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

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Abstract

Background / Aims. Driven by the World Wide Web and Web 2.0 technologies, next-generation OPACs come into view. There are many different new features can be found in the next-generation OPACs. Libraries are considering what kinds of features need to be included in the next-generation library catalogues. The study explores the preferences of the university of Sheffield international students for the features in next generation OPACs. The objectives of this study are to examine the development of next-generation OPACs in UK universities and identity the features that users desire for the next generation OPACs.

Methods. Two different approaches were used for the study, i.e. a study of universities OPACs and interviews. The study of universities OPACs was carried out to evaluate 153 UK universities OPACs. It focuses on measuring how many universities libraries have delivered the new features to users. The main part of this study is the interviews with 16 University of Sheffield international students. Semi-structured interview schedule was developed. Mock-up screen were also used to elicit interview responses.

Findings. The findings of the universities OPACs study shows the development of next-generation OPACs in UK is in the initial stage. Not many OPACs have been upgraded to next-generation OPACs. The results of the interviews were broadly confirmed with other prior studies. Students have difference priorities to different features. 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 not favored by students. In addition, different views between librarians and users were also found in this study.
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Chapter 1 Introduction

1.1 Background of Study

Library catalogues have long played an important role. They enable end-users to access the library collections easily and effectively. Nowadays, academic libraries are using web-based online public catalogue (OPACs). In the UK, OPACs are one of the most significant library services in higher education institutions. All UK universities now have their own OPACs. It is clear that OPACs have an essential role in helping students to locate library resources effectively.

Further developments in OPACs are necessary in order to maintain this significant role. It is evident that there is a decrease in student usage of OPACs (Danskin, 2006). This is probably because of the widespread of use of the Internet and the trend towards using Web 2.0. It has become increasingly apparent that students have a broad experience of using the Internet and its services, such as Amazon, Google, YouTube and Flickr. To put it simply, students like Google more than they like OPACs. It seems that now is a crucial time for libraries to look at OPACs again and to make improvements to keep up with the trends, or OPACs will lose their role in the future.

It is clear that Web 2.0 has driven the evolution of “next-generation library catalogues”. Many new ideas for next-generation catalogues, such as implementing Web 2.0 concepts into OPACs, are now widely discussed. In addition, it can be seen that academic libraries have started to consider having modern next-generation OPACs in their libraries, which allow users to rate and write reviews of the content, in order to meet the expectations of the web-savvy users. Nonetheless, in order to further develop OPACs, it is important to know the behaviour and actual needs of library users, and also their preferences for the next generation of OPACs.
1.2 Justification of Study

Research into OPACs has a significant role to play and it has been undertaken since the appearance of OPACs. A large volume of writing on OPACs has appeared over the last forty years. And it appears that the study of OPACs will be on-going. The importance of OPAC research can be noted from Large and Beheshti (1997: 113). They stated that the main aim of OPAC research is “to gather information that will enable more effective OPAC systems to be designed and deployed in libraries”.

The University of Sheffield purchased the first web-based catalogue “WebOPAC” from Talis in September 1996, which have already been called “Star”. Since then, there were 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. And it became the default OPAC in summer 2004. Lately, a new version Prism called “Prism 3” is developing by Tails. The university will probably to embed the new vision of Star and let users to use it before next summer 2009.

In this study, Star, the catalogue of the University of Sheffield Library, was investigated. Star appears to be a key way for students to locate information and perform academic searches, as a majority of library collections and resources are listed in the STAR library catalogue. As stated in the Information Strategy of the University of Sheffield 2006–2009, it is essential “to make information more accessible” for enhancing students’ learning experience. Thus, it is vital to improve Star further for students. In this study, students’ information behaviours and their preferences in relation to next-generation library catalogues are identified for developing STAR towards being a more user-centered OPAC.
1.3 Aims and Objectives

This research aims to investigate the preferences of international students of the University of Sheffield on the next-generation of OPACs. There are several objectives, including:

- to identify to what extent academic libraries in the UK have adopted the new features of next-generation OPACs;
- to investigate how students use STAR;
- to explore the preferences of students in relation to the features in next-generation library catalogues.

It is hoped that the findings from this research will contribute to the further development of OPACs, and especially to Star, the library catalogue of the University of Sheffield.

1.4 Outline

Chapter 1 states clearly the background to the present work, the justification for the study, and its aims and objectives. Chapter 2 provides a literature review, which includes work on the development of OPACs, the role of library management systems, the perception of a threat from Google and Web 2.0, next-generation catalogues and prior research about users’ preferences. Chapter 3 presents the research methodology of this study, including an explanation of the inductive and mixed research approach, a study of universities’ OPACs and interviews for data collection and research ethics. Chapter 4 presents the findings of the study of universities’ OPACs, and examines the features in OPACs of 153 British universities. Chapter 5 presents the findings of the interviews; the data is from interviews with international students at the University of Sheffield. Chapter 6 discusses the findings of the interviews and the study of universities in relation to the literature review section. Chapter 7 concludes with a summary and limitations of the research; in addition, recommendations for libraries and further research are also presented.
Chapter 2 Literature Review

Online Public Access Catalogues play an important role and have significant value in academic libraries. There is a considerable amount of literature regarding the development of OPACs. In this chapter, the relevant literature on OPACs will be presented. Topics include the development of OPACs, the role of library management systems, perceptions of a threat from Google, Web 2.0 technologies, next-generation OPACs, and prior research regarding users’ preferences.

2.1 The Development of OPACs

Online Public Access Catalogues (OPACs) have been developed over the past forty years. The first appearance of OPACs for libraries was in the mid-1970s, which is before the emergence of the World Wide Web (Large and Beheshti, 1997). The first generation of OPACs aimed to provide the same function as a card catalogue; that is, it was to provide access points and bibliographical information and for known-item searching (Large, A. & J. Beheshti, 1997; Antelman et al., 2006). According to Hildreth’s article, “Online Public Access Catalogs: the user interface” (1988), it appears that users at that time liked the emergence of OPACs and had “a positive attitude to the online catalogue” (1985: 266). Users liked OPACs because they found that they were much easier to use and were faster than card catalogues (Dowlin, 1980; Mercun & Zumer, 2008). However, the first generation OPACs are not perfect. Researchers such as Brenner et al. (1981) and Hildreth (1985) criticised the fact that libraries provided a user-friendly information retrieval system that could be used not only by librarians but also by others with no specialist knowledge. Users, on the other hand, were concerned that there was no subject search in the OPACs (Dowlin, 1980). It shows that there was a lack of understanding of users’ searching behaviour in the first generation OPACs. Thus, the improvement of the second-generation online catalogues focused on search capabilities.
The second generation OPACs appeared in the mid-1980s (Hildreth, 1995; Mercun & Zumer, 2008). They were more user-friendly, as they provided users with keyword searching, title searching and Boolean matching (Large and Beheshti, 1997; Antelman et al, 2006). Generally, OPACs were still popular among users at that time (Large and Beheshti, 1997; Markey, 2007). However, it is notable that users experienced some difficulties in searching and using the OPACs. Users needed to learn how to use the system and make queries (for example, understanding Boolean logic), and it appears that it was not easy for users and the results were not always satisfactory (Large and Beheshti, 1997).

After the appearance of the World Wide Web (WWW), the third generation web-based OPACs began to be used in libraries in the late 1990s (Large and Beheshti, 1997; Babu & O’Brien, 2000). Web OPACs saw further improvements not only in search and retrieval capabilities, but also in the graphical user interface. These improvements were made because, under the influence of the WWW, users had higher expectations regarding the interface design (Butterfield, 2003). However, by the late 1980s, commentators including Hildreth (1988) had already suggested some enhancements for the third generation of OPACs; for example, natural language searching, relevance ranking, an improved interface, and the provision of online help and user instructions. Thus, it can be seen that the development of the third generation of OPACs has been extremely slow. In addition, many researchers (Hildreth, 1995; Borgman, 1996a; Large and Beheshti, 1997; Antelman et al, 2006; Mercun & Zumer, 2008) criticise the fact that most of the library catalogues only change the “surface” but not the functionality of the catalogues.

2.2 The Role of the Library Management System

The Library Management System (LMS) has played a dominant role in the development of the OPAC interface. In general, the development of the OPAC interface is often dependent on the library system vendors. It appears that a lot of current library systems have been used for years, but it seems that there has been little or no improvement in them (Lindstorm & Malamsten, 2008). Antelman et al (2006) criticise the fact that
library vendors did not always address the problems in OPACs, such as the weakness of keyword searches. She reports that problems had already been acknowledged in 1987, but “two decades later ... all major ILS vendors are still marketing catalogs that represent second-generation functionality” (2006: 129). Thus, it can be seen that the development of OPACs is controlled by the library systems vendors; librarians and researchers just seem to keep on seeing the problems in OPACs: “We’ve had to take what we’re given by our ILS vendor and database vendors” (Boock, 2007: 5).

It appears that the current library management system cannot meet the expectations and needs of library users. Breedings (2007: 34) discovered that the current OPACs do not “incorporate at least the basics of how people use the Web today”, because the concept of current OPACs merely focuses on the connections of the physical inventory of the library. From another perspective, however, the LMS report (JISC & SCONUL, 2008) also mentions that more than ninety percent of library staff were satisfied with their LMS. Nevertheless, the library staff said that some items are missing from the current LMS, such as an “intuitive and modern interface”, “faceted searching”, “personalization” and “Web 2.0 functionality” (JISC & SCONUL, 2008: 55–6).

In the UK, the marketing of library management systems in higher education is well developed. Nowadays, all the higher education institutions in the UK have their own library management system. There are four main library vendors used by academic libraries in the UK. They are Exlibris, SirsiDynis, Innovative and Talis. These four library vendors retain around ninety percent of the higher education market (JISC & SCONUL, 2008). Although there are open source library management systems, no academic libraries have decided to use the open source products. Thus, it appears that the commercial library system vendors have dominated the development of the interface of OPACs in the UK.
2.3 Perception of Threat from Google

The appearance of the World Wide Web and searching tools such as Google has made a great change to the information environment, and the value of OPACs is also being challenged (Calhorn, 2006). Nowadays, people tend to use search engines rather than online library catalogues to search for information (Brophy & Bawden, 2005). Google has become dominant in academic searching (Myhill, 2006; OCLC, 2005; Fast & Campbell, 2004). It seems that libraries are in competition with web search engines and web services. As Bell (2004: 15) states, “Google has become the symbol of competition to the academic library”.

To put it simply, students like Google, which facilitates free-text and full-text searching, not only because it is easy to use, but also because it can retrieve a vast amount of information very quickly (Brophy & Bawden, 2005). It seems that Google facilitates faster and more efficient information searching. However, Brophy and Bawden (2005) argue that easy and quick access does not mean the quality of the information is high. In addition, Bell (2004) also criticises students who always just want to retrieve information quickly, but are unconcerned about its quality. From the reports of JISC and SCONUL’s “LMS Study Report” (2008), and OCLC’s “College Students’ perception of Libraries and information resources” (2005), support can be found for the notion that students prefer Google and Wikipedia to OPACs as their information retrieval tools, even though the students understand the information from the web may not be accurate. Everybody believes that all information can be retrieved on the Web for academic searching. However, Lawrence and Miller (2000:1) argue that this kind of expectation is “unrealistic and even dangerous”.

