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Tam, Winnie, Cox, Andrew M. and Bussey, A. (2009) *Student user preferences for features of next-generation OPACs: a case study of University of Sheffield international students*. *Program*, 43 (4). pp. 349-374.

<http://dx.doi.org/10.1108/00330330910998020>

Student User Preferences for Features of Next-generation OPACs: A Case Study of University of Sheffield International Students

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Abstract

Purpose. The purpose of this study is to identify the features that international student users prefer for next generation OPACs.

Design/ methodology/ approach. 16 international students of the University of Sheffield were interviewed in July 2008 to explore their preferences among potential features in next generation OPACs. A semi-structured interview schedule with images of mock-up screens was used.

Findings. The results of the interviews were broadly consistent with previous studies. In general, students expect features in next generation OPACs should be save their time, easy to use and relevant to their search. This study found that recommender features and features that can provide better navigation of search results are desired by users. However, Web 2.0 features, such as RSS feeds and those features which involved user participation were among the most popular.

Practical implications. This paper produces findings of relevance to any academic library seeking to implement a next-generation OPAC.

Originality/value. There have been no previous published research studies of users' preferences among possible features of next-generation OPACs.

Paper type. Research paper.

Keywords. Next generation OPACs, Web2.0, University Libraries, UK.

1. Introduction

OPACs play an essential role in helping students to locate library resources effectively. But there is some evidence of a decrease in student usage of OPACs (Danskin, 2006). This may reflect students' broader experience of using the Internet and services, such as Amazon, Google, YouTube and Flickr. To put it simply, students like Google more than they like the OPAC. It seems that now is a crucial time for libraries to review OPAC design and to make improvements to keep up with Internet trends or OPACs and library resources may lose their centrality in information seeking in the future. Some writers

despair of making the OPAC relevant in a world of highly distributed resources and advocate more radical solutions (e.g. Markey 2007, Singer 2008), but if we think OPACs have a future their design should be based on research into user needs. Many ideas have been proposed for “next-generation OPACs”, such as implementing Web 2.0 concepts. In order to further develop OPACs, it is important to know the behaviour and actual needs of library users, and also their preferences. This article contributes to this field by reporting on a study of international students at the University of Sheffield.

2. Next-generation Library Catalogues

The term “next-generation library catalogues” refers to the new OPAC designs, which aim to provide better functionality in terms of library collections and services, and provide a better search experience to users (Breeding, 2007). The appearance of the concept is a result of dissatisfaction with OPACs. This dissatisfaction is a longstanding issue (as reflected in Breeding’s work) but in the last few years has taken focus from the success of amazon and google and the advent of Web2.0. Google has become dominant in academic searching (Myhill, 2006; OCLC, 2005; Fast & Campbell, 2004). There have been many reports, such as “The changing nature of the catalog and its integration with other discovery tools” (Calhoun, 2005); “Rethinking how we provide bibliographic services” (Bibliographic Services Task Force, University of California Libraries, 2005); “Resource Discovery Exploratory Task Force Final Report” (UW Madison Libraries, 2008), which have criticised the current library catalogues as being comparatively poor:

The current library catalog is poorly designed for the tasks of finding, discovering, and selecting the growing set of resources available in our libraries (Bibliographic Services Task Force, University of California Libraries 2005: 1)

Resource discovery with traditional library tools is a frustrating and time-consuming process for many researchers. (UW Madison Libraries, 2008: 6)

System vendors have begun to respond to this demand. For example, the Talis white paper (Davis, 2005), “supporting the next-generation of applications for delivering rich library content and services” was published as early as November 2005. Several systems suppliers have relevant products, such as Aquabrowser by Medialab, Encore by Innovative Interfaces, Primo by ExLibris, Prism 3 by Talis, WorldCat Local by OCLC, Endeca technologies, and other open source products such as Vufind, Library Find and Koha-Zoom (Breeding, 2007; JISC and SCONUL, 2008; UW Madison Libraries, 2008). These are intended to be more attuned to current technologies and to contemporary web user’s expectations (Davis, 2005; Boock, 2007; Breeding, 2007). The aim is not simply to provide a better search experience but also a “discovery” and “social academic library experience” (Breeding, 2007; Aquabrowser, 2008, Ex Libris, 2008; III, 2008).

AquaBrowser: *“a starting point for search and discovery in academic libraries...”*

Encore: *“...leverages Web 2.0 technologies and practices, and delivers a complete discovery-to-delivery solution that is appealing, sophisticated, and just plain fun!”*

Primo: “a one-stop solution for the discovery and delivery...”

There are many features that have been proposed for incorporation into the next-generation library catalogue (Schneider, 2006; NGC4LIB; Pattern, 2008; Breeding, 2007). For the purposes of the study, the most common features of next-generation OPACs will be grouped into three categories:

- Those that improve search functionality;
- Web 2.0 technologies and recommender features;
- Enriched content.

For enhancing users’ searching experience and the functionality of OPACs, the faceted browser and relevance ranking have been suggested (Boock, 2007; Breeding, 2007; Bibliography Services Task Force, 2005). With the faceted browser, library users can narrow down their search results via a facet browser (see figure 10 below). The faceted browser will group the results into categories; for example, Author, Subject, Content, Format, Language and Year. In addition, the number of items will be displayed in brackets after each facet. With relevance-ranking, library users can have their search results in relevancy ranked order. Library users are already used to such features (JISC and SCUNL, 2008), as Google, Yahoo and Amazon-like search engines have already used relevance ranking for search results. In addition, an OPAC spellchecker has also been suggested (Antelman et al, 2006; Pattern, 2007).

Figure 1 Example of a spell checker (University of London)



Implementing Amazon-like and Web 2.0 features has become a focus of the development of next-generation OPACs. Inspired by the web online services, such as e-bay and Amazon, borrowing suggestions have been adapted in the next-generation OPACs, e.g. “User who borrowed this also borrowed” (Schneider, 2006, Whitney and Schiff, 2006; Breeding, 2007). Web 2.0 is a key source of ideas for next-generation library catalogues (Mercun & Zumer, 2008).. It is evident that “community participation features” (Encore),

“Library 2.0 and social computing features” (Primo) and “social library experience” (AquaBrowser) are emphasised by system developers. Several Web 2.0 features such as RSS feeds, comments, reviews, ratings and tag clouds have already appeared in next-generation library products (Breeding, 2007; Pattern, 2007). Some people have also used the term “social OPAC” to describe an OPAC that has integrated social networking tools that allow users to rate, review and tag items. One of the leading examples of the social OPAC is the Ann Arbor District Library Catalogue: aadl.org (Blyberg, 2007). However, from the OCLC report, “Sharing, Privacy and Trust in Our Networked Work” (2007), it can be seen that people, including students, do not have much interest in contributing content.

Figure 2 Recommender feature and user ratings (University of Huddersfield)

University of Huddersfield : 100 essay plans for economics / - Mozilla Firefox

Search: General keyword Refine Search

You're searching: **University of Huddersfield Library** [Return to results](#) | [Previous](#) | [Next](#)

100 essay plans for economics /
by Jowsey, Ernie.

Subjects: **Economics** -- Examinations, questions, etc. (12 other items)

Publisher: New York : Oxford University Press, 1998.

ISBN: 019877592x
019877592X

User rating: with no comments (add [your rating](#) or [your comments](#))

Print Copy/Holding Information			
Location	Collection	Class (Dewey) No.	Status
Library and Computing Centre	Loan Collection Floor 2 - 2 wk loan	330.076 JOW	Available
Library and Computing Centre (Short Loan)	Short Loan Floor 4	330.076 JOW	Available
Library and Computing Centre (Short Loan)	Short Loan Floor 4	330.076 JOW	Available

please note – items borrowed from Short Loan are subject to heavy fines if returned late

[new item feed for Class 330](#)

People who borrowed this item, also borrowed ([show more](#) or [everything](#)):

