Benefits of conducting a usability study – the University of Leicester experience with Sirsi Rooms.
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Abstract
This paper examines how the Library at the University of Leicester has been implementing the Sirsi Corporation’s new information management and presentation platform, Rooms, and why it decided that a usability study was essential to ensure Rooms’ success. It examines the reasons for undertaking a usability study and how it can be fitted into a wider evaluation programme including focus groups and online feedback. The practicalities of organising usability studies in an academic environment and the overall benefits of conducting such studies are also discussed.

Introduction
At the beginning of 2004 the University of Leicester Library decided to implement the Sirsi Rooms content management system to replace its subject-based webpages. A project group was established to oversee the changeover with individuals being made responsible for co-ordinating the content, training and publicity of the new system, as well as its technical implementation. In addition to Rooms, the Library had purchased Sirsi’s openURL Resolver and its federated search, SingleSearch. Resolver was introduced as ‘Leicester E-Link’ in October 2004 and was an instant success with users, who appreciated a more efficient way of accessing electronic journals. It was recognised at an early stage, however, that Rooms would be a major change for the users, rather than an additional service, and as such its implementation would have to be carried out with great care. To aid this process a user evaluation strategy was drawn up with a usability study as a central component. This paper will examine the background to this decision, the methodology employed, the results and the main benefits for the project team, Room builders and users.

Background
The University of Leicester has 644 academic staff and 19,485 students, including a large distance learning contingent of 7,000. Like most academic libraries in the UK in recent years, it has invested heavily in electronic resources to meet the academic needs and expectations of its users. However, despite this investment and the Library’s efforts to promote the latest resources, there was still a reliance, amongst the student population especially, on Google. Whilst Google is an effective search engine, it is not a suitable replacement for academic literature databases, not even in its Scholar incarnation. The academic databases enable users to access material in a quality-controlled, and often subject-based, environment that ensures more efficient searching, especially for journal articles. The Library felt that Rooms would address this problem. Given the manufacturer’s claim to put ‘content into context’, users would have a subject-based web...
environment in which to work that would also highlight relevant academic databases.

The Library started work on creating its ‘rooms’ in the Summer 2004, after a period of training on how to build them. The subject librarians were the ‘builders’ and they soon found that it was a very time consuming process, as they had to package information into different types of content module, which they then arranged within each room. This process required them to learn new design skills, as well as following strict procedures. The initial aim had been to launch Rooms with Resolver in Autumn 2004, but it soon became clear that this was an unrealistic target for a University with such a large number of disciplines, each requiring at least one room, and so it was decided to move the target to Autumn 2005. This gave time for the project group to run a pilot of five rooms and assess user reactions, which could then be used to improve the product in time for its launch. As Leicester was the first University to use Rooms in Europe, we could not know how our users would react to its innovative features, such as newsfeeds, embedded webpages and search boxes with predefined searches. We also wanted to assess the look and feel, which we could build into the design to ensure that the system would be attractive enough to gain our users’ attention.

**Strategy**

A strategy to gain user feedback on the five pilot rooms – medicine, law, biological sciences, social work and a general reference room – was drawn up by a member of the project group. It had three features: a usability study; focus groups; and a built-in request for feedback via a link in every room. The reasons for each of these methods are as follows:

1. **The usability study**

A usability study is increasingly recognised as good practice for the implementation of any new software product. The work and advocacy of Jakob Nielsen (1) and Judy Luther (2) amongst others reinforce the view that the designer is not the best judge of how a user will actually use a product. This can only be assessed by watching user behaviour on a one-to-one basis. It is, however, time consuming, which is probably why it is not undertaken as often as it should be within university libraries. However, thanks to setting back the deadline for implementation, we had time on our side and it was the only method which would allow us to see if users could navigate to and around a room. We hoped it would help us isolate good practice within room design, show where changes might be made and highlight problems, which we could avoid in our larger programme of room building (due to take place over the summer 2005). It would also help us to see how adaptable our users were to new electronic resources, as we knew that none of them would have used anything like Rooms before.

The principal weakness of a usability study is the small number of users involved. No matter how representative you try to make the sample in terms of type of user, it can only possibly involve a tiny fraction of the user
population. This would not help us in promoting Rooms as the Library’s up-and-coming service. The other main weakness is that the planning, conducting and analysis of the studies is very labour intensive. But we were greatly helped in our planning by the work done at the University of Nottingham (3) which provided us with the basic structure of how to approach the problem.