It is obvious that the changes on the Web and users’ first-hand experiences, lead to some changes in users’ behaviour and expectations of using library OPACs (Yu & Young, 2004; Mercun & Zumer, 2008). For example, people nowadays have already got used to natural-language searching; they put different keywords into one search box and get a large number of results that are sorted by relevance ranking. Thus, when students come to use library OPACs, they use keyword searches without using a Boolean operator. As
Blecic et al. (1999) state, this leads to an increasing percentage of incorrect syntax and keyword searches with no results from the OPACs. However, students expect the OPACs to behave in the same way as those easy-to-use search engines, online shops, and popular sites. Students compared their search experience in Google and Amazon to that of the OPACs and thought the OPACs were useless and difficult to use for searching. Thus, it is generally perceived that OPACs are much more difficult to use than a search engine:

“Review the current search catalog system as it is hard to find material relevant to the topic you search for”—18-year-old undergraduate from Australia (OCLC report 2005: 8).

It is clear that OPACs need further improvement. Many researchers have already reported that library OPACs are not the most important and widely available information retrieval systems anymore (Fast and Campbell, 2004; Antelman, 2006). Although OPACs seem to have been the only tool for accessing information in the past, especially in relation to library collections, the library catalogues now seem to have become only a “call-number looking system” (Antelman et al, 2006). Apparently, people like using web search engines and popular websites, not only because they feel they are easier to use, but also because of the effectiveness and the enhanced features of the interface (for example, the search results of Google are relevance ranked). As the LMS Study Report (JISC & SCONUL, 2008) said, “Millennial generation library users are well acclimatized to the Web and like it. They are used to relevancy ranking” (JISC & SCONUL, 2008: 28). In addition, the “catalogue” that Amazon uses to find books and CDs, is also favoured. It seems that they provide better features than OPACs. For instance, they have book jackets, reviews, ratings and recommendation services. It appears that people like “intuitive and aesthetically pleasing interfaces” (Lindstorm & Malmsten, 2008: 1). Breeding (2006 a: 34) suggests that improvements should be made to the OPAC interface, as it is now the case that “web users have a low tolerance for ineffective and clunky interfaces”. He also emphasises the fact that “failure to make progress … can foster a creep of irrelevancy as potential users increasingly rely on information resources provided other than libraries” (Breeding, 2007 b: 34).
2.4 Web 2.0 Applications

Web 2.0 technologies are having a great impact on library services, including OPACs. Despite the Web, Web 2.0 is another trend that affects users’ expectations. The term Web 2.0 first appeared in the summer of 2005 (Franklin & Harmelen, 2007). O’Reilly (2005) suggests that one of the significant aspects of Web 2.0 is that it allows the user to participate through collaboration; for example, users can create and share content on the web, and thus they do not only receive content anymore. It seems that this makes the web more and more attractive to users. As Breeding (2007) and Mercun & Zumer (2008) state, the emergence of Web 2.0 forces librarians and library system vendors to re-examine the role of libraries and the current library web technologies. They can thus evaluate whether the current OPACs can meet the expectations of the library users in today’s information environment.

On the other hand, it appears that libraries can implicate web 2.0 ideas into library services. In reality, the term “Library 2.0” has already been widely discussed. As Casey and Savastinuk (2006) state, the key idea of Library 2.0 is user-centered. Similar to Web 2.0, Library 2.0 allows library users to have the opportunity to contribute to library services. Casey and Savastinuk (2006) suggest that libraries should improve OPACs by creating a Web 2.0 environment, such as allowing users to write comments, create tags and ratings. It is believed that the value of OPACs can be expanded by inviting user participation but also implementing personalization features. However, the LMS Study Report (2008:33) argues that there is “a real danger that web2.0 and its application in the world of the libraries becomes an ill-defined catchall, representing ‘all things to all people’”.


**2.5 Next-generation Library Catalogues**

The term “next-generation library catalogs” refers to the new generation of library catalogues, which aim to provide better functionality in terms of library collections and services, and provide a better search experience to users (Breeding, 2007). It should be noted that the term “next-generation” can be misleading, as the products are already available. Breeding (2007:5) suggests that the term “current-generation library catalogs” may be more appropriate; however, as these new products have not been widely adopted by libraries, there may be some confusion with the conventional OPACs.

The appearance of “next-generation library catalogues” is a result of the widespread of dissatisfaction with OPACs. 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 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)

Thus, in those reports, many recommendations have been suggested to improve next-generation OPACs.

Driven by the trend of Web 2.0, library vendors realised that it is essential to improve the current library interface, and thus the development of “next-generation OPACs” was started. For example, the Talis white paper (Davis, 2005), “supporting the next-generation of applications for delivering rich library content and services” was announced in November 2005. Nowadays, several library vendors have already released
their latest products, the “next-generation library catalogs”. These products include 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 & SCONUL, 2008; UW Madison Libraries, 2008). All the new generation products are more tuned into the current technologies and to contemporary web user’s expectations (Davis, 2005; Boock, 2007; Breeding, 2007). Furthermore, it is clear that the next-generation OPACs are not aim for providing better search experience to users but also a “discovery” and “social academic library experience” (Breeding, 2007; Aquabrowser, 2008, Ex Libris, 2008; III, 2008; Talis, 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…”

2.6 Features of Next-generation Library Catalogues

There are many ideas that have been proposed for incorporation into a next-generation library catalogue (Schneider, 2006; NGC4LIB; Pattern, 2008; Breeding, 2007). Nonetheless, some of the next-generation OPAC features appear repeatedly in the literature. As mentioned earlier, next-generation OPACs are intended to meet the rising expectation of users under the influence of the “Amazoogle effect” and Web 2.0 (Davis, 2005: 4; Mercun & Zumer, 2008). Therefore, it can be seen that most of the features in next-generation catalogues have already appeared on current popular websites.

In general, the most common features of next-generation OPACs can be grouped to three categories:

- Features that improve search functionality;
- Features with Web 2.0 technologies and recommender features;
- Features that enrich content.
Features that improve search functionality

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. 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 the relevance-ranking, library users can have their search results in relevancy ranked order. In fact, library users have already become used to this feature (JISC and SCONUL, 2008), as Google, Yahoo and Amazon-like search engines have already used relevance ranking for search results. However, as Breeding (2007d: 13) states, “implementing a system that performs good relevancy ranking, however, can be incredibly difficult”. In addition, its weaknesses have already been realised. Nowadays, the relevance within the library OPACs is probably most often keyword- or subject-headings based. However, Breeding (2007d) comments more different ways for determinating the relevancy need to be explored. It is suggested that libraries should consider some other criteria to produce better results, such as “how often has an item been on class reserve lists, circulation frequency … number of institutions holding the item”. (Bibliography Services Task Force report, 2005: 17 ; Antelman, 2006 ; Markey, 2007). Thus, the OPACs can provide much more precise results that are significant to users.

Furthermore, an OPAC spellchecker has also been suggested (Antelman et al, 2006; Pattern, 2007). This feature will auto-correct the misspelled words in the queries. And a “Did you mean ... ?” feature will offer some suggestions to correct. This is similar to the Google spellchecker. With this user-centered feature in OPACs, users would not face zero results with no suggestions. However, it should be noted that spellcheckers used in academia need to be more sensitive to scholarly terms and multi-lingual spelling (Bibliography Services Task Force, 2005).
Implementing Amazon-like and Web 2.0 features become a focus of the development of next-generation OPACs. It appears that this progress is driven by commercial web-sites and Web 2.0. 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 & Schiff, 2006; Breeding, 2007). Whitney & Schiff (2006: approx. 5 screens) also support that this feature is desired by users and it is “successful in supporting academic task”. However, the report of Bibliographic Services Task Force, University of California Libraries (2005:12) suggests that academic recommender systems should be provide suggestions with “scholarly depth and significance” in order to meet the needs of academic library users.

Web 2.0 is a key ideas for next-generation library catalogues. Library system developers are enthusiastic in promoting and developing web 2.0 features in next-generation OPACs. It can be seen that “community participation features” (Encore), “Library 2.0 and social computing features” (Primo) and “social library experience” (AquaBrowser) are emphasised by those system developers. Several Web 2.0 features such as RSS feeds, comments, reviews, ratings and tag clouds have already appeared in the next-generation library products (Breeding, 2007c; Schmidt, 2008; Pattern, 2008). With RSS feeds, people can receive the latest information about new books or music CDs in the library. Thus, it is a good way for library users to keep up to date with their library collections. As one of the key ideas of Web 2.0 is to allow the user to contribute to the content, users reviews and ratings are encouraged to add into OPACs. With ratings, users can submit ratings, such as ‘excellent’, ‘very good’, ‘fair’ and ‘poor’. With user reviews, users can “write an online review and share thoughts with other readers” (Breeding, 2007:9).

In fact, it appears that some people have used the term “social OPAC” to describe OPAC that have integrated those social networking tools that allow users to rate, review and tag items. One of the leading examples of social OPAC is the Ann Arbor District Library Catalogue: aadl.org (Blyberg, 2007; Margaix-Arnal, 2007; Marchitelli & Piazzini, 2008).
However, from the OCLC report, “Sharing, Privacy and Trust in Our Networked Work” (2007), it can be seen that people, even students, do not have much interest in contributing content.

**Features that enrich content**

The content of OPACs can be enriched by adding table of contents and summary of the book but also visual displays (Breeding, 2007). For instance, it is possible to display the book jacket images, and to use tag clouds to brighten up the 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. In the reality, practitioners argue about 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) argues that the “development of ‘cool user interfaces’ should also be encouraged”. Breeding also supports the importance of having some visual representation, such as book jackets, in OPACs:

> “Even a thumbnail-size image can spruce up the visual appeal of the record and convey information regarding item ... A graphic can grasp attention and draw in the user to read the text” (Breeding, 2007: 11).

**2.7 Prior Research about Users’ Preferences**

Apparently 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 the next-generation products (Penn Libraries, 2008). An article by Susan & Morris (2008: 6) states that their libraries have chosen the Encore product recently, and they “plan to launch a brief survey in order to collect impressions when the product is unveiled”. Thus, it indicates that research on users’ preferences about the next-generation catalogue will increase in the near feature.
Nevertheless, small numbers of user surveys have mentioned that users’ preferences for the new features in the next-generation of OPACs could be sought; for instance, an online user survey from the University of Wisconsin Madison Libraries (2008), which was conducted at the end of March 2008; and a user survey of the National University of Singapore libraries, which was conducted in September 2007 (Lim, 2007). Additionally, there is an undergraduate student project examining the effectiveness of the Star as an information resource (Henderson et al., 2008). It was carried out by University of Sheffield Information Management students in May 2008. The project brings up some questions about user preferences in relation to the new OPAC features and it employed a sample of 53 students from the University of Sheffield.

Reviewing those three surveys, it could be found that users were satisfied with their conventional OPACs. The user survey of the National University of Singapore libraries (Lim, 2007) showed that 80% of the feedback on the function of their OPAC was positive. The University of Sheffield student project (Henderson et al., 2008) found that respondents were confidence to use and satisfied with Star. Furthermore, the results of the University of Wisconsin Madison Libraries survey (2008) also supported that respondents were able to locate information for their search successfully.
The charts below are from the results of the three surveys.

1. University of Wisconsin Madison Libraries User Survey

Features that are considered the most useful for improving searching for users:

2. National University of Singapore Libraries User Survey

Features that are preferred by the users:

- Categorise your search results by subject, author and year: 3.77
- Search across multiple databases and library catalogues: 3.83
- Most popular or related titles: 3.67
- URL link to e-reserves in iMLE: 3.53
- Online payment of fines and fees: 3.62
- Display the remaining items you can borrow: 3.5
- Display book covers: 3.44
- Search using journal abbreviations: 3.27
- Display the formats of items as icons: 3.26
- URL link to e-forms: 3.21
- SMS notification of library notices: 3.15
- Personalisation features: 3.16
- Spell-check: 3.09
- Display book reviews by others: 2.92
- Add your own tags: 2.8
- Display tag cloud: 2.77
- Add your own book recommendations: 2.51
- RSS feeds: 2.49

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

3. “How effective is STAR as an information resource?” University of Sheffield:

Suggested New Features

- Recommended items list
- Relevance ranking
- Search by subject
- Link to resource lists
- Narrow results by author/topic/language
- Your recent searches
- Sort by popularity

Source: data adapted from Henderson et al (2008)
In order to have an overall view of users’ preferences, a table was created by re-using the data above. The table included all features that appeared in the three surveys. In addition, it indicates the top three features of each survey as “popular” and the bottom three features as “least popular”.