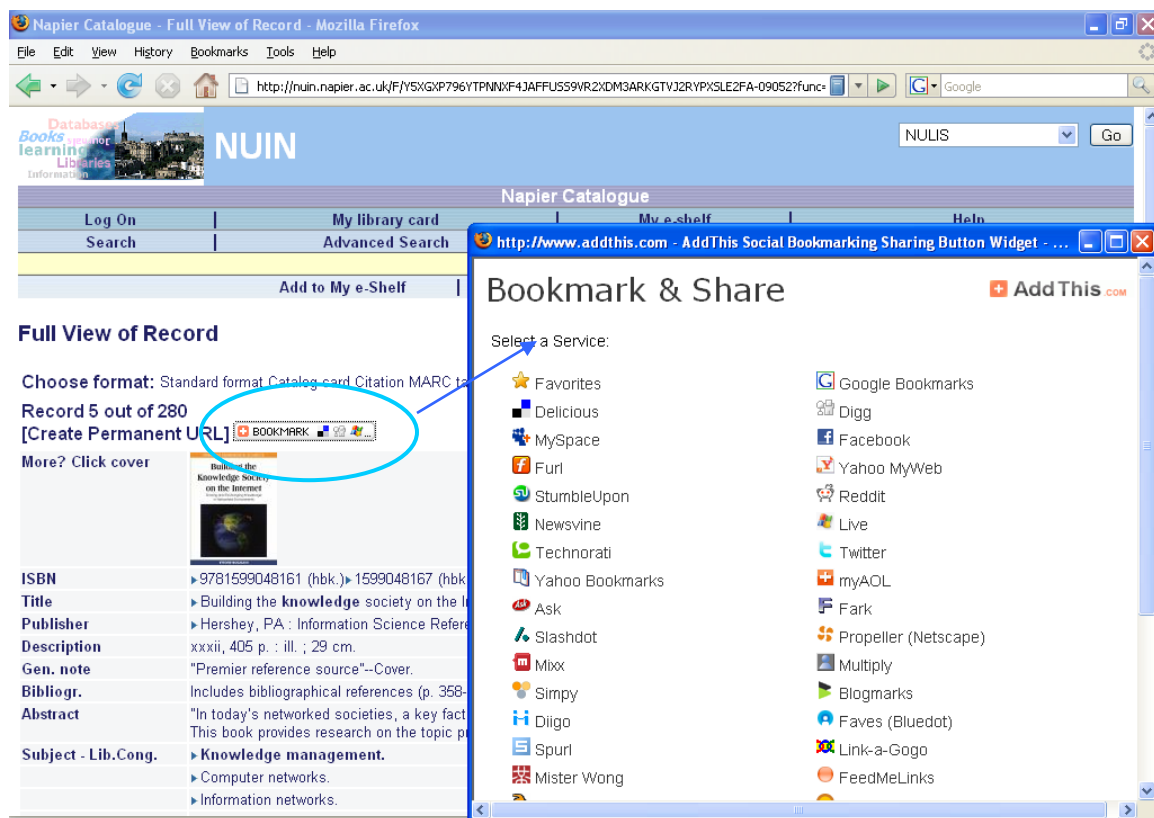
- [Economics: a student's guide](#) (4th edition, 1998) by Beardshaw, John
- [European business: issue-based approach](#) (3revised edition, 1996) by Welford, Richard
- [Exploring corporate strategy](#) (6th edition, 2002) by Johnson, Gerry

Items with the same or similar subject headings ([show more](#)):

- [Economics](#) (1986) by Harrison, Barry

Done zotero

Figure 3 Social bookmarking sharing button (Napier University)



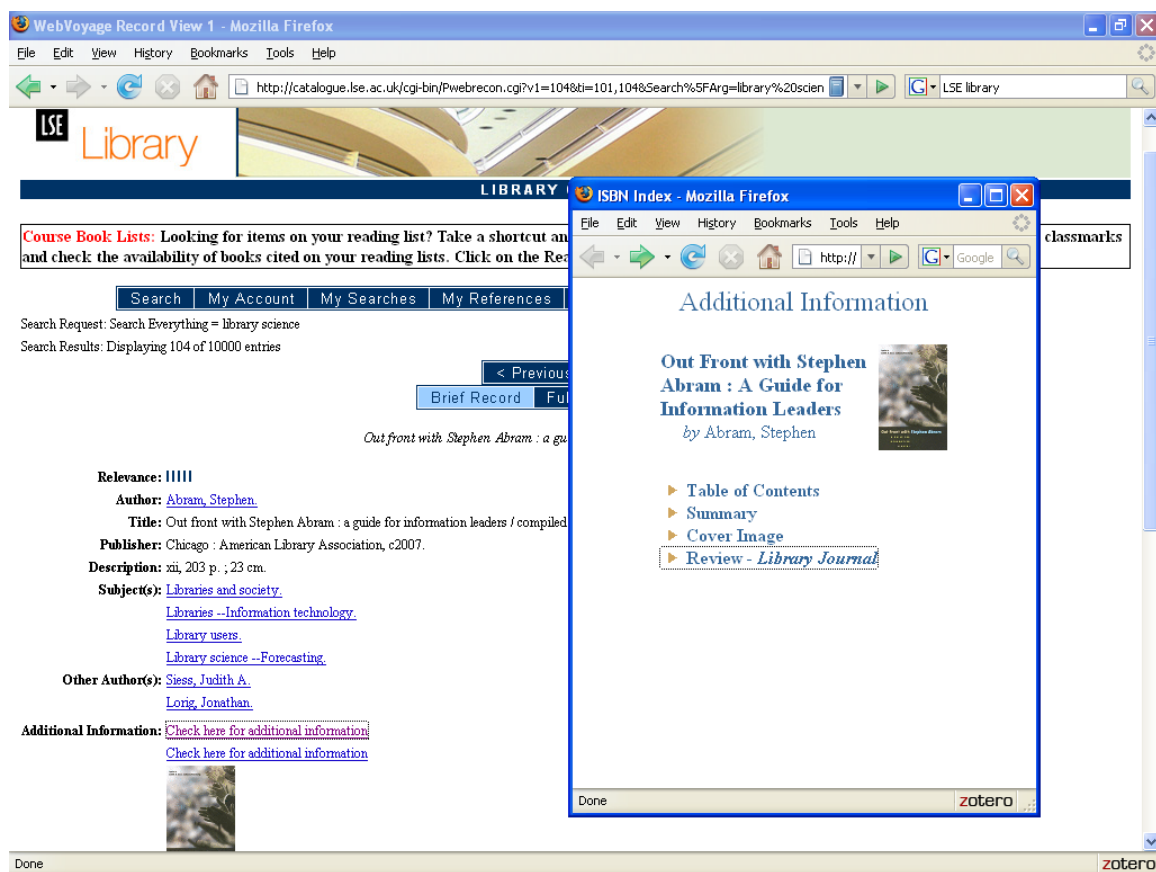
The content of OPACs can also be enriched by adding table of contents and summary of the book and also visual displays (Breeding, 2007). For instance, it is possible to display the book jacket images, and to use tag clouds to brighten up OPACs (Pattern, 2008). It should be noticed that tag cloud can have visual impact to users but also they can assist users to narrow down results quickly. Some practitioners have questioned whether a “cool user interface” (Kelly, 2006 : 10 December) and “eye candy” (Pattern, 2008: 29 April) should be added to the OPACs and whether they should be considered as functional features. However, Kelly (2006: 10 December) suggests that the “development

of ‘cool user interfaces’ should also be encouraged” to stimulate take up of new ideas. Breeding (2007) also supports the importance of having some visual representation, such as book jackets, in OPACs.

Figure 4 Tag Cloud (University of Huddersfield)

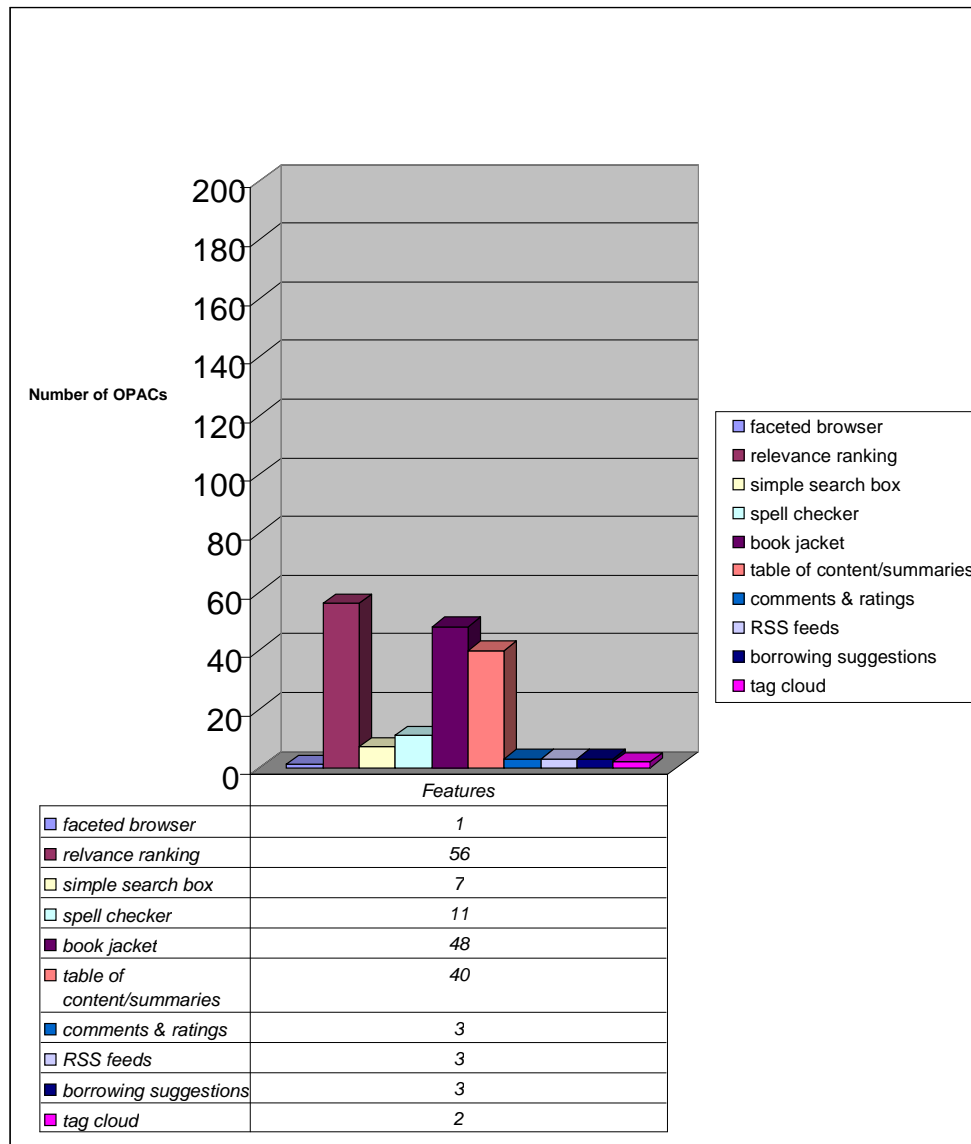


Figure 5 Table of contents and summary of the book (LSE)