2. Focus groups

To help us widen participation in the evaluation strategy, gain more feedback on the service and promote it, we decided to run focus groups for the four pilot rooms that could be linked to a department, school or faculty. The groups were asked to focus in particular on the look and feel of Rooms to ensure that we had made the system as attractive as possible to our main stakeholders, that is academic staff, postgraduate and undergraduate students. Focus groups enabled us to appeal to approximately 3000 users, as we were targeting two faculties, a school and a department. The process of attracting volunteers to join the focus groups also meant that all of the potential users in these departments should at least have heard about Rooms and might have a look at the pilot, even if they did not ultimately participate in the groups themselves.

The main disadvantage of a focus group is getting people to participate, especially in a University environment where the users have so many other demands on their time. Incentives for participation have to be given. There is also the problem of ensuring that the group ‘focuses’ properly. The ways to overcome these problems will be discussed in the practicalities section later on.

3. The Feedback button

The final method employed to evaluate the pilot rooms was the one used most frequently by those launching a new service. It was simply a button requesting ‘Feedback’ within each room, connected to an evaluation questionnaire, which we also provided in a paper format in the Library and simultaneously used for our focus groups. This feature could be publicised to all users via the Library’s usual promotional routes, such as emails from subject librarians and via the Students Union. It meant that users who were not on-campus could be included in the consultation, a particularly important point for the University of Leicester with its high proportion of distance learners among the postgraduates. As noted above, one of the pilot rooms was a general reference room, which was by its nature designed to have a broad appeal so that, theoretically, all Library users could comment via this route.

The weaknesses of the Feedback button are, unfortunately, linked to its strengths. It may be there for all to see, but there is not any compulsion for users to comment. Of course, you can try to provide an incentive. However, experience suggests that not even that will work with time-pressed academics and students. Also, even when a form is used, there is no guarantee that
users will comment on all of the features about which you would welcome feedback. Imaginative form design can help to reduce this problem, depending on the skills at your disposal.

**Timeline**
The evaluation strategy covered the period from January 2005 up to the proposed launch at the beginning of October 2005. The original plan was that focus groups would meet from January to March, ensuring that a good proportion of the potential users of those rooms could be involved. The first set of usability studies would take place in February, allowing a generous amount of time for planning. The feedback button was to be available as soon as the pilot was launched in January (to be replaced by a general comments form beyond the pilot stage). Analysis of the results would occur from March through the Easter vacation, when room building for the full launch began in earnest. It was planned to implement the changes in April and May, ready for more usability testing in late May, following the examination period. After more analysis, modification and building, the final round of usability tests would come during July, with library staff and postgraduate students asked to comment further on the look and feel of the product. The actual experience of putting this plan into effect, and the changes that were necessary to it, will be discussed below.

**Practicalities of Implementing the Usability Tests**

One of the first issues that needed to be addressed was who would write and conduct the usability tests, and a small group took on this task. It was decided that the subject librarians who had built the pilot rooms should not be involved in the first round of usability testing for three reasons. Firstly, they would be conducting the focus groups with their departments. Secondly, they were more likely to be biased concerning the design of the Rooms, and therefore might influence the outcomes or interpretations of the tests. Thirdly, if the users were critical of the Rooms, it could have a demoralising effect on them.

In the second round of testing this became less of an issue, as there were no focus groups, and by that time all the subject librarians had built rooms.

The usability group designed tasks based around important user tasks and to test design areas that they perceived to be problematic.

The tasks in the first round of testing looked at:
- Navigating around Rooms
- Using an embedded web page in Rooms
- Finding journals in Rooms
- Finding passwords in Rooms
- Finding the same information in different rooms
- Using a SingleSearch box within Rooms
- Using a predefined catalogue search in Rooms

The tasks in the second round of testing looked at:
Finding information on a topic using the SingleSearch Quick search feature
Changing the way results are displayed in SingleSearch
Sorting the results in SingleSearch
Changing the sources being searched in SingleSearch
Navigating around Rooms (including investigating the order of tabs within Rooms)
Finding databases in Rooms
Finding passwords in Rooms
Finding the same information in different rooms

Once the tasks had been written and agreed the next stage was to recruit volunteers. It was decided to recruit users from Departments that were not involved in the pilot rooms to ensure that it was the product that was being tested, rather than the users knowledge of a subject, and to avoid recruiting anyone who was also taking part in a focus group. The rooms were also aimed at meeting the needs of a variety of stakeholders, namely undergraduates, postgraduates, academic staff and library staff, and therefore it would be preferable if a volunteer from each group could be found.

