources within institutional portals, the types of obstacles which might prevent such integration and their view of the standards and protocols which might make such integration possible.

Branding

For a number of content providers the maintenance of their brand identity was a primary requirement in the provision of their content within institutional portals. One content broker indicated that

“data providers have a vested interest in labelling their product – protecting that and the quality of their product is important” MIMAS

Content providers indicated that branding offers far more than a marketing opportunity for publishers. A representative from Resource acknowledged that content provider brands offer a mark of quality to users, helping them assess the value and the relevance of a resource. Similarly, a representative of the Association of Learned Publishers and Scholarly Presses (ALPSP) indicated that, for readers of academic publications, branding

“signals a great deal more than quality, it’s useful shorthand for a community of interest” ALPSP

The interviewee indicated that for many ALPSP members the branding of the journal is primary whilst the publisher’s branding is secondary, a view shared by a representative of the Wiley publishing company who indicated that

“It’s the journal that is the brand not the publisher” Wiley

Both interviewees felt that a user approaching an article, or set of articles, will be able to infer – from the journal branding – what the focus of the article might be and whom the article is aimed at. For these reasons publishers were keen to avoid users wading through what the ALPSP termed an ‘article soup’ of content from a range of suppliers.

Context

Whilst some potential system users were keen on information being presented in particular contexts, several content providers suggested that users would need to understand the context in which the information was being presented.

The ALPSP noted that the ability for some publishers to indicate, and for users to see, which of the resources presented within a portal are peer reviewed and which are not would assist them in distinguishing their content.

Several other interviewees indicated that ensuring that users were aware that only a limited amount of functionality was visible in the portal and that more in-depth functionality could be found in a resources' native interface would be a key requirement.

"[publishers and content providers] perceive that they've invested a great deal in producing a high quality product that delivers to the end users and they've invested a great deal in customer requirements etc, they are quite protective of the functionality they provide in their interfaces" MIMAS

"there is a huge amount of very complex data in a database which is extremely valuable to specialists in that field, it seems relatively unlikely that the full value of that can be presented through an institutional portal but if you can make people aware of the existence of the database and if they get to know that that is a useful target to search then those people who would benefit from more specialist aspects of the services are likely to move on to the native user interface ... the native interface really is where someone should end up to use a resource" EDINA

Both Edina and MIMAS commented on the need to highlight the value of native interfaces to users.

Security

In common with participants at University D, one content broker indicated that passwords, whilst frequently problematic for end users, could be of value in indicating the quality of resources and the restrictions that may apply to them. Where institutional portals provided single sign-on to external resources, content providers would have to be sure that password protected resources were marked as such in order for users to make appropriate use of them.

"it's the job of the portal to indicate to staff and to students that what they are getting through this portal is protected by their single sign on and only they are allowed this range of resources and that might be different to a person in another department or even a member of staff and student, or head of department versus a researcher. That is a message the portal has to get across – that these are specific resources, assigned for you to access and these are quality stamped... that they are privileged to be able to look at this data" MIMAS

The issue of content security was a key requirement for the representative of the Wiley publishing company who indicated that 'security is *the* issue for us when delivering content'.

Inclusivity

As indicated in the introduction, all of the resource providers we consulted indicated that they saw a role for the institutional portal in the delivery of resources to users. The inclusion of resources within a portal was viewed as a valuable way in which to raise awareness of services.

"that's [awareness] one of the things that Xgrain was all about, making these things more accessible and the institutional portals are obviously very good in that respect – even if Xgrain makes these things more accessible, users still have to find Xgrain, but an institutional portal is a thing that you would expect most potential end users to come into contact with so if they could be given an easy way to access resources then that would be extremely valuable" EDINA

Whilst the inclusion of their resources would be a valuable tool for content providers, the interviewee raised the question of which institutional representatives would decide which resources would be included and which would be excluded. For those resources excluded from the system, whether due to a lack of compliance to technical strands or a perceived lack of 'value' for the end user, the portal may function to limit awareness of services.