To date in the UK, the development of next-generation OPACs is in the early stages. OPACs from 153 UK universities were examined in July 2008 in order to find out to what extent academic libraries have adopted the next-generation features. Ten features commonly appearing in next-generation OPACs, based on the Library Technology reports (Breeding, 2007), were examined.

Figure 6 Next generation features in UK University OPACs



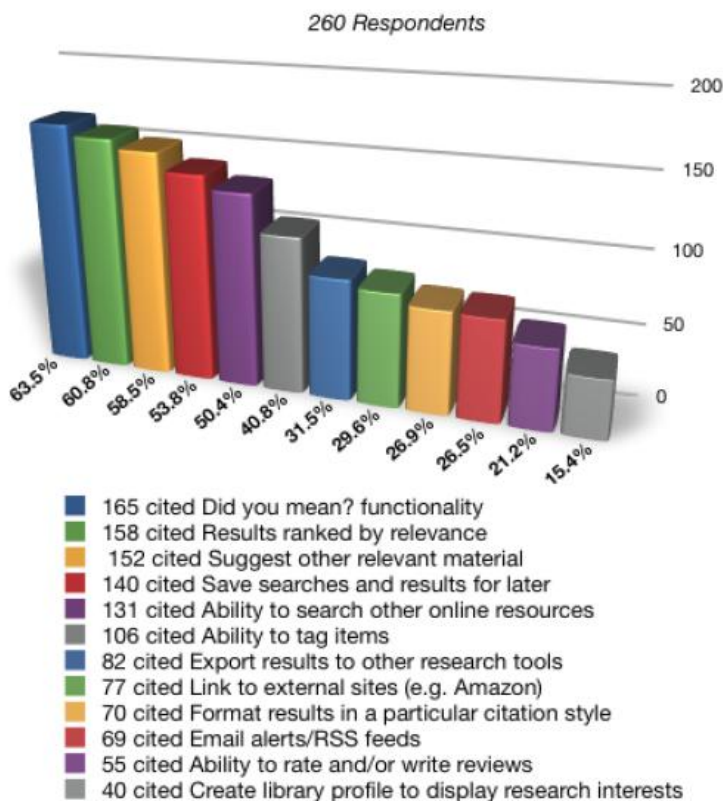
The results show that the development of next-generation OPACs in UK academic libraries is very much in its infancy. Only one university has embedded a next-generation catalogue—Encore by Innovative Interfaces. More than sixty percent of the library OPACs do not have any of these new features. Relevance ranking, book jackets and tables of content are the features that libraries have implemented the most. These findings may also seem to indicate that librarians have given higher priority to features that improve search functionality and enrich content than features with Web 2.0 technologies and recommender features.

2.1 Prior Research about Users' Preferences

There is not much literature about users' experiences, or about users' preferences in relation to the next-generation OPACs. This is possibly because the next-generation library catalogues are relatively new products. Many libraries are still at the stage of considering and selecting products. Nevertheless, there have been a few user surveys investigating users' preferences. For instance, a user survey from the University of Wisconsin Madison Libraries (2008), which was conducted in March 2008; and a user survey of the National University of Singapore libraries, which was conducted in September 2007 (Lim, 2008). Additionally, there is an undergraduate student project examining the effectiveness of the Star at Sheffield as an information resource conducted in May 2008 (Henderson et al., 2008). This project explored some questions about user preferences with a sample of 53 students from the University of Sheffield.

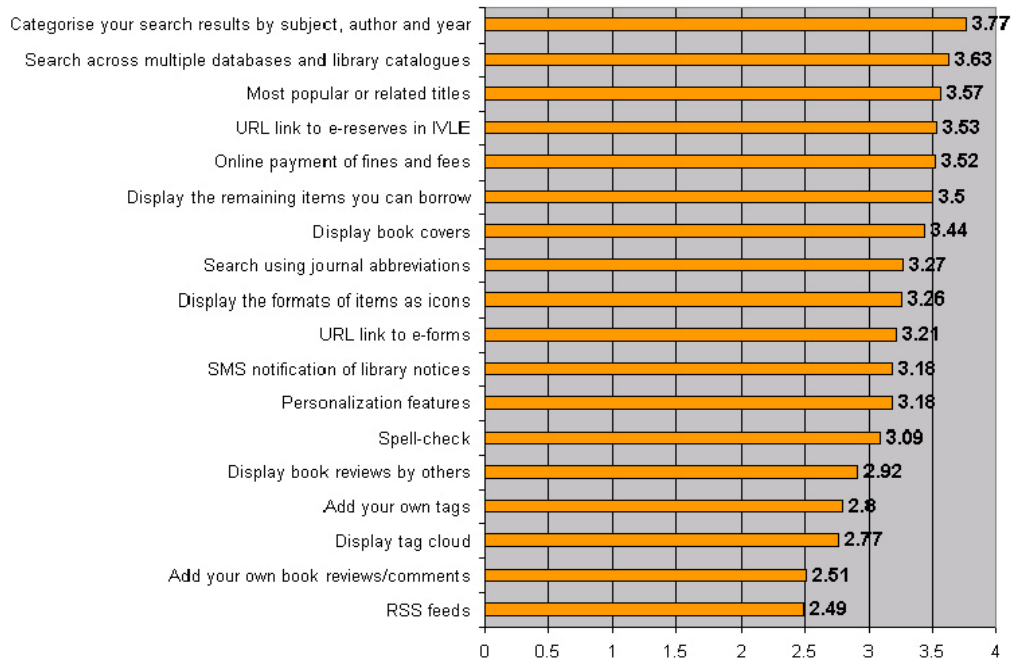
The figures below are from the results of the three surveys.

Figure 7 Results of the University of Wisconsin Madison Libraries User Survey



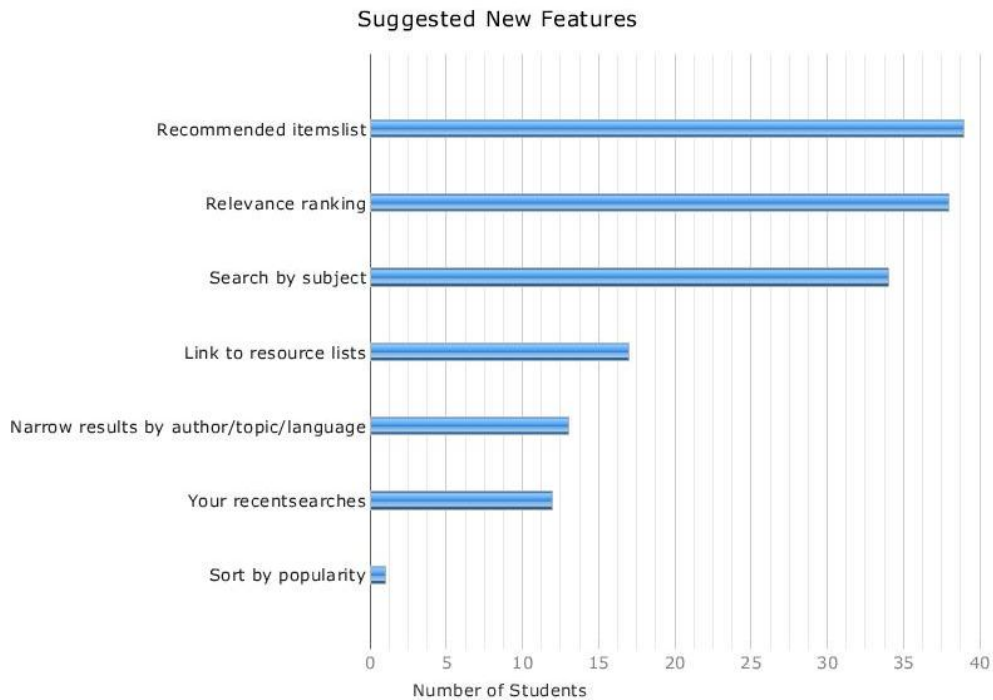
Source: UW Madison Libraries RDETF Final Report (2008)

Figure 8 Results of the National University of Singapore Libraries User Survey



Source: LINC+ Our leap towards a Web 2.0 OPAC interface, NUS Libraries (2008)

Figure 9 Results of the study “How effective is STAR as an information resource?”