<table>
<thead>
<tr>
<th>Features</th>
<th>University of Wisconsin-Madison</th>
<th>National University of Singapore</th>
<th>University of Sheffield</th>
</tr>
</thead>
<tbody>
<tr>
<td>catagorise search results by subject, author and year, narrow results by author/topic/language</td>
<td>X</td>
<td>Popular</td>
<td>Least popular</td>
</tr>
<tr>
<td>search across multiple database and library catalogues</td>
<td>X</td>
<td>Popular</td>
<td>X</td>
</tr>
<tr>
<td>most popular or related titles, suggest other relevant material, recommended item list</td>
<td>Popular</td>
<td>Popular</td>
<td>Popular</td>
</tr>
<tr>
<td>display book covers</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>display the formats of items as icons</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>spell-check, Did you mean?</td>
<td>Popular</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>display book reviews by others</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>display tag cloud</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>add your own tags, ability to tag items</td>
<td>O</td>
<td>Least popular</td>
<td>X</td>
</tr>
<tr>
<td>add your own book comments, ability to rate/write reviews</td>
<td>Least popular</td>
<td>Least popular</td>
<td>X</td>
</tr>
<tr>
<td>RSS feeds, email alerts</td>
<td>Least popular</td>
<td>Least popular</td>
<td>X</td>
</tr>
<tr>
<td>relevance ranking</td>
<td>Popular</td>
<td>X</td>
<td>Popular</td>
</tr>
<tr>
<td>save searches and results for later</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ability to search other online resources</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>links to external sites (e.g. Amazon)</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>export results to other research tools</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>format results in a particular citation style</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>personalisation features, create library profile to display research interests, your recent searches</td>
<td>Least popular</td>
<td>O</td>
<td>Least popular</td>
</tr>
<tr>
<td>link to resource list</td>
<td>X</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>search by subject</td>
<td>X</td>
<td>X</td>
<td>Popular</td>
</tr>
<tr>
<td>sort by popularity</td>
<td>X</td>
<td>X</td>
<td>Least popular</td>
</tr>
<tr>
<td>URL link to e-reserves in IVLE</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>online payments of fines and fees</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>display the remaining items you can borrow</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
</tbody>
</table>

O = feature that were neither “popular” nor “least popular”
X = option were not offered in the survey
It could be noticed that there was some difficulties to make a comparison of three different surveys. It was mainly because of ambiguities of wording of the features and different options offered users. Nevertheless, some common popular and least popular features for users could be found from the table.

<table>
<thead>
<tr>
<th>Most popular features: (ranked)</th>
<th>Least popular features:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Borrowing suggestions (e.g. suggest other relevant material)</td>
<td>User review</td>
</tr>
<tr>
<td>2. Relevance ranking</td>
<td>RSS feeds</td>
</tr>
</tbody>
</table>

The most popular features among the three users’ surveys are borrowing suggestions for popular or related items and relevance ranking. On the other hand, the most unpopular features are RSS feeds, user reviews and personalisation features.

It can be seen that borrowing suggestions for related items are “popular” in all three surveys in the table. 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 most least popular features among the surveys are RSS feeds, user reviews. These two features are related to Web 2.0. Furthermore, one could also realize that nearly all the “least popular” features in each surveys 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 not interested in Web 2.0 ideas. From the table, it may be concluded that library users prefer features that can improve the searching experience rather than web 2.0 ideas.
Besides the users’ surveys, Pattern conducted an OPAC survey in 2007. It should be noted that the respondents of the survey are library professionals rather than library users.

It can be seen that the top features include enriched content (e.g. book jackets, table of content) and spellchecker “Did you mean … ?”. Furthermore, the results of this OPAC survey (Pattern, 2007) also support the idea that library professionals are not very interested in web 2.0 features such as user tagging, ratings and comments.

By comparing Pattern’s OPAC survey with the users’ surveys, some different views between library users and library professionals can be found. For example, borrowing suggestions are favored by users, however, it seems that the feature is not valued by librarians. It has a low score in Pattern’s OPAC survey. Furthermore, RSS feeds have quite a fair score in this OPAC survey (i.e. differently from the results of the users’ survey). Thus, it shows that there are some different views between library users and library professionals in relation to the preferences for new features.
2.8 Summary

It is clear from the literature that the development of OPACs over the last 30 years has been quite slow. And it can be seen there is a strong dissatisfaction among users for current OPACs. As library management system vendors are the main controllers of the development of OPACs, they have always been criticised. On the other hand, due to the appearance of World Wide Web, it seems that OPACs have lost the role of being an important information retrieval tool. This is mainly due to people tending to use Google rather than library catalogues to search for information. In the literature, it can be noted that the Web has had a big influence on users’ search behaviour. In addition, the web has also influenced users’ expectations of OPACs. Driven by web 2.0 technologies, the next-generation OPACs have finally been launched. Apparently, many studies discuss the new features of “next-generation library catalogs”. However, there is little research on users’ preferences or user experiences of next-generation OPACs. It can be understand that, as all the next-generation library catalogue products are relatively new, many libraries are still considering the matter and have not adopted this system at the moment. In this chapter, surveys of OPACs were also reviewed. In general, it was felt that this literature review would benefit from a better understanding of the current view of OPACs, the expectation of library users, new ideas about next-generation OPACs and users preferences for the next-generation OPACs.
Chapter 3 Methodology

This chapter will address the research methods used in this dissertation, such as the approach taken, including qualitative and quantitative approaches, the interviewing techniques, the procedure of the research and also the ethical considerations in this study.

3.1 General Methodological Approach

Inductive

This research adopted an inductive rather than a deductive reasoning. As Neuman (2000: 49) states, the “inductive approach … begins with detailed observations of the world and moves toward more abstract generalizations and ideas”. This research starts with data collection through interviews, followed by data analysis and a discussion with reference to the literature. Finally, a better understanding of student use of OPACs was generated, as well as their preferences for new features in next-generation OPACs. It can be seen that the research did not start with a hypothesis, but it began with observations and an investigation of the facts. In this way, a number of generalisations could be observed and analysed.

A simplified inductive model:

![Inductive Model Diagram](image)

Source: adapted from Punch (2005: 40)
Qualitative and Quantitative

Qualitative is the main approach that is used in this study, and interviews were chosen as the method of collecting data. According to Jupp (2006: 249), qualitative research is “focus[ed] on the meanings and interpretation of social phenomena and social processes in the particular contexts in which they occur”. This research is concerned to gain a deeper understanding of how students think about library catalogues and the features in next-generation OPACs. For example, it looks into why students like or dislike OPACs. Thus, unlike the quantitative approach, these aspects of investigation are not measurable.

In order to achieve the objectives of this research, a study of university OPACs was also carried out by developing a checklist of new OPAC features. The checklist focuses on measuring how many UK university libraries have delivered the new features to users. It can be seen that this study deploys a quantitative approach.

Generally, mixed methods are used, “in order to produce a general picture” for this research (Bryman, 1988: 137). However, it should be noted that the main part of the research is the interviews, and thus ‘qualitative’ is the predominant method employed. In addition, a concurrent strategy is also used (Creswell, 2003). As may be seen below, both sets of data were collected at the same time. They do not need to be collected one after the other. Finally, the data sets were integrated at the discussion stage.

A model of this study:

```
          Quantitative                              Qualitative
          (OPACs Study)                              (Interviews)
          Data Collection                             Data Collection (mostly)
          →                                             →
          Data Analysis                               Data Analysis
          →                                             →
          Interpretation

Source: adapted from Creswell (2003: 16)
```
3.2 Interviews for Gathering User Requirements

A face-to-face interview approach was chosen for gathering user requirements in this study. The interview is one of the well-established techniques for collecting users’ opinions in human-computer interaction (Preece, 2007). The interview approach was chosen because there is not much previous qualitative interview research in this area. Secondly, it was chosen because this method provides a depth and richness of detail, which cannot be achieved in the questionnaire approach. Interviews are often considered a “conversation with a purpose” (Burgess, 1984: 102). As Wellington and Szczерbinski (2007: 81) state, interviews can “reach the parts which other methods cannot reach”. Different from the structured questionnaire, interviews always allow interviewees to use their own words to express freely their ideas and experiences. This provides a good opportunity to explore exactly what users like or dislike, their thoughts and feelings that cannot be observed. It should be noted that this research aims to gain a deeper understanding of how students use OPACs and their preferences for the new features in next-generation OPACs. Therefore it is important to utilize interviews as an appropriate approach for this research.

In addition, some researchers believe that data from interviews can be more valid, as real interactions between participants and the researcher are involved in face-to-face interviews (Oppenheim, 1992). Responses from users can also be encouraged. According to Large & Beheshti (1997), the interview is a more reliable way than questionnaires for OPAC research, because meaningful and in-depth responses from users can be ensured in interviews.

However, there are some disadvantages for this interviewing technique, as it is both time-consuming and expensive (Oppenheim, 1992; Tashakkori & Teddlie, 1998). As one-to-one interviews are time-consuming, thus it is difficult to have a large sample size, which is different to the survey method. Usually, only a small number of interviews can be conducted. In addition, as in-depth interviews always involve open-ended questions, thus the data analysis and coding process can be much more time-consuming and costly than structured questionnaires. Furthermore, as Tashakkori & Teddlie (1998: 102) point out,
there is a risk of the “interviewer … unknowingly affect[ing] the response of the interviewee through gestures, mannerism, or verbal feedback”. Thus, bias may occur in interviews. Generally, it must be accepted that the sample size and the bias that may occur in the interviews can affect the validity and generality in a research project.

### 3.4 Interviewing

In this research, interviews were used to explore how students think about the features in next-generation OPACs. The participants were invited through e-mail and Facebook in late June 2008. Sixteen international students of the University of Sheffield were interviewed. The primary reason for choosing international students as the target group of this research is because international students may have more needs than local students. It is important to consider a wide range of needs in order to develop user-centered OPACs.

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. Thus, in this study, the semi-structured interview was used, rather than a structured interview. This approach allows the interviewee to further elaborate their thoughts freely. A set of questions have been prepared for the interview. Both closed and open-ended questions were used (appendix). Following Byman (2004) and Wellington and Szczerbinski (2007), the interview questions are categorised into topics with regard to the aim and objectives of this research.

Besides interview questions, screen shoots and screen mockups were also prepared for interviews (Appendix). 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. By having snaps of the screen of Star, then the screen shoots edited
by MS Paint, and new screen images were created. The mock-up screens were inspired by the features of Google, Amazon and next-generation library product Encore.