The need for resources to be standards conformant in order to be meaningful included within an institutional portal may be an effective means to promote conformance to content providers. Until a critical mass of content providers adopt relevant standards institutions may have to balance the technical suitability of the resource with its appropriateness for various groups of users. One content broker who, whilst acknowledging an important role for portals in encouraging the use and uptake of resources and services, noted that institutions would have to be wary of promoting only JISC, or 'portal-ready' services at the expense of other content suppliers, such as those that the institution had bought.

"[portals] obviously can play a very important role but I have great sympathy with concerns that institutions might have around pointing different constituent groups in their institutions to different resources and having control over that ...we need to be sensitive to that when we're liaising with institutions and when we approach them to make resources available through their portal"
MIMAS

Similarly, concern about limiting the range of resources accessible to users was raised by a representative of the JISC. The need to establish a balance between guiding students to appropriate resources and limiting their potential to undertake independent resource discovery was posed as a dilemma for institutions to tackle.

"The dilemma ...within an educational context - is that you may well want to recommend a certain number of databases and information resources to a

student of a particular subject area but the nature of research, teaching and learning is that really why are you limiting them to those things" JISC

There will be a need for institutions to consult a broad range of both teaching and support staff regarding the resources suitable for inclusion within an institutional portal in order that the portal fulfils its potential to add value to institutional audiences.

Information

The need for clear lines of communication between institutional portal developers, content providers and those using portal systems was highlighted by several interviewees in different contexts.

The representative from Resource indicated that in such a new area technical developments were creating demands that providers would have to fulfil. As such he felt that content providers would need to enter a dialogue with portal builders in order to establish the potentials and limitations of the integration of external resources in portal systems.

Similarly, the need for content providers to develop an understanding of the technologies in question is vital. A representative of the JISC indicated that

"The publishers are very keen and they want to have the information to make the right decisions" JISC

A representative of the ALPSP indicated that many of their client group were unfamiliar with technologies such as RSS and OAI. The interviewee suggested that content providers needed clear information about existing and emerging standards and protocols and what they might mean for them. She indicated that access to examples of technologies in practice would also prove a useful way of keeping content providers informed about the use of new standards.

In contrast, another content provider indicated that he was comfortable with using appropriate standards and was keen to expose his content through institutional portals but struggled to market the services to relevant groups.

"I don't think that enough people know about our protocols – that we offer an RSS feed or data which is harvestable by OAI – and I wish that there was a directory that publishers could use to promote this."

Initiatives such as the JISC Information Environment Service Registry¹³ may enable resource providers to promote their functionality to institutions and users.

¹³ www.mimas.ac.uk/iesr/

Issues

Along with content providers' requirements for the inclusion of resources within an institutional portal a number of issues arose in the course of interviews.

Market forces

The extent to which commercial content providers are primarily motivated by market forces was raised by both commercial publishers and those who liaise with them. Both EDINA and MIMAS indicated that the UK higher and further education market is a relatively small slice of many providers' markets. The pressure which the UK market can bring to bear in encouraging content providers to provide standards conformant content suitable for inclusion in institutional portals is variable.

"the UK academic market in the context of the global market for a lot of the big players is a small slice, it's a significant slice, but it's a small slice, so where they are happy to cooperate with us it is because they see it as part of a trend and they are getting influenced additionally by other customers" MIMAS

The representative from the Wiley publishing company indicated that a range of market forces influence commercial business decisions including customer demand, competitor activity and the stability of the new technology.

Timescales

An issue which was raised in the context of the ability of content providers to present resources in a suitable format for inclusion in institutional portals was the development timescales which operated within different sectors. Indicating that commercial providers develop products over a longer period in order to meet the needs of their diverse markets a representative of MIMAS noted that

"I think one of the things that is hard to appreciate is the timeline for development for a big commercial company, they set their development 12 months or more in advance, they have significant development to bring on board - testing and QA – it's a big process for them....content that's been created by the community for the community that's within our control we can set the standards and deal with it ...the nature of what we do in the academic community means we can do things differently" MIMAS

Standards

The JISC Information Environment Architecture, Standards Framework¹⁴ outlines a number of standards appropriate for use within the JISC Information Environment. A number of those are pertinent to the delivery of external resources within an institutional portal.