Source: data adapted from Henderson et al (2008)

By re-using the data above, a table indicated “popular” (i.e. the top three) and “least popular” features (i.e. the bottom three) in the three surveys was created.

Table 1 Enhanced features in next generation OPACs

	University of Wisconsin-Madison	National University of Singapore	University of Sheffield
Features that improve search functionality			
Categorise search results by subject, author and year, narrow results by author/topic/language	x	Popular	<i>Least popular</i>
Relevance ranking	Popular	X	Popular
Spell-check, Did you mean?	Popular	O	X
Search across multiple database and library catalogues	X	Popular	X
Search by subject	X	X	Popular
Recommender features			
Suggest other relevant material, most popular or related titles, recommended item list	Popular	Popular	Popular
Features with Web 2.0			
Add your own book comments, ability to rate/write reviews	<i>Least popular</i>	<i>Least popular</i>	X
RSS feeds, email alerts	<i>Least popular</i>	<i>Least popular</i>	X
Personalisation features, create library profile to display research interests, your recent searches	<i>Least popular</i>	O	<i>Least popular</i>
Add your own tags, ability to tag items	O	<i>Least popular</i>	X
Sort by popularity	X	X	<i>Least popular</i>

O = Feature that was neither “popular” nor “least popular”
X = Option was not offered in the survey

Comparing the different surveys is hard, partly because of ambiguities of wording of the features and differences in options offered to those surveyed. Nevertheless, some common popular and least popular features for users can be identified. The most popular features among the three users’ surveys are relevance ranking and borrowing suggestions. Evidently, users want borrowing suggestions for the next-generation OPACs. In addition, supported by two survey results, relevance ranking is also desired by users.

In contrast, the least popular features among the surveys are RSS feeds and user reviews. These two features are related to Web 2.0. Nearly all the “least popular” features in each survey are also related to Web 2.0, i.e. “ability to tag items”, “create library profile to display research interests”, “your recent searches”, “sort by popularity”, “add your own book comments”, “RSS Feeds”. This shows that users seem less interested or familiar with Web 2.0 ideas. From the table, it may be concluded that library users library users

prefer features that can improve the searching experience rather than those that emphasize participation and social uses of the OPAC.

3. Methodology

The focus of this study is international students. The primary reason for choosing international students as the target group of this research was because it was hypothesized that they might have distinctive needs. In the 1990s studies of international students coming to American universities identified a range of barriers to library use, including unfamiliarity with libraries and ICT in libraries in particular. Such absolute barriers seem to have declined (Jackson 2005) and ironically OPACs may now be relatively more important to international students than home students, who in contrast have turned more quickly to electronic resource use. Liao et al. find that “more international graduate students than American students find information in library books and the library online catalog plays a more important role in international students’ information seeking” (2007: 23). They may also have a particular set of issues with searching (Mehra and Bilal 2007). Non-native speakers may need also to spend more time and effort on searching than native speakers (Kralisch and Berendt, 2005). Such research indicates that international students have quite specific needs from OPACs and are therefore worthy of a study in their own right.

For this study sixteen international students of the University of Sheffield were interviewed in July 2008. A semi-structured interview was used for this research because of its flexibility. As Preece (2007) suggests, an informal, open-ended interview can be an appropriate approach for exploring how users think about a new idea for an interaction design. In addition, to an interview question schedule, screen mockups were also prepared for interviews. The use of screen mockups are mainly for eliciting interview responses, in addition, to act as tools for showing and discussing the new features of next-generation OPACs to interviewees. Screenshots of Star catalogue were the base of all mock-up screens. The mock-up screens were inspired by the features of Google, Amazon and next-generation library products.

The focus of the study was the catalogue of the University of Sheffield Library, STAR. The University of Sheffield purchased the first web-based catalogue “WebOPAC” from Talis in September 1996, when it was already called “STAR”. Since then, there have been some improvements have been made over the years. In March 2003, the university purchased another product “Prism” from Talis, which is the current version of STAR; it became the default OPAC in summer 2004. A new version Prism called “Prism 3” has been developed by Talis. The university will probably move to embed the new version of STAR and let to users to use it before summer 2009. In this study, students’ information behaviour and their preferences in relation to next-generation library catalogues are identified for developing STAR towards being a more user-centered OPAC.

4. Findings of the Interviews

The 16 interviewees are undergraduate and postgraduate international students from the faculty of Arts, Pure Science, Engineering, Social Science and Architectural Studies of the University of Sheffield. They range in age from 20–40. They were from nine different countries, including China, India, Indonesia, Japan, Libya, Malaysia, Philippines, Taiwan and the United States of America. The study included male and female respondents: six males and ten females.

In general, interviewees had positive comments about the Star catalogue. They all used Star at least a few times a month. It seemed that their searching was quite course-centered, as they tended to use the library catalogue only when they needed to do assignments or prepare for examinations. In addition, most of the interviewees limited their use of STAR to searching for physical books and did not use it for electronic resources. Another notable use of STAR for interviewees is for renewing books. Other functions, such as advanced search and the “library branch” function which users can limit their search to a specific branch, are not very heavily used among those users.

Nevertheless, it can be seen that interviewees’ practices are conditioned by Google. Nearly all the interviewees stated that they generally use keyword-searching and seldom use author-search. This may be because they have got used to putting keywords in the Google search box. They all used Google everyday for everything, including for academic searching. However, some interviewees (5) stated that sometimes they find it difficult to find useful information in Google or Google Scholar, because there are “too many results” and they are “not all relevant”. In addition, it can also be seen that interviewees are not active creators of content through Web 2.0 technologies. Although more than half of the interviewees were familiar with user comments on web services, e.g. Amazon, eBay, YouTube, only two of the interviewees stated that they have contributed comments or had an interest in contributing.

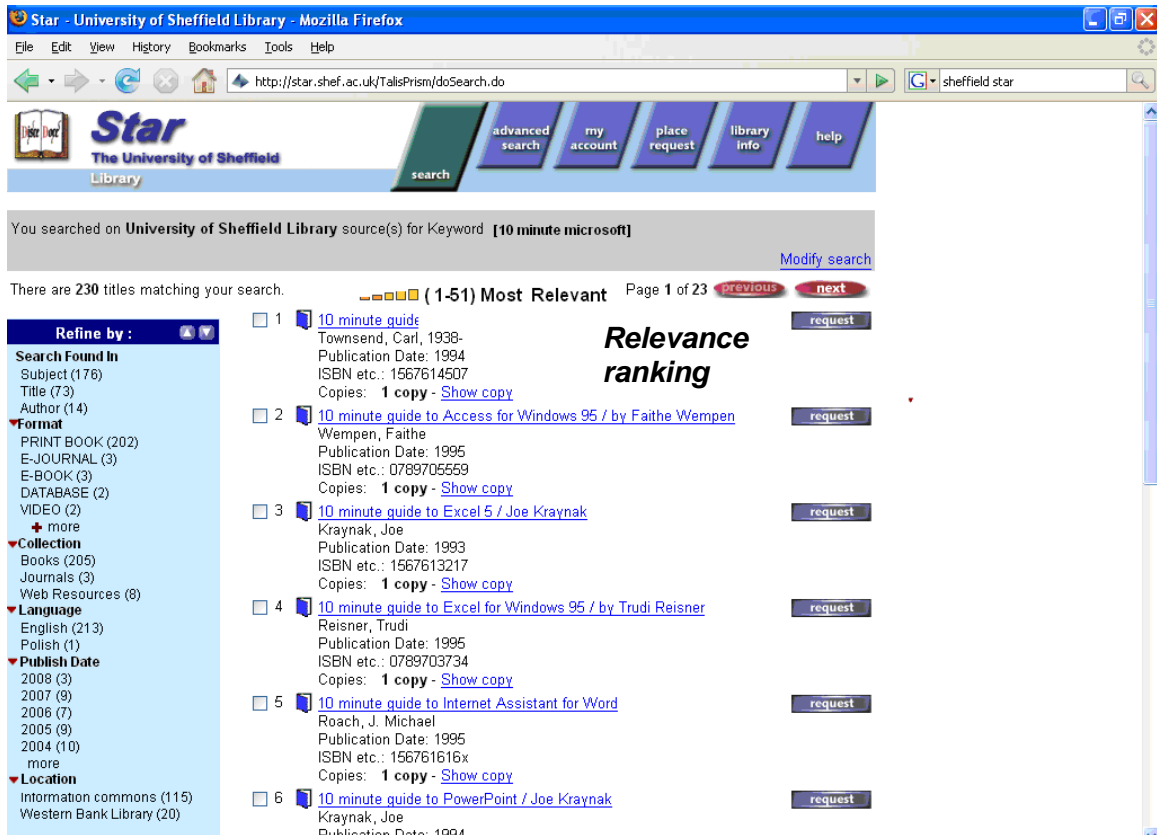
The interviews were divided into four parts, exploring respectively features that improved the search experience, Web2.0 technologies, enhanced display, and finally a section where interviewees were asked to state their preferences among all the features examined in the interview.