One of the mock-up screens used in interviews:

The 16 interviews were conducted in July 2008. Most of the interviews were conducted in English. However, some of the interviews were conducted in Cantonese, which was considered more convenient for some interviewees. Thus it allowed interviewees to express their views more fluently. In addition, the interviews were conducted in a room in the University of Sheffield Information Commons and at the residences of the interviewees. As these places are quiet and private, the interviews would not be affected by noise and the interviewee would not worry about others listening in to the conversations. In addition, the interviews were around one hour in duration.
Two pilots were conducted before the interviews. In the pilot, it was realised that some technical terms, such as ‘faceted browser’, ‘tag cloud’ could not be understood by the interviewees. Thus, those technical terms were avoided in the interviews and simple explanations of the terms were prepared. In addition, the system librarian of the University of Sheffield gave some advice about the interview questions before the interviews took place. Thus, some questions were revised; for example, the feature “Unavailable? Try these … ” was added to interview questions. In addition, it was also suggested that mock-up screens can be displayed on a computer screen, so the mock-up would be more realistic to users.

In interviews, a laptop was used for showing some mock-up screens by using PowerPoint. All interviews were recorded. Notes were also taken for important things during interviews. The collected data was entered in a word processor for categorising and coding.
3.5 The University OPACs Study

In order to find out to what extent university libraries in the UK have adopted the new features of next-generation catalogues, a study of university OPACs has been carried out. A checklist of features has been developed for this study. Ten features commonly added to OPACs, based on the Library Technology reports (Breeding, 2007d), were included in the checklist. In addition, a total of 153 UK academic libraries, as listed on the website of Hero: OPACs in Britain and Ireland, have been examined. A systematic approach was adopted in this study of university OPACs. The data set of the checklist were stored in Microsoft Excel. Simple quantitative analysis has been used for this study and finally the data was presented in a graph.

A checklist of features:
3.6 Limitations

Some limitations in this study can be identified. With regard to sampling, snowball sampling techniques were used as the main strategy in this research. The sample was mainly developed from the researcher's contacts. Thus, a bias in the selection procedures could have occurred. In addition, it can be seen that there was an uneven distribution of interviewees from different levels of study; for example, only one interviewee is an undergraduate student. As this study took place after the end of the university year, most of the undergraduate students were not on campus over the summer; thus, this study has only been able to focus on postgraduate students. Also, there was an uneven distribution of interviewees from different departments. The majority of interviewees are science students. It is noted the population of international science students is bigger than that of international art students at the University of Sheffield (2008). Another limitation of this study is the presentation of the new features, which were shown to interviewees as screenshots, not as real systems. Thus, some interactive aspects of the features could not be tested in the study. Generally, these limitations could conceivably reduce the generalisability and validity of the research.

3.7 Ethical Considerations

In this research, human participants are involved in the interview. Ethical issues including academic integrity were considered in this research. In this study, the ethical research policy of the University of Sheffield was followed. Interviewees' informed consent to participate was obtained from all the interviewees. An information sheet was provided to inform interviewees about all aspects of the research, including its aims and methodology, the duration of the interview and the benefits of the research. In addition, the importance of showing respect for the interviewees was understood. All the interviewees have the right to refuse to answer any questions. Furthermore, all the personal information of participants was handled with anonymity and confidentiality. The identities of the interviewees will not be known.
Chapter 4 Findings of the University OPACs Study

Next-generation Features in OPACs of UK Universities

<table>
<thead>
<tr>
<th>Features</th>
<th>Number of OPACs</th>
</tr>
</thead>
<tbody>
<tr>
<td>faceted browser</td>
<td>1</td>
</tr>
<tr>
<td>relevance ranking</td>
<td>56</td>
</tr>
<tr>
<td>simple search box</td>
<td>7</td>
</tr>
<tr>
<td>spell checker</td>
<td>11</td>
</tr>
<tr>
<td>book jacket</td>
<td>48</td>
</tr>
<tr>
<td>table of content/summaries</td>
<td>40</td>
</tr>
<tr>
<td>comments &amp; ratings</td>
<td>3</td>
</tr>
<tr>
<td>RSS feeds</td>
<td>3</td>
</tr>
<tr>
<td>borrowing suggestions</td>
<td>3</td>
</tr>
<tr>
<td>tag cloud</td>
<td>2</td>
</tr>
</tbody>
</table>
In order to find out to what extent UK academic libraries have adopted the features of next-generation library catalogues, OPACs from 153 UK universities have been examined in this study. The features this work will attempt to identify the most common features that are expected in next-generation OPACs (Breeding, 2007d); for example:

- Faceted browser
- Enriched content, such as book jackets, tables of content, summaries and reviews
- Simple search box
- Relevancy ranking
- Spell-checker, “Did You Mean … ?”
- Borrowing suggestions, like “the user who borrowed this item also borrowed …”
- User ratings and reviews
- Tag cloud
- RSS

General, most of the academic library catalogues in the UK have implemented very few features of next-generation OPACs. It can be seen that more than sixty percent of the library OPACs do not have any of those new features. Only one library, the University of Glasgow library, has used a next-generation library catalogue—Encore by Innovative Interfaces.

**4.1 Faceted Browser and Relevance Ranking**

The faceted browser is one of the most important features of next-generation OPACs. However, with the exception of the University of Glasgow, none of the other OPACs have implemented this feature. In contrast, relevance ranking, the other key feature of the next-generation catalogue, is popular among libraries. There are 56 OPACs that already have the function of sorting results by relevance. It scores the highest among the next-generation features. Library OPACs that have relevance ranking are mainly using Innovative Millennium, ExLibris Voyager, or SirsiDynix Unicorn. However, it should be noted that the relevance ranking of SirsiDynix Unicorn is a bit different from the others, as their results will only be sorted by relevance if the user chooses the “sort by” function to “relevance” in the advanced search.
4.2 Simple Search Box and Spell Checker

Because of the influence of web search engines, the products of next-generation OPACs such as Aquabrowser, Encore and Worldcat local are intended to provide a similar web search experience for users. They provide only one simple keyword search box, similar to Google box, for the basic search. In the study, there are 7 library catalogues that have this kind of Google-style search box.

In addition, spell checkers like “Did you mean ... ?” have also started to be used in the library OPACs, although only 12 out of the 153 OPACs have this feature. And most of those OPACs that have spell checkers (9) are using Innovative Millennium; the other two are using SirsiDynix Horizon and Voyager.
4.3 Book Jackets, Tables of Content, Summaries and Reviews

It seems that quite a lot of libraries like to improve their OPACs by adding book jackets, tables of content and summaries. In the study, these features are the most popular after relevance ranking. Forty-eight OPACs have the book jackets feature and 40 OPACs have provided the tables of content, summaries and reviews. It is identified that most of the libraries get those features by subscribing services from Syndetic Solutions. In addition, some of the libraries buy the book jackets only, but they have a link on their book image to Google Book search or Amazon.co.uk to provide additional information to users.

An example of “Additional Information” provided by Syndetic Solutions:
4.4 Web 2.0 and Borrowing Suggestions

From this study, it appears that the focus of libraries when considering how to improve current OPACs is not on Web 2.0 technologies. Nevertheless, there are still 4 out of 153 OPACs that have introduced the Web 2.0 ideas to their users. For example, the OPACs of the Universities of Exeter, Huddersfield and Stirling allow users to contribute ratings or comments to the catalogue. However, by studying their OPACs, it is noted that not many items have been rated by users. The features seem unpopular with users at the moment. Moreover, the OPAC of the University of Huddersfield also enables users to subscribe to the search results of the RSS feeds. There are also two other library catalogues that distribute their library news by RSS. On the other hand, borrowing suggestions such as “the user who borrowed this also borrowed”, tag cloud, social bookmarking button are also difficult to find among OPACs. Only three library catalogues have those features.

An example of user ratings and RSS from the University of Huddersfield:
4.5 Other Features in the Current OPACs

Although most of the current OPACs of UK academic libraries are very conventional, there are some other features that can be found in the study—for example, a location map of the item. Additionally, around 30 libraries have SFX services or include sources from Amazon.co.uk, Google, Google Scholar, or Google print in their OPACs. These enable library users to search those Web resources from OPACs. It appears that there is a trend towards including different kinds of information sources into OPACs.
Examples: 1) source from Google and Amazon:

Use TalisPrism to search for books, journals, cds, videos and software in this library. You can also search other high-quality sources of data shown in the Source list.

1. If you know the item you're looking for, type the author and title in these boxes.
2. Otherwise type what you are looking for into the keyword box.
3. Choose where you want to search from the list of Library Sites.
4. Click the Search button.

2) Location map:
4.6 Library Management System

Nearly all the OPACs examined in this study are developed by library system providers ExLibris, Innovative Interface, Talis and SirsiDynix. The differences between OPACs are mainly dependent on which library system they use. The interface and the functionality of OPACs are very similar indeed if they use the same library systems. For instance, TalisPrism was launched earlier than SirsiDynix Unicorn; thus it seen that OPACs using SirsiDynix Unicorn have more features and are more modern than OPACs that use TalisPrism.

However, it can still be seen that libraries can make their own modifications to their OPACs. For example, both of the OPAC screenshots shown below have the same library system developed by SirsiDynix. However, it is clear that the second one has more features, such as book cover and summary, than the first.
In addition, the OPAC of the University of Huddersfield shows that it is possible to modify a library catalogue to be a next-generation library catalogue. The University of Huddersfield currently uses SirsiDynix Horizon, which is not a next-generation catalogue product. However, the OPAC scores the highest in this study; it has eight key features of next-generation OPACs, including enriched content, such as book jackets, relevancy ranking, spell-checker “Did You Mean … ?”, borrowing suggestions, such as “the user who borrowed this item also borrowed”, user ratings and reviews, tag cloud and RSS. Furthermore, it also has a Virtual shelf browser and Useful links to Blackwell and del.icio.us.

Tag Cloud from the OPAC of the University of Huddersfield:
Example of Virtual shelf browser and Useful links:

People who borrowed this item, also borrowed (show more or everything):
- Experimental music: Cage and beyond (2nd edition, 1999) by Nyman, Michael
- Conversing with Cage (1988) by Kodakianetz, Richard
- Medieval music (1976) by Hoppin, Richard H

Virtual shelf browser:

Useful links:
- Amazon UK: http://library.hud.ac.uk/perl/amazon?id=2179480
- Blackwell: http://library.hud.ac.uk/perl/blackwell?i=2179480
- Permalink: http://library.hud.ac.uk/catalog/biblio/403801/cit/
- Loan diary: http://library.hud.ac.uk/perl/instinc/stat.php?bib=403801

4.7 Summary

In this study, it has been shown that the development of next-generation OPACs in UK academic libraries has been quite slow, and it is very much in its infancy. Only one university has embedded a next-generation catalogue. And less than half of the library catalogues have at least one feature in next-generation catalogues. Nevertheless, it has been found that libraries value more highly relevance ranking, book jackets and table of contents among the features available. In addition, libraries have intended to include information from Google and Amazon into OPACs. Although it seems that library system vendors have all the control of the development of OPACs, the example of the OPAC of the University of Huddersfield shows that libraries are able to modify OPACs by themselves and make them function as next-generation library catalogues.
Chapter 5 Findings of the Interviews

5.1 The Sample

The 16 interviewees who participated in the interviews are undergraduate and postgraduate international students from 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: 6 male and 10 female. Some details about the respondents are as follows:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F BA Architecture and Landscape</td>
</tr>
<tr>
<td>2</td>
<td>M MSc Data Communications</td>
</tr>
<tr>
<td>3</td>
<td>F MSc Information Management</td>
</tr>
<tr>
<td>4</td>
<td>M PhD Mechanical Engineering</td>
</tr>
<tr>
<td>5</td>
<td>F Graduate Diploma Social Science (Sheffield International College)</td>
</tr>
<tr>
<td>6</td>
<td>F MA Librarianship</td>
</tr>
<tr>
<td>7</td>
<td>F MSc Information Management</td>
</tr>
<tr>
<td>8</td>
<td>M PhD Chemistry</td>
</tr>
<tr>
<td>9</td>
<td>M MSc Information System</td>
</tr>
<tr>
<td>10</td>
<td>F MSc Information Management</td>
</tr>
<tr>
<td>12</td>
<td>F MPhil Electronic Engineering</td>
</tr>
<tr>
<td>11</td>
<td>F Graduate Diploma Business (Sheffield International College)</td>
</tr>
<tr>
<td>13</td>
<td>F MSc Occupational Psychology</td>
</tr>
<tr>
<td>14</td>
<td>M MSc Mechanical Engineering</td>
</tr>
<tr>
<td>15</td>
<td>F PhD Music</td>
</tr>
<tr>
<td>16</td>
<td>M PhD Animal and Plant Science</td>
</tr>
</tbody>
</table>
It can be seen that most of the interviewees are postgraduate students, including five research students. The interviewees, therefore, are expected to have experience in searching and to have good searching skills.