From previous library initiatives it was obvious that we were unlikely to attract volunteers without some type of incentive. Sirsi donated £400 to cover the cost of the incentives, and also provided free pencils and coasters for promotional purposes. Publicity materials were all done in-house and at minimal cost.

Debate about incentives raged long and hard, and a choice of high street vouchers was the most popular idea. But due to internal invoicing issues it was agreed that we would offer the volunteers £20 book vouchers from the University bookshop. It was unclear whether we could offer the same incentive for library staff but the ruling was that they would be testing the software as part of their library duties, and therefore were not entitled to any extra incentives.

Volunteers were recruited via staff-student committees and emails to Departments.

The next issue that needed to be resolved was where the tests would take place, as it would need to be somewhere that had a PC but was relatively quiet and private, so that the volunteers would feel comfortable verbalising their actions. For the first round of tests an empty office was available and served the purpose well. However, for the second round of tests the office was no longer an option and a seminar room had to be used, which was less suitable as it was a large room.

The tests themselves ran fairly smoothly, as the facilitator and observer were very clear on the duties each had to undertake, and the book voucher incentive was well received.
A late addition to the first round of tests was the recruitment of a further volunteer that was visually impaired, and used a screen reader. This allowed the usability team to gather valuable feedback about how accessible the product was.

Once the tests were completed the more time-consuming and difficult task was to collate and interpret the results. The usability group went through all the results and produced a report comparing the user responses to each task and drawing out common problems or issues, as seen in the example below. They then commented on why they thought those issues arose and suggested possible solutions where appropriate. The subject librarians also discussed the report and suggestions were reported back to the project group.

Example from the Usability Test Report

**Task 4**: Go to the Medicine and Health Room.

**Observation**: Volunteers 1-4 all went ‘Home’ before choosing ‘Navigate’ and accessing the Medicine and Health Room. Volunteers 5 and 6 needed help to find the Medicine and Health Room. (Note: This was the first time they had been asked to navigate from one room to another).

**Comment**: Navigation between rooms was not done very efficiently to begin with, but they learned the process quickly once they had spent some time experimenting. This seemed to indicate that Rooms could be easily comprehended with a little training and/or experience.

In an ideal world the results of the first set of tests would have been acted on, and changes made to the Rooms software before the second round of tests took place. Unfortunately, many of the changes needed the input of the Library Systems team, who were not available at that time due to commitments elsewhere. Therefore, it was decided that the second round of tests would look at some of the problematic areas highlighted in the first round of testing, but would also look at the SingleSearch product, which had not been covered previously.

As the second round of tests were conducted in the University summer vacation it was also impossible to recruit users from some of the stakeholder groups, such as the undergraduates. So volunteers were used who could be found on-campus at that time, mainly academics and postgraduate students.

A third and final round of usability tests had been planned for September, just before the product launch in October, but the room building process had taken longer than expected, and therefore the final round had to be abandoned. However, it was felt that we had gained more than enough useful information from the first two rounds to make the process worthwhile.
## Approximate Amount of Staff Time Required

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## Practicalities of Implementing the Focus Groups & Feedback Button

The focus groups turned out to be much more difficult to organise than the usability tests. Therefore it was decided we would not use a particular methodology for conducting them and simply use them as a means for gathering informal feedback from users.

Like the usability tests it was decided that incentives would be needed to encourage users to attend sessions. Food, drink and free gifts seemed to be the most popular items when the idea was discussed at various staff-student committees. In one instance a poster placed in the Department foyer advertising free cakes certainly attracted a few extra people along!

It became obvious early in the project that involving the departments in the design process would be more successful where there were departmental library champions that could be utilised.

Another issue that arose was that software problems meant that some groups got a demonstration of Rooms, while others got a hands-on session.
There were a variety of methods used to collect informal feedback:

- Hands-on session held in a departmental computer laboratory, followed by a discussion of the product over food and drink.
- Demonstration and feedback as part of a staff-student committee meeting.
- Visits to individual academics.
- Demonstration and feedback as part of a teaching session.
- Demonstration with free food in the Library Seminar Room.