4.1 Features that Improve the Search Experience

Table 2 Users’ preferences among features improving the search experience

	Faceted browser	Relevance Ranking	Spell checker
Useful	16	14	13
Not useful / Unsure	0	2	3

Figure 10 Screen mock up of STAR with faceted browser and relevance ranking



- **Faceted browser**

All 16 interviewees agreed that the faceted browser would be useful to them. They remembered using the faceted browser in websites such as eBay, online shops and Amazon. Generally, all the interviewees felt it was useful because the facet can narrow down the results effectively (5), save their time and provide a clear overall idea of the search results. Furthermore, some interviewees (4) thought that the faceted browser had a similar function to the traditional advanced search, but they felt that the faceted browser is much easier to use.

14: *“I think the purpose of this feature is same as the advanced search ... I seldom use the advanced search ... But this one I definitely will use it ... as it is more user friendly than the advanced search”.*

- **Relevance ranking**

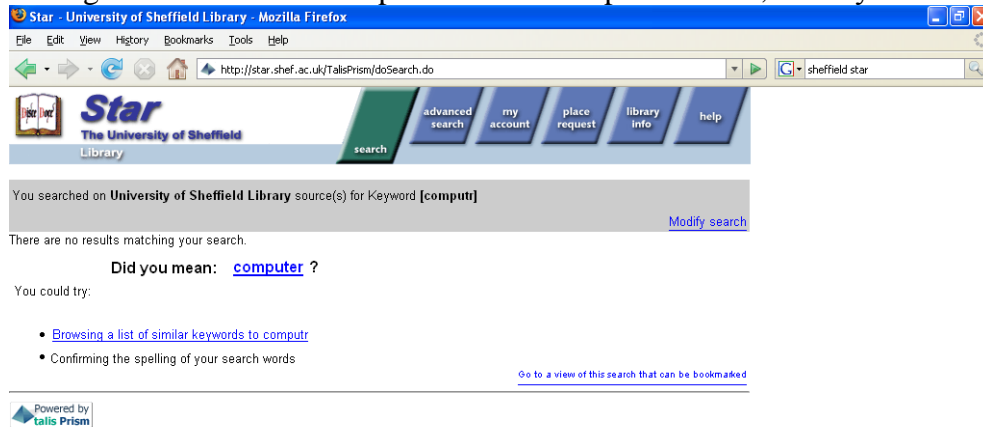
14 out of 16 interviewees expressed a sense that relevance ranking is useful and important. Seven interviewees state that the main reason of they like it is because of saving time, as interviewee 2 said:

“Relevance ranking is much better and useful ... because I can get what I want immediately ... the result is mainly on the 1st page ... so I don’t need to scroll down or check over pages ... it saves my time”.

It appears that people trust search engines. Most of the interviewees believed that the information they want will appear on the very top ranking or on the first page.

However, surprisingly about half of the interviewees were also concerned about how this feature actually works. They wondered how the search engine can know what they actually want and how the search engine decides the relevance, although the interviewees still agreed on the benefit of relevance ranking. They observed that relevance ranking is still better than the traditional alphabetical sorting. In addition, two interviewees had some suggestions to improve the relevance-ranking feature, such as displaying the relevance-weighting field in each item. In addition, one of the interviewees suggested that it would be beneficial if the user could not only sort results by date, author or alphabet, but could also see the relevance of each item at the same time.

Figure 11 Screen mock up of STAR with spell checker; “Did you mean?”



Most of the interviewees (13) stated that spell checker was a good feature.. They mentioned that spell checker is especially helpful to international students, as their first language is not English. However, only two interviewees thought that it was necessary. Most of the interviewees stated that the main function of the spell checker would be to find out their typing mistakes.

112: *“Actually, I don’t have much trouble in spelling ... but when I’m typing fast, I want to have a spell checker”.*

Generally, most of the interviewees (13) commented that the spell checker would save time and is very convenient. However, three interviewees pointed out the weaknesses of spell checker; for example, that it cannot recognise some professional terminology and spell checker may suggest some incorrect words which are not what people actually mean.

- ***Which features do you like the most?***

Interviewees who like the faceted browser the most suggested that it is because it enables users to have more control over what they want.

Table 3 Users' preferences among features improving the search experience

	Faceted browser	Relevance ranking	Spell checker
Total	11	5	0

Interviewees were asked to choose only one feature among the three. It is surprising that none of the interviewees mentioned the spell checker at this point. All of the 16 interviewees just compared the faceted browser with the relevance ranking. It is possible that, as one of the interviewees said, *"I still have the ability to spell"*. Eleven out of 16 interviewees liked the faceted browser the most. They thought that the faceted browser not only narrows down the results quickly but also they have much more control over what they want than relevance ranking provides.

I10: *"what if ... it said 1-2000 results are the most relevant to me?"*

On the other hand, five interviewees liked relevance ranking more. All of the five interviewees said that relevance ranking can save more time because the results are sorted, and thus people do not need to go page by page. In addition, they mentioned some limitations of the faceted browser; for example, the faceted browser is useful only when there is a large number of results.

4.2 Features Including Web 2.0 Technologies and Amazon Features

This section of the interviews investigates what interviewees thought about the idea of adding Web 2.0 technologies and Amazon features into STAR.

Table 4 Users' preferences among Web2.0 technologies

	Reviews and ratings	User who borrowed this item also borrowed	Unavailable? Try these ...	RSS
Useful	9	12	15	9
Not useful / Unsure	7	4	1	7

Figure 12 Screen mock up of STAR with RSS feeds, Reviews and Recommendations

The screenshot shows a web browser window with the URL http://star.shef.ac.uk/TalisPrism/browseResults.do?expandedWorkID=0&browse_action=9051&rootRSetI. The page header features the 'Star' logo and navigation tabs for 'advanced search', 'my account', 'place request', 'library info', and 'help'. Below the header, a search bar indicates the search term 'international economics' and shows '45 titles matching your search'. A table of search results is displayed, with the following details for the first result:

Author Krugman, Paul R. ★★★★★ (3 user reviews)
Title International economics : theory and policy / Paul R. Krugman, Maurice Obstfeld.
Edition 5th ed, International ed.
Series Addison-Wesley series in economics
Publisher Reading, Mass. ; Harlow : Addison-Wesley, 2000.
Bib Id 1342086
ISBN, etc. 032107727X :
Subject International economic relations.
 International finance
Notes Previous ed.: 1997.
 Includes bibliographical references and index.

Copies:

Location	Shelfmark	Loan Type	Due Date	Copies	Loans	
St George's	337 (K)	Standard		2	0	Show details

Below the table, there are sections for 'Users Who Borrowed This Item Also Borrowed' (listing 'Economic Analysis in Health Care' by Stephen Morris and 'Microeconomics' by Hugh Gravelle) and 'Most Helpful User Reviews' (featuring a 5-star review by Tania Groth dated 27 Mar 2008).

- **User ratings and reviews**

It seems that the idea of embedding user ratings and reviews into library catalogues is somewhat controversial, with nearly half of the interviewees (7) stating that this feature would not be not useful for them. They thought that user ratings and reviews could not work as well as on Amazon. As one of the interviewees said:

I14: *“we are just borrow books but not buying books ... And we can go to library and pick up the books directly ... so it becomes less crucial”.*

In addition to this, some interviewees thought that academic library catalogues should be different from commercial or entertainment websites. They felt that information on the library catalogues should be more objective rather than including subjective comments or comments with personal feelings. They disliked the comments because of the possibility of influencing people’s choices. Furthermore, three interviewees pointed out that students study different subjects and they have different views; thus the interviewees doubt the usefulness of the comments.

In contrast, nine out of 16 interviewees thought user ratings and reviews were helpful, especially because the reviews can provide extra information about the books, and they think that comments from users can reflect the truth better. All these nine interviewees thought that the comments could help them to make better decisions.

I12: “it is good to have more information about the books ... and we can use the user reviews to compare with other books ... as sometimes there are so many books in the same topics ... I don’t know which one is better ... so the reviews from user should be helpful”.

However, some of the interviewees suggested that the reviews could be more be more reliable if they were written by academic staff or a librarian. Thus, the responses show that interviewees were concerned about the quality of the comments. All of the interviewees, including those who thought the reviews were useful, stated that they probably would not contribute a review because “it takes time to write”.