### 5.2 Use of STAR

This section of the interviews was to investigate the experience of interviewees using the STAR catalogue.

1. **Do you use the STAR catalogue? How often?**

   All interviewees use Star, however, when they have a particular need.

   It is not surprising that all 16 of the interviewees have used STAR. However, it seems that the question became difficult for interviewees when they were asked how frequently they used STAR. All of the interviewees stated, “It is difficult to say”. They stated that it is because they only use STAR when they have a particular need—for example, assignments, literature reviews and examination preparation.

   113: “if I don’t need to do assignments of course I won’t use it”.

   Frequency of using STAR:

   ![Frequency of using STAR](image-url)
2. What kind of materials do you usually search for?

*Interviewees use STAR to search for books only, not electronic resources.*

According to the interview data, all 16 interviewees use the STAR catalogue for searching for books only and none of the interviewees search electronic resources starting from STAR. The interviewees stated that it is mainly because they usually search electronic resources via the MUSE portal, but also because they use other search engines such as Google Scholar to obtain electronic resources. Four of the 16 interviewees state that they have difficulty using e-resources from STAR. For example:

I13: “at first I have tried to search e-journals from Star ... but I find that they are not link with the journals ... and it seems that the catalogue couldn’t find e-journals ...

Now, if I want to find e-journals ... I go from MUSE and go to ‘e-journals’ directly”.

Despite this, around one third of interviewees (5/16) claimed that they do not know or never use the library e-resources. It shows that there is a lack of awareness of library electronic resources among the interviewees.

3. Do you feel it is easy to find the information you need?

*Most of the interviewees feel that STAR is easy to use and that they could find what they wanted.*

Generally, most of the interviewees (12 / 16) feel confident in using STAR. They feel that the interface is easy to use and they are satisfied with what they found from STAR. However, the other four interviewees found that “it is easy to use but difficult to find useful things”. Those interviewees said that “the keyword search is poor” and also some of them complained that “STAR doesn’t like Google”. It seems that Google’s keyword search mechanism has made quite an impact on interviewees.
4. What kind of search function do you usually use?

*Interviewees use keyword-search the most and seldom use author-search.*

It is not surprising that keyword search is the most popular search function among the 16 interviewees. Nearly all of the interviewees (15/16) use keyword-search the most. This could be explained by the current popularity of Google search. In addition, interviewees also stated that they mostly do not know the exact title or author of the materials. Only two interviewees stated that they usually know the exact title or author from the reference list and search for a particular book. And it is surprising that 4 out of 16 interviewees said that they use title search when they want to narrow down the results.
5. Do you use other functions in STAR? (e.g. advanced search, catalogue, library branch, etc.)

*Besides using STAR for searching for books, interviewees use “My Account” the most.*

My Account
Generally, more than half of interviewees used “My Account” for renewing books (10) and used “library branch” to limit their search to include books at a specific location (8). However, some of the interviewees complained about the log-in system for “My Account”: *“why we need to enter so many numbers”* to log in to the account (for example, the 9-digit Ucard number and 4 digit library pin number).

Catalogue
From the interviews, it can be identified that more than half of the interviewees did not realise that there is a “catalogue” box. In addition, a few interviewees stated that they could not understand and were confused about the terms that appeared in the catalogue box, such as “SULOS”. Five out of 16 interviewees who use the “catalogue” function mainly did so for searching for theses and periodicals.
Advanced Search

Only 3 out of 16 interviewees stated that they have used “advanced search”, although most of the interviewees stated that they had been notified there are “advanced search” functions in STAR. However, it is interesting that most of the interviewees have said the advanced search is “necessary” and they expressed an opinion that libraries should keep this function, even they do not use it at all.

6. Do you like the STAR catalogue?

*Interviewees have positive comments about STAR; only one interviewee dislikes it.*

The research shows that interviewees quite like the STAR catalogue. Only 1 interviewee said they dislike it; this interviewee disliked the colour of STAR and commented that the system is slow. Seven people expressed that they like STAR, with similar reasons given, such as that they feel the interface is “clear”, “simple”, “easy to use”, “straightforward” and “organised”. In addition, 2 interviewees said they like it because they can usually find what they want.

7. Do you think the STAR catalogue needs to be improved?

*Most of the interviewees suggested STAR could be better by improving its functionality.*

Although judging from the previous question that interviewees generally like STAR, they also think that STAR can be improved. Only 2 interviewees stated that STAR is good enough and does not need to have further improvement. The other 14 interviewees suggested different ideas for improving STAR. Below are suggestions that quote from interviewees.

Suggestions about functionality:

- improve keyword search, “as too many results by keyword search”
- improve title search (2 interviewees)
- give suggestions for unavailable books
- relevance ranking, “best-match”
- categorise the results
• improve “my account” login system
• have direct links to e-journal (2) and the link should be opened in a new window
• include the link of COPAC in STAR
• if the books have many editions, it should rank the latest edition first
• include database search, e.g. “sometimes I don’t know the name of a database, but I want to use keywords to find some relevant database”
• add “go to page” on the initial results page, “so I don’t need to click the ‘next’ so many times to other pages”

Suggestions about improving display:
• improve the appearance of the interface, “it’s too formal”; the catalogue needs to look more attractive (3)
• one simple search box: “remove all the search boxes, just keep the keyword search and library branch”
• all the functions need to be more catchy, “or people will never realise what service that libraries have provided”; e. g. make the “link to electronic text” more catchy
• a bigger search box and it should be on the top, not at the bottom part of the page

8. Have you had experience of using other library catalogues?

_Most of the interviewees had experience of using other library catalogues. However, they feel that all the catalogues are more less the same._

As the majority of the interviewees are postgraduate students, it is not surprising that most of the interviewees (13 out of 16) have had the experience of using other library catalogues, such as the British Library and Economic Science catalogue, HKUST, the National Taiwan University library catalogue, and the Sheffield Public Library catalogue. Only one interviewee stated that the STAR is worse than the catalogue they used before. However, it seems that all the catalogues are almost the same for the interviewees; for
example, most of the interviewees stated the catalogue they used before had a better interface, but other than that, there was “not much difference”.

### 5.3 Uses of Internet

It is not surprising, perhaps, that all 16 interviewees use Google everyday for everything, such as in a search for maps and images. In addition, all interviewees stated that they use Google to search for academic materials. Half of the interviewees are also in the habit of using Google Scholar and 5 of the interviewees use Google Book when they could not find books in the university libraries. However, some (5) of the interviewees 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, in the interviews, it was found that half of the interviewees (8) have the experience of reading other people’s comments and ratings. They usually read comments on Amazon, eBay, IMDb, YouTube and hostel-world, for example, and those interviewees stated that they like reading other people’s comments because they would like to know what other people like. They suggested that “commercial advertisements are always positive”, so user reviews can reflect some real experiences from others. Although interviewees like reading comments on web services, such as Amazon, only 2 of the interviewees stated that they have contributed comments or have an interest in contributing. On the other hand, half of the interviewees never consider using user reviews because they think the reviews are unreliable.
5.4 Features that Improve the Search Experience

The purpose of this section of the interviews is to identify how the interviewees think about the new features that may improve their search experience—faceted browser, relevance ranking and spell checker.

Are they useful?

<table>
<thead>
<tr>
<th></th>
<th>Faceted browser</th>
<th>Relevance Ranking</th>
<th>Spell checker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful</td>
<td>16</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Not useful / Unsure</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
• **Faceted browser**

*All interviewees like the faceted browser because it can narrow down results quickly and provide a general idea of the search results.*

All 16 interviewees agreed that the faceted browser is useful to them. Four of the interviewees can recognise the features immediately after seeing the screenshot. They remember using the faceted browser in other 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) think that the faceted browser has a similar function to the traditional advanced search. They feel 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”.

Only one interviewee claimed that the faceted browser looks complicated.

• **Relevance ranking**

*Most students like the idea of relevance ranking because it can save time.*

Fourteen 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 interviewees believe the information they want will appear on the very top ranking or on the first page. However, it is surprising that about half of the interviewees were also concerned
about how this feature actually works. They wonder how the search engine can know what they actually want and how the search engine decides the relevance, although the interviewees still agree on the benefit of relevance ranking. They observe that relevance ranking is still better than the traditional alphabetical sorting.

On the other hand, 2 interviewees have 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.

Only 2 out of 16 interviewees felt that the relevance ranking was not so useful, because they had got used to the alphabetical ranking.

- **Spell checker “Did you mean?”**

Most of the interviewees stated that spell checker is useful but unnecessary.

Thirteen out of 16 interviewees thought that the spell checker is good for improving the library catalogue. They mentioned that spell checker is especially helpful to international students, as their first language is not English. However, only 2 interviewees thought that it is necessary, as they are used to use the spell checker in Google or Yahoo.
Most of the interviewees stated that the main function of the spell checker is to find out their typing mistakes. It is interesting that most of the interviewees use spell checker for correcting their typing mistakes rather than spelling mistakes. Only 2 interviewees think that they use spell checker because they forget how to spell the exact words:

I12: “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 can save time and is very convenient. There are 3 interviewees who stated some similar experience of using STAR, for example:

I1: “I really hope the catalogue can have a spell checker … Because when I type a very long title … sometimes I just type one alphabetical wrong, then they always said no results … then I need to go back again and type the whole title again … it takes time”.

In addition, 3 interviewees pointed out the weaknesses of spell checker; for example, it cannot recognise some professional terminology and spell checker may suggest some incorrect words which are not what people actually mean.

On the other hand, the 3 interviewees who felt spell checker is not important, thought so because they can type the words in carefully:

I14: “Actually when I use the library catalogue I am very careful to type the words … not like using Google”.

51
**Which feature 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>
<thead>
<tr>
<th></th>
<th>Faceted browser</th>
<th>Relevance ranking</th>
<th>Spell checker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>11</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

In this question, interviewees were asked to choose only one feature among three. The first response from most of the interviewees was: “*Do I really need to choose one? I like all*”. From here, interviewees thought more seriously about the pros and cons of the features and started to compare their usefulness. It is surprising that none of the interviewees mentioned the spell checker in this question. 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 like 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.

110: “what if … it said 1–2000 results are the most relevant to me?”

19: “*I can narrow down the results quickly by this one (faceted browser) ... relevance ranking ... umm ... I still need to evaluate the results*”.

On the other hand, 5 interviewees liked relevance ranking more than the faceted browser. All of the 5 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.
5.5 Features Including Web 2.0 Technologies and Amazon Features

This section of the interviews investigates how interviewees think about the idea of adding web 2.0 technologies and Amazon features into STAR.

Are they useful?