¹⁴ www.ukoln.ac.uk/distributed-systems/jisc-ie/arch/standards/

Z39.50

Z39.50¹⁵ is one of the protocols used for distributed searching. A number of interviewees indicated that whilst Z39.50 is a 'standard' there is a lack of conformance to it

"you would have to be hooking up to resources that are compliant to particular standards either z39.50 or who expose their data via OAI – not all of them do... there is a hurdle there." MIMAS

and discrepancies in the way in which the standard is applied

"the problem with z39.50 – like any standard – is that it is a standard on paper but then A implements it this way and B implements it that way and when you actually put them together ... there a mismatch. So we're trying to strengthen that." JISC

Such discrepancies make the use of Z39.50, particularly for cross searching between resources, difficult or inappropriate.

"Even where content providers declare that they are Z39.50 compliant there are so many different flavours... even if they are similar type resources, say all OPACs, because of the different flavours of Z39.50 it can produce quite strange results sometimes just because of the ways its been implemented"

JISC-supported work on the creation and ongoing development of the Bath Profile for Z39.50 goes some way towards addressing these concerns. There is an active dialogue underway with content providers and system vendors in order to encourage widespread adoption of this Profile.

In common with potential portal users content suppliers had mixed views as to the extent to which cross searching was desirable

"there's also a desirability issue if you are trying to have something which is all embracing which will take into account cross domain searching across resources which look and feel very different - the nature of the underlying data is very different from resource to resources – how useful or effective will that sort of global search be for the end user?" MIMAS

OAI

The use of the Open Archives Initiative Protocol for Metadata Harvesting¹⁶ has been identified as the most appropriate means to harvest metadata. Some content providers both in the commercial and the not for profit sector indicated that they were enthusiastic about providing access to their content via OAI

¹⁵ www.loc.gov/z3950/agency/

¹⁶ www.openarchives.org/

"Our abstracts are free and OAI compliant and we have no problem with portals harvesting them and hosting them in institutional repositories" Institute of Physics Publishing

Similarly, the representative from the Wiley publishing company indicated that whilst their service was not yet OAI compliant they were aware of the issues and viewed OAI as a potential traffic generator for their products.

Yet both representatives of the ALPSP and JISC indicated that some publishers are wary of OAI.

"OAI is very new and the FAIR projects will provide us with a lot of information about how it can be used most efficiently to disseminate information, we have in talking with commercial content providers, been mentioning OAI for a while, just over a year, and their feedback has been that they are wary of it, because the nature of the Open Archives Initiative is that you disclose your metadata into a separate metadata database... They worry terribly about authentication to that, not surprisingly" JISC

The ALPSP reflected that OAI has, for some publishers, echoes of the open publishing movement and that seeing practical examples of OAI initiatives would go some ways to clarify the technical issues and illustrating the benefits for the both publishes and users.

RSS

The idea of providing news and alerting services via RDF Site Summary¹⁷ received a mixed response from content providers. Some publishers were unsure about the relevance of RSS to them and given its current deployment by more mainstream content, such as the news, weather, sports channels. Others were enthusiastic to find out more about what users might want from RSS services and to begin to develop RSS channels.

"it would be great to see RSS newsfeeds from the culture and heritage sector"
Resource

Athens

As security was a key issue for some content providers the issue of Athens¹⁸ authentication and authorisation was raised. Though one publisher acknowledged that Athens was not their ideal solution it was seen as a strong standard means of protecting resources.