- **RSS**

More than half of the interviewees (9) were uncertain about the usefulness of RSS feeds. This seemed to be mainly because they were not familiar with the technology. It was noted in interview responses that none of the interviewees use RSS regularly. Only two of the interviewees knew what RSS was before the interview. However, seven of the interviewees believed that the feature can be useful to them, especially the five research students included in the study. This is obviously because the RSS feeds can help them to get the latest literature more easily. However, a few of the interviewees (3) pointed out that students usually search books just for doing assignments, so interviewees suggested that RSS subject feeds related to their study would be more useful than having RSS feeds for their search inquiry. In addition, six interviewees thought that it would be good if they could use the feeds to find out about the latest journal articles and books that related to their study.

I14: “If it related to my study then it is useful, if not then it is useless”.

Two of the interviewees preferred to get email alerts rather than RSS feeds.

- **Borrowing suggestion**

Table 5 Users’ preferences among features related to borrowing suggestions

	User who borrowed this item also borrowed	Unavailable? Try these ...
Useful	12	15
Not useful/Unsure	4	1

Two features of the borrowing suggestions—“the user who borrowed this item also borrowed” and “Unavailable? Try these ... ”—were investigated in the interviews. The results show that interviewees were quite positive in their attitudes towards both features.

- **“The user who borrowed this item also borrowed”**

Nearly all the interviewees realised that the idea of this feature was taken from Amazon. Some 12 out of 16 interviewees thought that the feature would be useful if applied to the STAR. In general, the interviewees considered whether the suggestions can provide items with much “relevance” to them. Six of the 12 interviewees believed that the suggestions could give them “related” items in regard to their search. However, it should be noted

that there is no guarantee that the items suggested to the user would be relevant. Despite this, some interviewees value the fact that the feature enables them to have a wider choice and a wider range of reading.

I 15: “without the suggestions ... I maybe never can find that book that I’m interested in”.

- **“Unavailable? Try these ...”**

Nearly all the interviewees (16) considered the feature was useful—mainly because it saves time—and it is a common occurrence that the book they need is unavailable. All 16 interviewees expected that this feature could help them by giving some useful and related suggestions. However, three interviewees pointed out that sometimes they just want a particular book, so the feature may not be useful all the time.

Figure 13 Screen mock up of STAR with recommendations

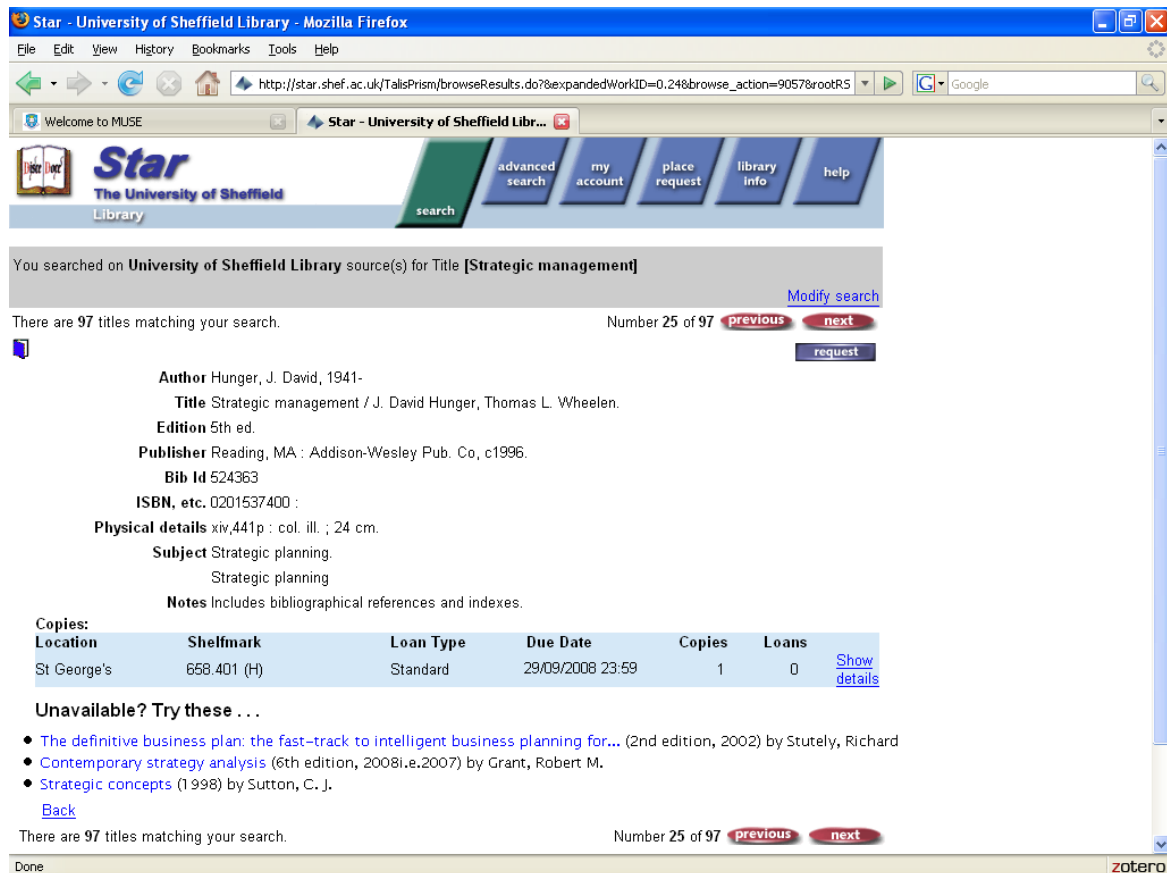


Table 6 Users' preferences among Web2.0 technologies

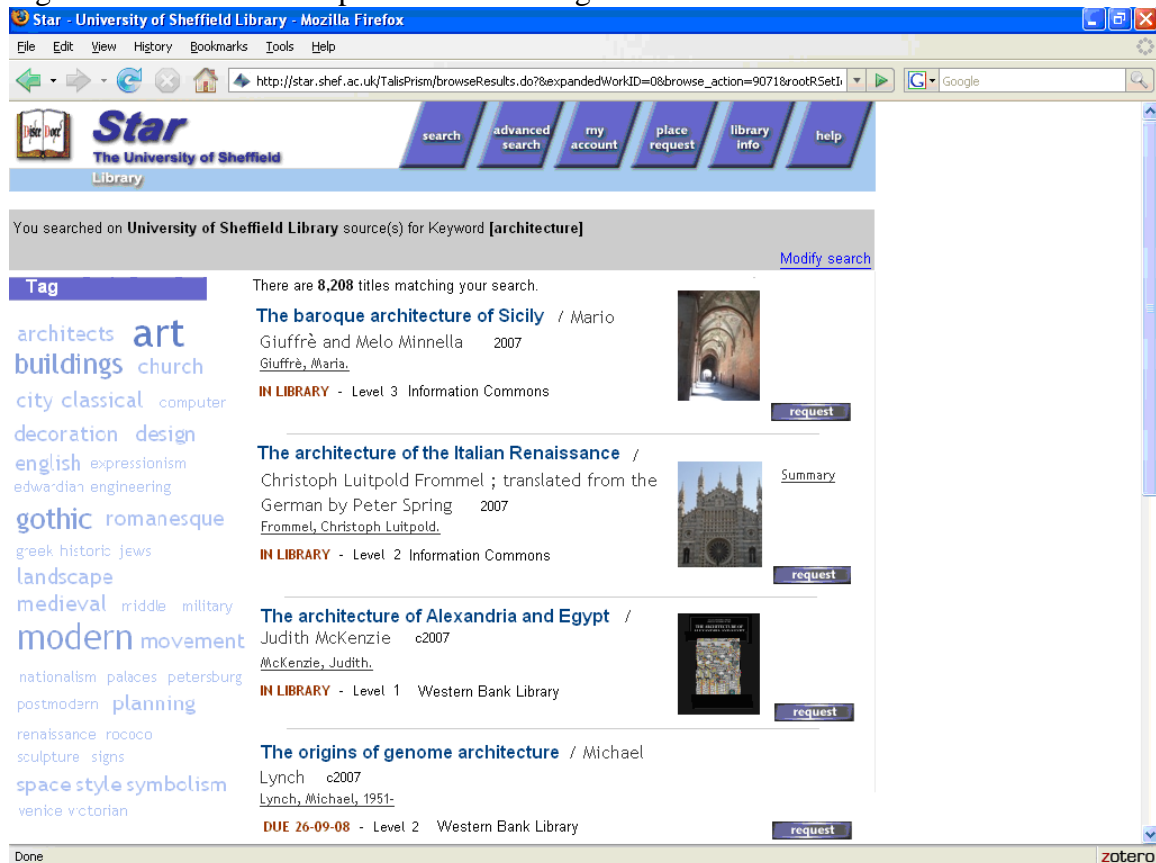
	Ratings & Review	User who borrowed this also borrowed	Unavailable? these ...	Try	RSS
Total	5	5	5		1

When asked their preference between the options in this section, the results were quite evenly distributed. Each of the features was favoured by some users. However, it is clear that RSS feeds were not popular among the interviewees. Only one interviewee liked the RSS feeds as a means of obtaining the latest information.