<table>
<thead>
<tr>
<th></th>
<th>Reviews and ratings</th>
<th>User who borrowed this item also borrowed</th>
<th>Unavailable? Try these …</th>
<th>RSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful</td>
<td>9</td>
<td>12</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>Not useful / Unsure</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

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<td>Not useful / Unsure</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

There are 45 titles matching your search. Number 30 of 45 titles found are shown:

Author: Krugman, Paul R.
Title: International economics: theory and policy / Paul R. Krugman, Maurice Obstfeld.
Series: Addison-Wesley series in economics.
ISBN: 020132209X.
Subject: International economic relations.
Notes: Previous ed. 1997.
Includes bibliographical references and index.

Users Who Borrowed This Item Also Borrowed

- Economic Analysis in Health Care, by Stephen Morris
- Microeconomics, by Hugh Gravelle

Most Helpful User Reviews:

- Brilliant! Brilliant textbook. 27 Mar 2009
  By Tina. Height
  I'm in my final undergraduate year, at your level or doing your AAs in any subject related to international trade, this is a must have! The focus is slightly more economic than financial, more in line with what you need to read for an overview of existing literature on the subject.
• **User ratings and reviews**

*Not all the interviewees agree as to the usefulness of them because of their subjectivity and the diverse quality of the comments.*

It seems that the idea of implanting user ratings and reviews into library catalogues is somewhat controversial, with nearly half of the interviewees (7 out of 16) stating that this feature would not be useful for them. And they think that the user ratings and reviews cannot 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 pointed out that academic library catalogues should be different from those commercial or entertainment websites, such as Amazon and YouTube. Four of the interviewees stated that information on the library catalogues should be more objective rather than including subjective comments or comments with personal feelings. They dislike the comments because of the possibility of influencing people’s choices. Two interviewees suggested that the library could provide some book descriptions or tables of content to help the user to make a choice. Furthermore, 3 interviewees pointed out that students study different subjects and they have different views; thus the interviewees doubt the usefulness of the comments.

In contrast, 9 out of 16 interviewees thought user ratings and reviews are helpful, especially because the reviews can provide extra information about the books, and they think that comments from users can reflect the truth better, in some kind of way. All 9 interviewees thought that the comments can 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”.

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However, some of the interviewees suggested that the comments could be more useful if the reviews were more related to the contents of book; in addition, reviews would also be more reliable if they were written by academic staff or a librarian. Thus, it shows that interviewees are also concerned about the quality of the comments.

One thing that needs to be pointed out is that all of the interviewees, including those who think the reviews are useful, stated that they probably will not contribute a review because “it takes time to write”.

- RSS

Interviewees are uncertain about the usefulness of RSS feeds. It is mainly because they are not familiar with the technology.

It was noted in interview responses that none of the interviewees use RSS regularly. Only 2 of the interviewee knew what RSS is. Thus, it is not surprising that more than half of the interviewees (9/16) were unsure about the feature, although none of the interviewees said the feature was useless. This is because, as some of the interviewees stated, they are not interested in technology and also, possibly, because:

I 16: “I can’t be selfish ... I won’t said it is useless ... as it could be useful for others”.

However, 7 of the interviewees believe that the feature can be useful to them, especially the 5 research students, who thought that they can definitely benefit from the features. 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, 6 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”.
Furthermore, two of the interviewees preferred to get email alerts rather than RSS feeds, as they claimed that they will not check the feeds regularly.

- **Borrowing suggestion**

Are they useful?

<table>
<thead>
<tr>
<th></th>
<th>User who borrowed this item also borrowed</th>
<th>Unavailable? Try these …</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Not useful/Unsure</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

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 are quite positive in their attitudes towards both features.

**The user who borrowed this item also borrowed**

*All interviewees think that the usefulness of this feature is depends on whether it can provide materials “relevant” to them.*

In the interviews, nearly all the interviewees realised that the idea of this feature is adapted from Amazon. Some 12 out of 16 interviewees thought that the feature would be useful if applied to the STAR catalogue. In general, the interviewees considered whether the suggestions can provide items with much “relevance” to them. All of the 4 interviewees who disagreed with, or were unsure about the usefulness of this feature, doubted if the suggested items would be “related” to their search.

113: “I am a student, I study many courses in the same time … I don’t know will their suggestions be related to my study”.

In addition, 6 of the 12 interviewees said that the feature is useful/could be useful because of the relevance. They 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 consider the feature is useful—mainly because it saves time—and it is a common occurrence that the book they need is unavailable.

Fifteen interviewees think that this feature was useful. Although it is similar to ‘the user who borrowed this item also borrowed …’, however, ‘Unavailable? Try these … ’ seems more useful to the interviewees. This is because interviewees often find that the books
they want are on loan; as one of the interviewees said: “the books are always borrowed by others ... especially the core readings ... it happens all the time ... it is good if they can give me some other suggestions”.

All 15 interviewees expected that this feature could help them by giving some useful and related suggestions. Thus, it can save the user some time. However, 3 interviewees pointed out that sometimes they just want a particular book, so the feature may not be useful all the time.

- Which feature do you like the most?

Each of the features is favoured by some users. However, it is clear that RSS feeds are not popular among the interviewees.

<table>
<thead>
<tr>
<th></th>
<th>Ratings &amp; Review</th>
<th>User who borrowed this also borrowed</th>
<th>Unavailable? Try these …</th>
<th>RSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

From the interviews, it is observable that interviewees answer this question much more decisively. This is possibly because the functionality of the features in this section is quite different.

The results are quite evenly distributed: 5 interviewees liked the ratings and reviews because the feature enables them to get extra information about the book; 5 interviewees liked the ‘user who borrowed this item also borrowed’ feature because of the relevant suggestions; and 5 liked ‘Unavailable? Try these … ’ because of time-saving. However, only 1 interviewee liked the RSS feeds as a means of obtaining the latest information.
5.6 Features that Enhanced the Display of Star

This section explores how the interviewees consider 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.

Are they useful?

<table>
<thead>
<tr>
<th></th>
<th>Book Jacket</th>
<th>Tag cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Not useful/unsure</td>
<td>13</td>
<td>0</td>
</tr>
</tbody>
</table>

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 people.
• Book jacket

Book jacket seems not so useful to interviewees because it cannot affect user choice very much.

Most of the interviewees, 13 out of 16, stated that the display of book jacket is not useful and is an unnecessary feature. 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. In addition, they suggested that keeping the book jacket on the full record view would be better than having it on the initial results page. On the other hand, 9 of the 13 interviewees stated that it is 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”.

14: “when I borrow the book from library I can make sure I’ll not get a wrong book”.

114: “I like the book with beautiful face ... in fact I don’t mind they have or not ... but I like some icons ... As I feel much easier to read than lines by lines ... I feel more easy to read a sentence that’s behind a image ... I don’t know why ... maybe it’s some visual impact ... just like we have different sizes ... different style of fonts”.

13: “I like it ... sometimes I just remember the cover of the book and I can’t remember what the exact title and author... so I can have a guess from the book cover ... I think the book cover makes me feel so much better... and its pretty”.

In addition, some interviewees complained that the icons in STAR that indicate the types of material are too small and insufficiently ‘catchy’. They said it would be much more useful to have bigger icons to indicate the types of material on the initial results page.
• **Tag cloud**

*All interviewees think tag cloud is useful for them because it can narrow down results effectively and helps them to discover related materials.*

In the interview responses, more than half of the interviewees (11) had not seen 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 value the web 2.0 characteristic of this feature—that the user can contribute tags. Nevertheless, all of the 16 interviewees discovered that tag cloud is, in fact, useful to them.

Four of the interviewees found that it is useful because the tag cloud can help them to narrow down the results quickly, thus saving them time. In addition, it appears that tag cloud can 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:

11: “*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*”.

Furthermore, only a few interviewees (3) claimed that tag cloud made the library catalogue look “modern” and “fancy”. It shows that the functionality of the tag cloud has a greater impact on the interviewee than the visual components.
• Other features

All interviewees liked the fact that the catalogue can show the availability and the location of the book on the initial results page.

Many of the interviewees realised that the initial results page screenshot was not only enhanced by the book jacket and tag cloud but also by the detailed bibliographic information, tables of content and summary. In general, all 16 interviewees like the catalogue to show the availability and the location of book, including the floor number, on the initial search results list. All of them stated that the features are useful and can 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.

• Which features do you like the most?

<table>
<thead>
<tr>
<th></th>
<th>Book Jacket</th>
<th>Tag cloud</th>
<th>Other features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

Interviewees felt that it was difficult to choose among those features, as they liked all of them. Nevertheless, the decisions of the interviewees show that they like 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: 5 interviewees liked this feature the most.
5.7 General

Which feature(s) do you suggest that the library implement into the library catalogue?

Faceted browser, tag cloud, borrowing suggestion: Unavailable? Try these … and relevance ranking are the top four features that interviewees suggested to libraries.

Number of Features Users Wanted

Creating the graph:

As different interviewees chose a different number of features and they gave a different priority to each feature, it was difficult to compare the features directly. In order to compare the results, a weighting scheme for the results was assigned, i.e. rank 1 = 5, rank 2 = 4, rank 3 = 3 … etc, a linear scale up to rank 5. Rank 6 above was not given any score. It was because most of the interviewees (14/16) chose 1-5 features. In order to tackle the problem of different interviewees had different number of choices, i.e. some interviewees chose 2 features (total score = 5+4 = 9) but some interviewees chose 5 features (total score = 5+4+3+2+1 = 15). Thus normalization was applied in order to adjust the results. For example: if interviewee only choose three choices: their score of each feature after normalization will be:

1st choice: 5 x 15 / 12 = 6.25
2nd choice: 4 x 15 /12 = 5
3rd choice : 3 x 15/ 12 = 3.75 Thus, each interviewee has 15 score after normalization.

In this question, most of the interviewees suggested around 3 - 5 features to libraries and they gave a different priority to each feature. This question is an open-question, thus interviewees were allowed to choose as many features as they want. However, only 2 of the interviewees want all 10 features. By using the interview data, a graph “Which features do you suggest for libraries” has been created which indicates the most important features as ranked by the interviewees. A graph below was created.
It can be seen that faceted browser, tag cloud, relevance ranking and Unavailable? Try these… are the top features that interviewees wanted in the next-generation Star catalogue. RSS feed is the least desired feature. The graph below is about whether interviewees considered the features were useful.
The graph 2 provides a graphical view for the questions “Are they useful?” which can be found throughout this chapter, i.e.

Are they useful?

<table>
<thead>
<tr>
<th>Feature</th>
<th>Useful</th>
<th>Not useful/Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faceted browser</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Relevance Ranking</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Spell checker</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>User who borrow this…</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Unavailable? Try these..</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Reviews and ratings</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>RSS</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Tag cloud</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Book Jacket</td>
<td>3</td>
<td>13</td>
</tr>
</tbody>
</table>

By comparing both of the graphs above, it can be seen that interviewees thought most of the features are useful (except book jacket), however, they did not suggested that library have to implement all the useful features into OPAC. For instance, spellchecker is indicated as a useful feature in graph 2; however, graph 1 showed that only a few interviewees suggested adding the spellchecker.

5.8 Summary

From the findings of the interviews, it can be seen that interviewees have positive comments about the Star catalogue. They use Star at least a few times a month. However, it seems that their search is quite course-centered, as they use the library catalogue only when they need to do assignments or prepare for examinations. In addition, most of the interviewees limit their use of STAR to only searching for physical books but not for electronic resources. It is notable that another use of STAR for interviewees is for renewing books. Other functions, like advanced search, and the “library branch” function is quite popular among those users.