"In a perfect world [authentication would be done] by digital certificate which created a unique i.d. for every user. But this is a long way off yet. Otherwise we would want authentication to be by one of the methods we support – IP address or username and password – and we are soon to become Athens compliant as

¹⁷ www.ariadne.ac.uk/issue35/miller/

¹⁸ www.athens.ac.uk/

well. Being Athens compliant, we would have to support single sign-on" Institute of Physics Publishing

The Wiley publishing company indicated that a clear market reaction against multiple passwords had led them to adopt Athens authentication and motivated their continuing interest in initiatives such as Shibboleth.

WSRP

Whilst not included in the JISC information Environment Technical Architecture, Standards Framework, Web Services for Remote Portlets¹⁹ could have a potentially dramatic impact on the way in which services are included in an institutional portal.

"Another area there is web services – it is clear that web services are going to play a very important role in how portals work in the future, not least because they provide a very good way in which you can communicate between systems and send information between systems. Again, the standard's only just out, it needs to be adopted...We need to carry out projects to see if these things can be really usefully adopted" JISC

Both EDINA and MIMAS indicated that they were considering the use of WSRP and were exploring the suitability of the protocol for use within service delivery.

¹⁹ www.oasis-open.org/committees/wsrp/

Conclusions

- The inclusion of external resources relevant to the teaching, learning and research interests of users was viewed positively by the majority of participants.
- A wide range of external resources were perceived to be valuable by respondents. The selection was in no way limited to those provided by the JISC Information Environment. As such it will be vital for institutions, when presenting resources via institutional portals, to provide a balance between those resources within the JISC IE and beyond.
- Institutional portal developers must also engage with actual user requirements rather than focusing upon what is quick and ease to deliver.
- However, the user requirements included in this report reflect the views of those with little experience of either institutional portal or accessing information resource via any other means than their native interfaces.
- The inclusion of external resources which could be seen as blurring the “academic focus” of the institutional portal was questioned by a number of teaching and support staff. Loss of the support of these crucial stakeholder groups could seriously jeopardise the success of institutional portal development. The purpose and remit of the provision of external content presented within an institutional portal needs to be clearly defined from the outset and reviewed regularly through internal evaluation exercises.
- The selection of resources to be included within an institutional portal should be undertaken by those with an interest in the areas and knowledge of user requirements.
- A perceived challenge to the success of the inclusion of external content in institutional portals is the existence of established locations for accessing external resources. Many users may be accustomed to visiting VLEs, library or departmental websites to access external resources. The issue of how these developments might inter-link should be considered at an early stage of the proposed portal development and development should involve stakeholders with an interest in these areas. Portal developers should also consider how the linking of these developments may be promoted to end-users.
- The brand loyalty evidenced by users of particular resources, most notably internet search engines, suggests that users may be keen to make active choices regarding the resources included within the portal.
- The danger of ‘over-categorising’ resources or ‘over targeting’ users, and thus narrowing their view of the information landscape, should be considered by those including external information resources. Where such resources are included portal developers need to indicate the broader information context including the resource’s native interface and other available resources.
- Whilst single sign on was viewed as an ideal by a number of participants it would appear that institutional portals may need to consider mechanisms for indicating the quality and appropriate use of protected resources.
- The inclusion of external resources may require the inclusion of supplementary resources such as training material and study skills advice. The impact of those additions on valuable portal screen ‘real estate’ should be considered.
- Institutional portal developers should be aware that external information resources place a heavy burden of training on teaching and support staff. These

stakeholders should be consulted to identify the most appropriate resources for inclusion and to ensure that supporting materials are suitable for target groups.

- The integration of external resources within institutional portals is dependent on the availability of published interfaces and the currency and consistence of the information presented. An assessment of the extent to which appropriate interfaces and content are widely available should be undertaken in order to assess the level of provision currently available.
- Content providers may require more information about institutional portals and practical examples of how external content can be integrated with internal resources. Future work of the PORTAL project will begin to highlight these issues but formal and informal dialogues between content providers and portal developers should be facilitated.