4.3 Features that Enhanced the Display of Star

This section explores what the interviewees felt about the usefulness of book jacket, tag cloud and some other record enrichments, such as the availability display and the location of the book on the initial search results list, summary and tables of content.

Figure 14. Screen mock up of STAR with tag cloud and book covers



Note: for copyright reasons this mock up is slightly different from one used during the research.

Table 7 Users' preferences among features offering enhanced display

	Book Jacket	Tag cloud
Useful	3	16
Not useful/unsure	13	0

When interviewees first looked at the screenshot, most of their first comments were “*the interface is so much different*”, “*it looks so attractive*”, “*I think I’m browsing Amazon*”. It appears that visual displays can make quite an impact on the user’s experience.

- **Book jackets**

Most of the interviewees (13) stated that the display of book jackets was not useful. Three of the 13 interviewees disliked the book jacket on the initial results page because they felt that the book jacket would occupy more space, so they were afraid it would take more time to scroll down the pages and browse the results page. On the other hand, nine of the 13 interviewees stated that it was not so useful because the book jacket would not affect their choice very much.

I 10: “*book cover won’t tell me the book is actually relevant or irrelevant to my search ... so it can’t affect my choice*”.

However, the book jacket is not completely ineffectual. In the interviews, all 16 interviewees made positive comments about book jacket, and most of the interviewees said, “*I like it*”, “*they look attractive*” and it is “*easy to read*”.

- **Tag clouds**

In the interview responses, more than half of the interviewees (11) had not seen a tag cloud before. Six of the interviewees stated that they felt very confused about the size of the fonts. They did not know that the size of the keywords indicated the level of importance and the popularity of the words. In addition, none of the interviewees valued the Web 2.0 characteristic of this feature—that the user can contribute tags. Nevertheless, all of the 16 interviewees discovered that a tag cloud is, in fact, useful to them. Four interviewees found that it would be useful because the tag cloud could help them to narrow down the results quickly, thus saving them time. In addition, it appears that tag cloud could also bring people’s attention to something that they may also be interested in but they did not realise that this was the case. Six of the interviewees agreed on this advantage of the tag cloud. For example, one of the interviewees said:

I1: “*I like the tag very much ... because it suggests some other term that is related to my search and probably I could not think of before ... and I can just have a click on it*”.

Nevertheless, only three of the interviewees claimed that tag cloud made the library catalogue look “modern” and “fancy”. This showed that the functionality of the tag cloud has a greater impact on the interviewee than the visual components.

- **Other features**

All interviewees liked the possibility that the catalogue might show the availability and the location of the book, including the floor number, on the initial results list. All of them stated that such features would be useful and could save time, because in the current STAR users need to click into the records in order to obtain that information. Two interviewees also mentioned that it is useful to have tables of content and summaries in a library catalogue, as these help them to make choices among books. However, one of the interviewees argued that as it is so convenient to go to the library, people can pick up books from libraries directly and look into the tables of content on site.

Table 8 Users' preferences among features offering enhanced display

	Book Jacket	Tag cloud	Other features
Total	3	8	5

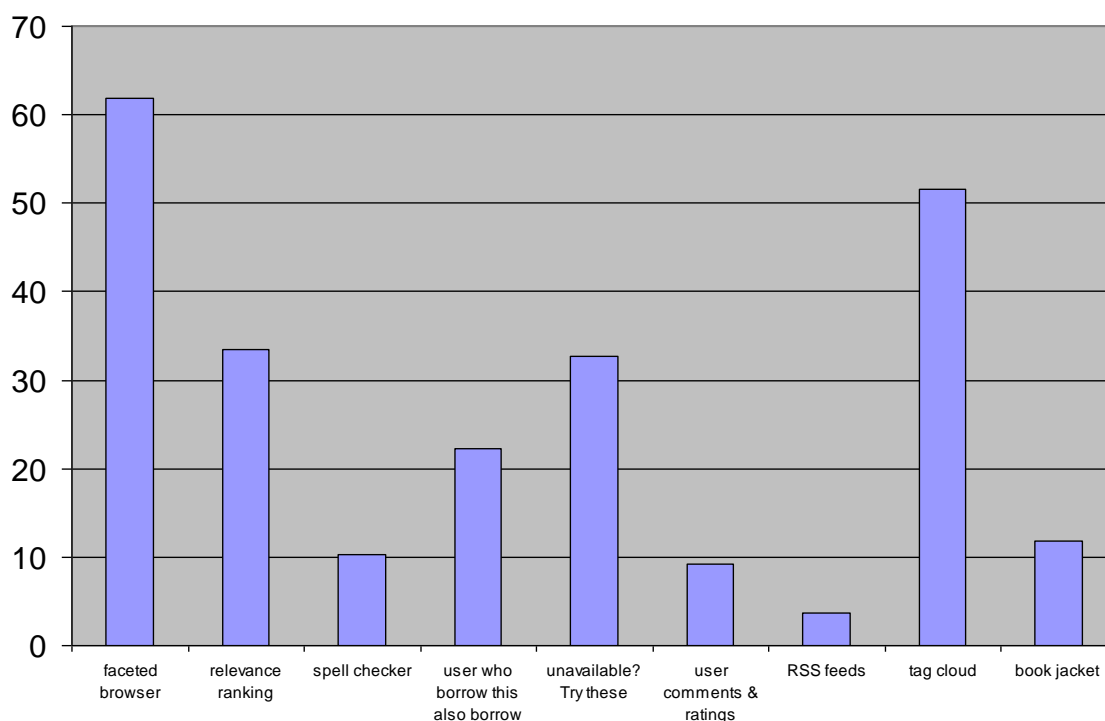
Interviewees felt that it was difficult to choose among those three features, as they liked all of them. Nevertheless, the decisions of the interviewees show that they liked the tag cloud the most because of its narrowing-down functionality, but they were less concerned with its visual impact nor its Web 2.0 character. On the other hand, the displays of the availability and the location of books are also quite popular: five interviewees liked this feature the most.

4.4 Final choice of favourite features

To conclude the interview, interviewees were asked to choose from all the features discussed, which were most useful. This was an open-question, thus interviewees were allowed to choose as many features as they want. However, only 2 of the interviewees wanted all 10 features. Most of the interviewees suggested around 3 - 5 features to libraries and they gave a different priority to each feature. A graph has been created which indicates the most important features as ranked by the interviewees, weighting the scores given by users 5 for their top pick down to 1 for their fifth (Figure 15).

Figure 15 Interviewees' final preferences

Which feature(s) do you suggest to libraries?



It can be seen that faceted browser, tag cloud, relevance ranking and “Unavailable? Try these...” were the top features that interviewees wanted in the next-generation Star catalogue. The RSS feed, user comments & ratings and spell checker were the least desired features.

5. Discussion

The findings of this study are generally consistent with results from prior surveys, i.e. users like relevance ranking and borrowing suggestions, and are less interested in RSS feeds, user ratings and reviews. However, a few inconsistencies can be found, such as the result of spell checker in this study is opposed to the results of University of Wisconsin-Madison libraries.

Table 9 Enhanced features in next generation OPACs

	University of Wisconsin-Madison	National University of Singapore	University of Sheffield (UG project)	University of Sheffield (this study)
Features that improve search functionality				
Categorise search results by subject, author and year, narrow results by author/topic/language	x	Popular	<i>Least popular</i>	Popular
Relevance ranking	Popular	X	Popular	Popular
Spell-check, Did you mean?	Popular	O	X	<i>Least popular</i>

Search across multiple database and library catalogues	X	Popular	X	x
Search by subject	X	X	Popular	x
Recommender features				
Suggest other relevant material, most popular or related titles, recommended item list	Popular	Popular	Popular	Popular
Features with Web 2.0				
Add your own book comments, ability to rate/write reviews	<i>Least popular</i>	<i>Least popular</i>	X	<i>Least popular</i>
RSS feeds, email alerts	<i>Least popular</i>	<i>Least popular</i>	X	<i>Least Popular</i>
Add your own tags, ability to tag items	O	<i>Least popular</i>	X	Popular
Personalisation features, create library profile to display research interests, your recent searches	<i>Least popular</i>	O	<i>Least popular</i>	x
Sort by popularity	X	X	<i>Least popular</i>	x

O = feature that was neither "popular" nor "least popular"
X = feature that was not offered in the survey

5. 1 Best Features according to this study

From this study, four key features in next-generation catalogues can be identified as being the most useful in the opinion of the interviewees:

- Faceted browser
- Tag cloud
- Relevance ranking
- Borrowing suggestions

The faceted browser was the most popular feature offered to interviewees in this study. The user survey of the National University of Singapore Libraries (2008) had the same result. However, the University of Sheffield undergraduate student project indicated that the faceted browser was the least popular feature. It is possible this difference was because of some ambiguities of wording in the study. "Narrow results by author/ topic/ language" was used in the undergraduate student project. It should be noticed that a faceted browser can narrow results not only by author, topic and language, but also subject headings, name headings, format and publication date etc. The result in the earlier study may indicate that a faceted browser only can narrow results by author, topic and language will not be enough for users. Interviewees comment the feature works efficiently, is easy to use and would let them have some "control" of what they want during searching.