On the other hand, it can be seen that interviewees are conditioned by Google. For example, nearly all the interviewees stated that they use keyword-searching the most, explicable because they have got used to putting keywords in the Google search box. In the interviews, interviewees’ experiences of using other internet resources were also explored, such as the fact that they use Google everyday for everything, including for
academic searching. However, some interviewees stated that sometimes they find it difficult to find useful information in Google or Google Scholar. In addition, it can also be seen that interviewees are less keen on Web 2.0 technologies. Although more than half of the interviewees consider comments on web services, such as Amazon, only 2 of the interviewees stated that they have contributed comments or have an interest in contributing.

In terms of the next-generation features, interviewees generally liked all the features. However, it can be seen that they have different preferences for different features. Among the features that can improve the search experience (i.e. faceted browser, relevance ranking and spell checker), all 16 interviewees considered that the faceted browser is the most useful. This is because it can narrow down the results very effectively. With reference to adding Web 2.0 technologies and Amazon features, it seems that these interviewees are not very interested in those Web 2.0 ideas, especially RSS. For user ratings and reviews, there are diverse viewpoints among interviewees; some liked them very much and some doubt the quality of the comments. Compared with the Web 2.0 ideas, interviewees think that borrowing suggestions, such as “Unavailable? Try these … ” are much more useful. However, they emphasised that the suggestions should provide materials related to their courses. In addition, tag cloud and the displays of availability and the location of books are also preferred by most of the interviewees.

Generally, it is notable that interviewees like features that can help them to navigate the results and provide most additional information about related material. Interviewees consider that the faceted browser and tag cloud are the most useful. They also like the “Unavailable? Try these … ” and relevance ranking. The last choice for most of the interviewees is RSS and book jacket, due to the fact that they are not familiar with the technology and they think that the book jacket cannot influence their choice very much. The interviews show that the perceived usefulness of the feature is always dependent on whether it can save time or assist in the selection of related materials.
Chapter 6 Discussion

In this chapter, the discussion is based on the findings of the universities’ OPAC study, and interviews related to the literature, including the user surveys that are presented in Chapter 2 (i.e. the Survey of the National University of Singapore libraries, the University of Wisconsin Madison Libraries, the University of Sheffield and Pattern’s OPAC survey).

6.1 Views on Current OPACs

“Resource discovery with traditional library tools is a frustrating and time-consuming process for many researchers” (UW Madison Libraries, 2008: 6). In the literature, a strong dissatisfaction with current OPACs can be noticed. However, this study found that interviewees do not have this dissatisfaction. It is surprising that the user survey of the National University of Singapore Libraries (2007) and the Star project (Henderson, 2008 et al.) also show similar findings. All results show that users seem quite satisfied with the search results from their current library catalogues. Even though STAR is a very conventional library catalogue (as noted in chapter 4, it does not have any new features of the next-generation catalogues), interviewees are satisfied with it and feel confident in using it. In addition, they find that STAR is organised and easy to use.

It seems that users do not have high expectations of OPACs. This is possibly because users always do not have a very clear idea about their needs, as Preece (2002: 172) states: “people don’t necessarily know what is possible”—and they cannot tell people what they actually want. Thus, as long as the systems work properly, people will not have a strong sense of dissatisfaction and will not say, “I hate it”. This may be one of the reasons why the development of OPACs is so slow, which can be noticed from the prior studies and the findings of the university OPACs study. It is possibly due to no one actually demanding great changes, including library system vendors and users. In the precedent literature, it can be seen that library system vendors are always criticised for causing the development of library catalogues to be so slow. Nevertheless, the World Wide Web and
the Web 2.0 concepts drive the development of OPACs now. The interviews showed that users are happy whenever OPACs are improved. Generally, they are enthusiastic about all new features in next-generation library catalogues. However, obviously, they have different preferences for different features.

## 6.2 Comparison with Prior Studies

<table>
<thead>
<tr>
<th>Features</th>
<th>University of Wisconsin-Madison</th>
<th>National university of Singapore</th>
<th>University of Sheffield (UG project)</th>
<th>University of Sheffield (this study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>catagorise search results by subject, author and year, narrow results by author/ topic/ language</td>
<td>X</td>
<td>Popular</td>
<td>Least popular</td>
<td>Popular</td>
</tr>
<tr>
<td>search across multiple database and library catalogues</td>
<td>X</td>
<td>Popular</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>most popular or related titles, suggest other relevant material, recommended item list</td>
<td>Popular</td>
<td>Popular</td>
<td>Popular</td>
<td>Popular</td>
</tr>
<tr>
<td>display book covers</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>display the formats of items as icons</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>spell-check, Did you mean?</td>
<td>Popular</td>
<td>O</td>
<td>X</td>
<td>Least popular</td>
</tr>
<tr>
<td>display book reviews by others</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>display tag cloud</td>
<td>X</td>
<td>Least popular</td>
<td>X</td>
<td>Popular</td>
</tr>
<tr>
<td>add your own tags, ability to tag items</td>
<td>O</td>
<td>X</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>add your own book comments, ability to rate / write reviews</td>
<td>Least popular</td>
<td>Least popular</td>
<td>X</td>
<td>Least popular</td>
</tr>
<tr>
<td>RSS feeds, e mail alerts</td>
<td>Least popular</td>
<td>Least popular</td>
<td>X</td>
<td>Least popular</td>
</tr>
<tr>
<td>relevance ranking</td>
<td>Popular</td>
<td>X</td>
<td>Popular</td>
<td></td>
</tr>
<tr>
<td>save searched and results for later</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ability to search other online resources</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>links to external sites (e.g. Amazon)</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>export results to other research tools</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>format results in a particular citation style</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>personalisation features, create library profile to display research interests, your recent searches</td>
<td>Least popular</td>
<td>O</td>
<td>Least popular</td>
<td>X</td>
</tr>
<tr>
<td>link to resource list</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>search by subject</td>
<td>X</td>
<td>X</td>
<td>Popular</td>
<td>X</td>
</tr>
</tbody>
</table>

O = features that were neither “popular” nor “least popular”

X = features that were not offered in the survey
This table was taken from the literature review chapter and was revised to include the results of this study:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Least popular</th>
<th>Sort by popularity</th>
<th>URL link to e-reserves in IVLE</th>
<th>Online payments of fines and fees</th>
<th>Display the remaining items you can borrow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faceted browser</td>
<td></td>
<td></td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>Relevance ranking</td>
<td></td>
<td></td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>Spell checker</td>
<td></td>
<td></td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>User who borrow this also borrow</td>
<td></td>
<td></td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>User who borrow this also borrow, Try these</td>
<td></td>
<td></td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>User comments &amp; ratings</td>
<td></td>
<td></td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>RSS feeds</td>
<td></td>
<td></td>
<td>X</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>Tag cloud</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Book jacket</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Which feature(s) do you suggest to libraries?**

This chart is chosen as it indicates the most important features as ranked by the interviewees. By adding the top four “popular” features and the bottom three “least popular” features to the table, it shows that the findings of this study are generally consistent with results from prior surveys and have similar findings, i.e. users like relevance ranking and borrowing suggestions, and dislike 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.
6.3 Best Features according to Interviewees

From this study, four key features in next-generation catalogues can be identified as being the most useful for the interviewees. In addition, interviewees would also like the libraries to implement these four features in the Star catalogue:

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

Faceted Browser

Faceted browser is the most popular features in this study. The user survey of the National University of Singapore Libraries (2008) also finds the same result. However, the University of Sheffield undergraduate student project indicates that the faceted browser is the least popular feature. It is possible because of some ambiguities of wording of the feature. “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. It may indicate that a faceted browser only can narrow results by author, topic and language will not be enough for users. Nonetheless, the project is a small-scale project. User survey of the National University of Singapore Libraries and this study support users like the faceted browser.

In this study, interviewees explained why they like the faceted browser. It is because the faceted browser can narrow down results quickly, echoing the comments of Breeding (2007), and also give an overview of the search results. Interviewees comment the feature can also let them have some “control” of what they want during searching. The feature works efficiently and is easy to use.

However, it seems that librarians do not value the importance of the faceted browser as much as users. In the OPAC survey by Pattern (2007), which examined the view of library professionals instead of users, it can be seen that UK librarians rate the faceted
browser as being less important than other features such as spell checker and RSS feeds, which are not favoured by interviewees.

This attitude of library professionals could explain why none of the libraries, except one, has currently implemented faceted browsers into their OPACs, as found in the OPAC study in chapter 5. The faceted browser scored the least among other new features in the OPAC study. Overall, a divergence between users’ preferences and librarians’ preferences of the importance of faceted browsers can be observed. It would appear to be important to consider users’ preferences if libraries would like to develop a more user-centered OPAC, however.

Source: OPAC Survey (Pattern, 2007)
**Tag cloud**

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 which is opposed to the results of this study. 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.21) although it is a “least popular” feature. It is hardly to explain why it becomes a “least popular” feature.

Nonetheless, interviewees are 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).

**Relevance Ranking**

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. The main reason for its popularity seems to be its time-saving efficiency.
In chapter 5 of this study, it also can be seen that there is certainly a trend towards libraries implementing relevance ranking in OPACs. When compared to other new features, relevance ranking is the top new feature that libraries have implemented. 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); related suggestions were mentioned by Antelman (2006), Breeding (2007) and Bibliography Services Task Force, University of California (2005).

**Borrowing suggestions**

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. It can be seen that this feature is in the top rank of the results. Furthermore, the findings of this research show a similar result. All findings emphasise a strong user preference for borrowing suggestions. 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.

Furthermore, it might be worth mentioning that this is also the librarians’ view of “the user who borrowed this also borrowed” feature. From Pattern’s OPAC survey (see graph
above), librarians rate this feature as quite low on the scale of importance to them. It is difficult to explain why they are not interested in it; nevertheless, this shows, once again, that library professionals have a different view to that illustrated by users’ preferences.

6.4 Other Less Important Features

Generally, interviewees place less value on such features as spell checker and enriched content. However, it does not mean the features are 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.

Spell checker “Did you mean … ?”

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, 2007) also shows that spellchecker 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. Pattern’s OPAC survey (2007) also shows that librarians consider spellchecker to be the most important feature for future development. It seems that there is some inconsistency in the findings. It shows that different groups of users have different needs.

It 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 (as seen from the findings of the universities OPAC study mentioned in chapter 4) 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.
This suggestion is pointed out by interviewees but also in the report from the University of California Bibliography Services Task Force (2005).

**Enriched content**

The findings of this study show that interviewees do not have a strong interest in enriched content such as book jackets. Interviewees are not impressed by the usefulness and functionality of book images. They do not mind whether OPAC has book covers or not. This results echo the survey of the National University of Singapore (Lim, 2007). On the other hand, 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.

However, Pattern’s OPAC survey (2007) shows that enriched content is rated as the third most important feature by library professionals. Chapter 4 also concludes that more and more academic libraries have subscribed to book covers, summaries and tables of contents. It seems that interviewees do not have as strong an interest in those enriched content features as library professionals. The differing views among librarians and users can again be identified here.

In the literature review, 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 to them. It appears that they prefered features that can save time.
Example: Displays of the location and availability of books

6.5 Web 2.0 Features
User rating and reviews, RSS feeds

It is clear that 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. In addition, not only students but also the library professionals are not interested in Web 2.0 features, which can be observed from the OPAC survey by Pattern (2007).

Web 2.0 ideas are constantly being encouraged to implicate to 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. As interviewees expressed, “it takes time to write comments”. 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.