The tag cloud is another feature that the interviewees favoured. However, the results are not supported by other surveys. Both University of Wisconsin survey and the Sheffield student project did not offer this option to users. Furthermore, the Singapore study shows that it is the least popular feature. However, it can be seen that the score of "display tag cloud" in Singapore study is not very low, i.e. 2.49 / 4 (p.4) although it is a "least popular" feature. Nonetheless, interviewees in this study were enthusiastic about tag

cloud. This study shows that interviewees like it is not because of its Web 2.0 community aspect (i.e. that users can add tags to content) as recommended by system providers such as Encore (III, 2008) but as being good for narrowing down results, echoing the conclusions in the work of Breeding (2007). They feel that it enables them to carry out searches faster and more efficiently. It can be seen again here that users like time-saving features. They like tag clouds also because they draw attention to some words that they could not think of before, and those words are actually useful and related to their search. Indeed, users like discovering related items. Thus, this seems to be a good way to develop next-generation OPACs as a discovery platform, instead of only being a “call-number looking system” (Antelman et al, 2006).

It is very clear that relevance ranking is the feature that is most expected by users. The findings of this study, the user survey of UW Madison Libraries and the Sheffield undergraduate student project also indicate that relevance ranking is very important to library users. All three results showed that relevance ranking is in the top rank among other features. The reason interviewees like it is mainly because it saves their time. However, in the interviews, it is surprising that interviewees are quite concerned about “how libraries can retrieve the most relevant items” for them and how the search engines define the relevance algorithms. They seem to doubt that OPACs can retrieve these kinds of ‘magic’ results successfully. Thus, it is important to say that libraries need to ensure that library systems perform good relevancy ranking (i.e. that items that are the most important and interesting to students should appear at the top of the results).

In relation to the findings of the user surveys of the National University of Singapore Libraries and UW Madison Libraries and the University of Sheffield, all of them indicated that students consider borrowing suggestions to be a useful tool for improving their search experience. Two borrowing suggestions have been examined in this study: one is “the user who borrowed this also borrowed” and the other one is “Unavailable? Try these ...”. The results show that interviewees have a preference for “Unavailable? Try these ...”. Thus, users really want some kind of help, especially when they have some failure in their searching procedure. Moreover, interviewees pointed out that the usefulness of borrowing suggestions depend to a greater extent upon whether or not the suggestions can provide materials “relevant” to them. This echoes the report of the University of California Bibliography Services Task Force (2005: 12), which stated that suggestions should have “scholarly depth and significance” to users.

5.2 Less preferred features

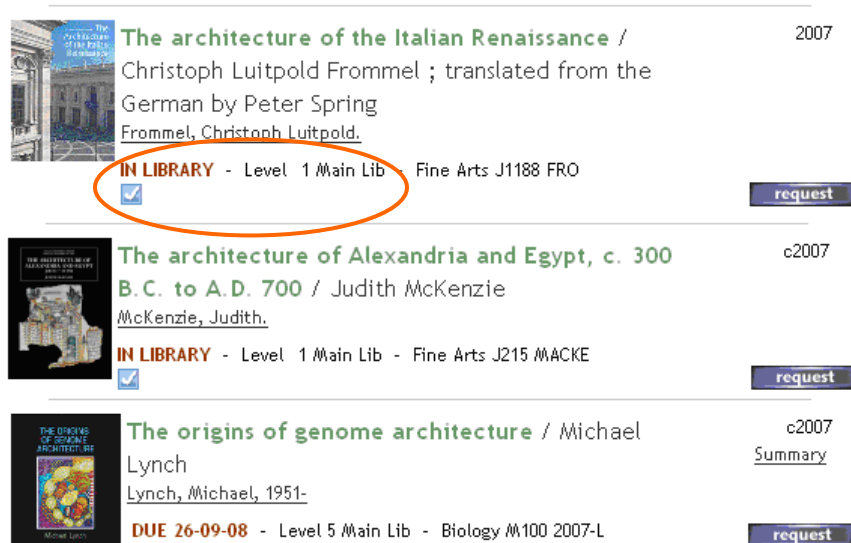
- Spell checker
- Enriched content

Generally, interviewees placed less value on such features as the spell checker and enriched content. However, it does not mean the features were useless to them. It can be seen that it is only because spell checker and enriched content seem not to have such a prominent influence on their search experience as other features such as the faceted browser. In regard to the spellchecker, there is some inconsistency between the findings

of different studies. In this study, spellchecker is one of the “least popular” features. The National University of Singapore libraries user survey (Lim, 2008) also shows that spell-checker is not favored by users. However, the UW Madison Libraries user survey (2008) indicated that spell checker “Did you mean ... ?” is the most useful feature for their respondents. It shows that different groups of users have different needs. It was found that most of the interviewees in this study stated that the spell checker is useful to them indeed; however, compared to other features, interviewees rated it as the lowest rank of importance to them and commented that it is an unnecessary feature. Interviewees from this study are all international students; thus, it is a bit surprising that the need for a spell checker is not that great. Nevertheless, implementing spell checker in next-generation OPACs is a trend that libraries have already begun to implement. Furthermore, it is important to draw attention to the fact that spell checker for academic searching needs to be more sensitive to professional terminology than those Web search engines like Google.

The findings of this study show that interviewees do not have a strong interest in enriched content such as book jackets. They do not mind whether OPAC has book covers or not. This results echo the survey of the National University of Singapore (Lim, 2008). The University of Wisconsin survey and the Sheffield student project did not offer this option to users. Thus, it is difficult to conclude that book jackets are useful to users. In the literature, it can be seen that practitioners have already had different opinions of using such “eye candy” as book covers or other visual features. The argument is mainly with regard to the functionality of those visual features. In the interviews, some interviewees mentioned that book jackets and icons made the reading feel easier, echoing Breeding (2007). Thus, apparently, there is some hidden function of visual features that interviewees did not recognise. In addition to this, interviewees expressed the notion that displays of the location and availability of the book on the initial search results page are more important and helpful than book jackets. It appears that they preferred features that can save time.

Figure 16: Screen mock up of STAR with displays of the location and availability of books



5.3 Least valued Features

- Tagging
- User reviews
- RSS

User surveys of the National University of Singapore libraries, UW Madison Libraries and STAR all indicate that Web 2.0 features, including tagging, user reviews and RSS, are rated as the least useful among other features. From the findings of the interviews, it can be noted that different people have different expectations of implementing user ratings and reviews in OPACs. Some interviewees like reading user reviews to obtain more information about the items; some interviewees dislike user reviews because of the diverse quality of the comments and their inherent subjectivity. Web 2.0 ideas are constantly being advocated for library services in the literature. However, in reality, it seems that Web 2.0 is relatively new to users. Library users are not really familiar with and enthusiastic about those Web 2.0 technologies. In the interview responses, almost none of the interviewees have used RSS feeds; indeed, as interviewees said: “I’m not interested in technologies”. Furthermore, the OCLC reports that there is an issue of “Sharing, privacy and trust in our networked world” (2007) and the findings of this study also support the idea that not many students currently have the habit of contributing comments on the Web. It is difficult to say that this is the perfect time for libraries to implement those Web 2.0 features in OPACs. Academic libraries have many constraints that need to be considered, such as cost and time. From another point of view, in order to consider this as a long-term development, it may be worth adding Web 2.0 features into library catalogues at this stage, in order to encourage students to participate and contribute more in libraries. Libraries could take a leading role in promoting and creating a knowledge-sharing culture within groups of students and universities.

6. Conclusion

This study shows that the faceted browser, tag cloud, borrowing suggestions and relevance ranking are the most desirable and useful features from the perspective of international students. Generally, the findings of this study are consistent with results from the few prior studies, i.e. users like features that can improve their search experience such as relevance ranking and borrowing suggestions, and dislike features with Web 2.0 like RSS feeds, user ratings and reviews. However, a few inconsistencies were found, such as the results of spellchecker and tag cloud are opposed to the results of some prior studies. Nevertheless, it can indicate that different groups of users have different needs.

Generally, students’ expectations of OPACs are not very high. It can be seen that international students like features that are quick, easy to use and relevant to their search. Obviously, users’ views are essential factors when developing usable and user-centered OPACs. This has been a small scale study, and international students may have quite specific needs. These are important in themselves, but may not be a good guide to the response from home students, who may be more experienced with searching for electronic resources. Furthermore, if users are not experienced with the particular feature

an initial opinion may be a misleading guide to future preferences. Nevertheless, it is clear that libraries need to be more proactive in gaining an awareness of users' preferences and in identifying their different needs in order to provide user-centered OPACs. This paper has been a small contribution to libraries' understanding of user needs. Within the resources available it was only practical to study one particular group systematically. It is hoped that by publishing the current results others will be encouraged to build on the findings. In a rapidly evolving field there is a need for many more studies to be undertaken and published. It is important that libraries think carefully about how to further develop and take full advantage of those new features to make them more meaningful to users.

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