6.6 Conclusion

This study shows that the faceted browser, tag cloud, borrowing suggestions and relevance ranking are the most desirable and useful features. Generally, the findings of this study are consistent with results from prior studies, i.e. users like relevance ranking and borrowing suggestions, and dislike RSS feeds, user ratings and reviews. However, few inconsistencies can be found, such as the results of spellchecker and tag cloud are opposed to the results of some prior studies. It can be seen that the prior studies are quite different; e.g. the surveys are conducted by different universities, for different user groups and have different options offered respondents. Thus it is not easy to make comparisons. Nevertheless, it can indicate that different groups of users have different needs. Obviously, different people have different opinions. Different views about the importance of features can also have been shown to exist between library professionals and library users.

Generally, students’ expectations of OPACs are not very high. I can be seen that students like features that are quick, easy to use and relevant to their search. As mentioned at the start of the chapter, users do not always have very clear ideas of what they actually want, and they seem to be quite passive. Nevertheless, users’ views are essential factors when
developing usable and user-centered OPACs. Thus, libraries should be more proactive in gaining an awareness of users’ preferences and in identifying their different needs in order to provide user-centered OPACs. In addition, it is suggested that libraries have a responsibility to provide appropriate and innovative OPACs to users. 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. In regard to Web 2.0 features, it seems that no one is very keen on them, in reality. However, by adding those Web 2.0 features, both students’ participation in libraries and information sharing can be encouraged. On the whole, libraries should keep improving OPACs; however, their aim should not only be to meet the needs of students but also to provide a usable library catalogue that is beyond current expectations.
Chapter 7 Conclusion

7.1 Summary of the Study

This study aims to explore the preferences of students of the University of Sheffield in relation to the features in next-generation library catalogues. In addition, it also aims to provide an overview of the progress of academic libraries in the delivery of those new features to users. The scope of this study is a focus on postgraduate international students. In this study, the findings are mainly drawn to investigate users’ preferences in order to establish priorities and contribute the further development of STAR.

The literature review provides a background for the study. From the literature, it can be seen that the development of library catalogues has been slow over the past 30 years. It is clear that library system providers are the main controllers of the development of OPACs. Because of the appearance of the Web, the role of library catalogues seems to have become less important to students. There are many literature reviews about competition between Google and library catalogues and rising student expectations about the use of OPACs. Nevertheless, driven by Web 2.0 technologies, library system vendors have started to launch their next-generation library catalogues over the last few years. As exhibited above, the features appearing in the next-generation OPACs are mostly adapted from other web services such as Amazon and Google. The next-generation OPACs are more user-centred and they are not only for searching but also for discovery and encouraging user participation. In order to gain a better understandings of users’ preferences, three user surveys were reviewed in this chapter.

The research methods used in this dissertation were discussed in the methodology chapter. In order to achieve the objectives of this study, two approaches were used. The predominant method employed was the qualitative interview for understanding how students use the STAR catalogue and how they think about the new features in the next-generation catalogues. The second approach is carry out a study of university OPACs
through an examination of the OPACs of 153 UK universities in order to find out to what extent UK academic libraries have implemented those new features.

From the study of university OPACs, it was found that the development of next-generation OPACs in UK academic libraries is just beginning. About half of the libraries’ OPACs do not have any new features. However, it can be seen that some libraries have started to include some new features in the catalogue. Relevance ranking, book jackets and tables of content are the features that libraries have implemented the most. These findings also indicate that librarians have given priority to these features. Furthermore, this study also found that despite the control of the library system vendors, libraries still can modify their OPACs to function as next-generation OPACs.

The findings of the interviews show that students have positive comments to make about Star. It was evident that their searches are very course-centered. Many students seemed “conditioned” by Google; for example, they like using keyword searches. In the interviews it was found that although interviewees were experienced in using the Internet, they did not have a great interest in, and were not familiar with web 2.0 technologies, especially RSS and contributing reviews. Generally, the findings showed that users think all the features in next-generation OPACs are useful. However, they gave different priority to different features. Evidently, the faceted browser is the feature that was favoured by all the interviewees; in addition, tag cloud, relevance ranking, borrowing suggestions(such as “Unavailable? Try these …”) were also popular among interviewees. In contrast, interviewees were much less interested in RSS, contributing tags and reviews.

In the discussion of this study, the findings of the study of university OPACs and interviews were discussed in reference to the literature. The discussion is mainly focused on comparing the findings of this research with other user surveys that were mentioned in the literature review chapter. Generally, it found that the findings of this study are consistent with the other user surveys. Relevance ranking and borrowing suggestions appear as popular features among all the results, including the results of this study and all other surveys. On the other hand, it found that all the results indicate that students are not very interested in web 2.0 features. It may be because web 2.0 technologies are relatively
new to users, which is the conclusion noted from the interviews. In addition, a gap exists between librarians and users, which can also be observed from the findings of this chapter. It shows that there are different views between users and librarians on the preferences for new features. Thus, library professionals’ first concern should be more about actual user needs and preferences; by using their professional knowledge, they could provide appropriate and innovative OPACs.

## 7.2 Recommendations for Libraries

In this study, it shows that users have different preferences in relation to the features of next-generation OPACs. And in reality, libraries have many limitations such as cost, time and technical issues. It appears that it is impossible for libraries to implement all the new features at once. Thus, libraries could consider the findings of this study to establish the priorities for features that are the most important to library users, and to implement them. Thus, appropriate implementation can be done; in addition, user-centered OPACs can also be developed more quickly.

This study shows that there are different views between users and librarians. Thus, more research focus conducted on the end-user is recommended for exploring users’ needs and the features they see as being desirable. It can be seen that the approach of this study is simple and easy to employ. Libraries could adapt the methodology and the approach of this study; for example, they could employ the interview schedule in order to investigate their users’ behaviour and preferences.

## 7.3 Limitations of the Study

The main limitations of this study could be related to the sampling. Firstly, the sample included various levels of international students—that is, students from undergraduate, taught master, postgraduate diploma, MPhil and PhD programmes. In addition, an uneven distribution of different groups of students can also be identified; for instance, only one out of sixteen interviewees is studying an undergraduate programme. Secondly, snowball
sampling was used as the main sampling strategy in this research. Most of the interviewees were limited to suitable friends, or ‘friends of friends’ of the researcher. Thus, this can affect the generalisability of the findings of this study.

7.4 Recommendations for Further Research

In this research, the focus is on University of Sheffield international students. It can be seen that some other further research on student user preferences is worthwhile and it is recommended that this should be carried out. For further study, research on student user preferences could be conducted in other universities and also not only for international students (e.g. local or ‘home’ students). In addition, students studying at different levels, or students from different departments, could also be the focus of further research. Different levels of students can behave quite differently and use OPACs in different ways; for example, unlike research students, first year undergraduate students may tend to use OPACs to for search books, instead of searching journal articles. In addition, students who studying in different department can also act very differently; for instance, art students vs. science students. It is possible that all these factors affect the findings of the research in quite different ways. Accordingly, it would be worthwhile to carry out further research on the topic of this study in the future. As a result, a much deeper understanding of student user preferences can be gathered in relation to the required features of next-generation OPACs; furthermore, valuable and usable OPACs for library users can be developed much better in the future.
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Appendix

Interview Schedule

The interview questions are divided into six sections.

Those sections are about:
(1) Experience of using library catalogue Star
(2) Experience of using other internet resources
(3) Features that improve the search experience
(4) Features including Web 2.0 and Amazon Features
(5) Features that enhanced the display
(6) Background information of subjects

Screen shots will be used for eliciting interview responses

Section 1: Experience of using library catalogue

Screen 1 & 2

1. Do you use Star catalogue?
2. How often do you use the STAR catalogue?
3. What do you use for the library catalogue (e.g. search books / renew items)?
4. What kind of materials do you usually search for?
5. Do you feel easy to find the information you need? Why?
6. What kind of search function do you usually use (e.g. title search/ keyword search/ author search)?
7. What other functions in Star do you use? (e.g. advanced search, catalogue, library branch, etc.)
8. Do you like the STAR catalogue? Why?
9. Do you think the STAR catalogue need to be improved? If yes, what need to be improved?
10. Have you had experience of using other library catalogue, e.g public library catalogue? If yes, is Star catalogue better? Why?

In addition, interviewee will be asked to perform a number of tasks on the STAR in order to observe their searching behaviour.

Section 2: Experience of using other resources

11. Do you use Google / Amazon.com? If yes, how often?
12. What do you usually search for?
13. Does the spell checker “Did you mean…” in Google or Yahoo help you to search information?
14. Have you read other people comments and ratings on any websites? If yes, will the comments and ratings influence your choice?
15. Did you contribute comments or ratings on any websites, e.g Amazon.com/ e-bay?

Section 3: Features that improve search experience

Screen 3 & 4

16. Could you explain what new features have been added on the STAR?
17. Are the features useful to you? Why?
18. Which feature do you like the most? Why?
Section 4: Features including Web 2.0 technologies & Amazon features

Screen 5 & 6

19. Could you explain what new features have been added on the STAR?
20. Are the features useful to you? Why?
21. (Do you subscribe RSS feeds? If yes, how often do you read the feeds?)
22. Which feature do you like the most? Why?

Section 5: Features that enhanced the display

Screen 7

23. Could you explain the new features?
24. Are the features useful to you? Why?
25. Which feature do you like the most? Why?

General

26. Which feature(s) do you suggest library to implement into the library catalogue? Why?

Section 6: Background of subjects

27. What subject are you studying?
28. Which year of study are you in (PG/UG, Year)?
29. What is your nationality?
Final year students: please keep your library account up-to-date. Click here for further information
See items of Star News

Use Star to search for books and other resources in the Library.

You can also use Star Resource Lists or look at lists of New books in the Library.
Click the help button at the top of the page for an introduction:

- If you know the item you're looking for, type the author and title in those boxes. Otherwise type what you are looking for into the keyword box. (More options are available in advanced search.)
- When searching for an Author, enter the name in the format surname, forename/initial, e.g. Dickens, Charles or Eliot, T. S.
- Journal or periodical searches usually work better if you limit the 'Catalogue' to Periodicals catalogue (SULOS).
- To find ebooks, limit the 'Catalogue' to Electronic text and computer files.
- Click the Search button to start the search.
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Note: The table above lists books available in the University of Sheffield Library. The search criteria used was [research method]. There are 290 titles matching the search.
You searched on University of Sheffield Library source(s) for Keyword [computer]

There are no results matching your search.

Did you mean: computer?

You could try:

- Browsing a list of similar keywords to compute
- Confirming the spelling of your search words

Or to a view of this search that can be bookmarked.
5.

Author: Krugman, Paul R.
Title: International economics: theory and policy
Series: Addison-Wesley series in economics
ISBN: 020137727X
Subject: International economic relations.
International finance
Notes: Previous ed. 1997
Includes bibliographical references and index.

Users Who Borrowed This Item Also Borrowed
- Economic Analysis in Health Care, by Stephen Morris
- Microeconomics, by Hugh Groen

Most Helpful User Reviews
- Brilliant brilliant textbook, 27 Mar 2008
  By: [User Name]
  If you're in your final undergraduate year, at masters level or doing your MBA in any subject related to international trade - this is a must buy. The focus is slightly more economic than business, more mathematical than theory, but provides a great overview of existing literature on the subject.
6.

You searched on University of Sheffield Library source(s) for Title [Strategic management]

There are 97 titles matching your search.

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Copies:
- Location: St George's
- Shelfmark: 666.401 (h)
- Loan Type: Standard
- Due Date: 23/09/2008 - 23/09/2008
- Copies: 1
- Loans: 0

Unavailable? Try these...
- The definitive business plan: the fast-track to intelligent business planning for... (2nd edition. 2002) by Strultey, Richard
- Contemporary strategy analysis (6th edition, 2006. 52007) by Grant, Robert M.
- Strategic concepts (1998) by Sutton, C. J.

There are 97 titles matching your search.

Number 25 of 97