After the first feedback session it became obvious that having a form users could fill in while seeing or using the product would be a useful addition to any verbal feedback offered. A form was designed and the free pencils, provided by Sirsi for the project, proved to be a useful incentive to get user to complete the printed forms.

The same form was used for the feedback button to collect feedback from users not attending focus groups and distance learners.

This allowed feedback from the focus groups and the feedback button to be collated together easily, but verbal and email feedback sent to individual subject librarians was harder to deal with.

As with the usability study it was decided to draw out particular themes or issues that arose several times during the focus groups and from other feedback, and present this as a report to the project group. It also became clear from the informal feedback that some features of Rooms resulted in a division of opinion. For example, some users found that predefined catalogue searches quick and useful to use, whereas others felt that they were being spoon-fed and they should actively conduct any searches they needed.

**Key Issues Identified by the Usability Tests**

One of the key issues that the Usability Group agreed on was that Rooms indicated a satisfactory level of usability that could be enhanced by addressing the issues highlighted by the tests. The Group also felt that the usability exercise was a very valuable undertaking, which produced high quality feedback and allowed the project to be more responsive to user needs.

The main findings from the tests were:

- **Navigation is the key area for making the product usable.**
  - The main problems encountered stemmed from unfamiliarity with the interface, which could be overcome quickly.
  - The banner at the top of each page needed to be re-designed and the terminology revised. For example, as seen in *Figure 1*, some buttons on the banner were not recognised as buttons and users were unsure about the term 'Navigate'.
  - Terminology should be consistent. For example, the terms 'Home' and 'Lobby' were used to refer to the same page, which caused confusion.
- The use of tab names within rooms should be more consistent. This was changed for the second round of testing and the new level of consistency helped improve the usability.
- The order of tabs within rooms did not appear to have much of an effect on information retrieval.

Figure 1: Rooms Homepage

- The current version of Rooms does not comply with SENDA requirements but the screen reader with which it was tested enabled users to use the pages.
- Newsfeeds, which were located on the left-hand side of the screen, caused problems when using a screen reader. The volunteer had to read through the entire newsfeed before they could move on to the next column of information in the Room.
- Volunteers began to learn how to use SingleSearch in a relatively short time.
- Further instructions or a more helpful error message were needed on the SingleSearch quick search page as users did not notice that they needed to choose resources before clicking on search. See Figure 2.
- The design of the SingleSearch results page needed to be refined. For example, users did not notice the options to view results from different resources.
The main themes of the feedback were:

- The use of images was attractive.
- People automatically read the top left of the screen and therefore the most important information should be placed there.
- There was too much text on some of the screens.
- The navigation was not obvious, especially from the home page.
- Hyperlinks were not obvious because they did not follow the standard convention of being underlined.
- A search box to search across rooms would be appreciated.
- Some rooms did not display well in browsers other than Internet Explorer.
- Users were unsure what they were searching when presented with a federated search box.
- Embedded web pages (see Figure 3) were a contentious issue. Some people liked them, while other found them confusing to use, and there were worries about how you would reference them.
- It was suggested that the phrase “You are out of your Room”, which appears on the banner when a new window opens, needed to be revised.
Benefits

Conducting the usability study, together with the other evaluation methods, provided numerous benefits for the Rooms project, the Library and ultimately the users of the new service.

The project benefited in two different ways. The fact that we had obtained high quality feedback from the structured usability tests allowed the project to be more directly responsive to user needs, such as positioning newsfeeds on the right-hand side of the screen. An unexpected benefit, however, was the effect on the team’s morale. The building of the rooms had been time consuming and, at times, frustrating and so the morale of the subject librarians as builders had been lowered. The positive feedback we received from all of the evaluation methods raised morale considerably and at a time when it was needed, just before the main programme of building began. Of course, negative feedback would have dampened spirits further but the fact that we had the feedback in such a structured format meant that we could have tackled the major issues, so that they would not be there for the full launch in October. As it was, we could be confident that we were building on firm foundations.

The Library itself benefited a great deal from the exercise. The publicity needed to promote participation in the usability studies, focus groups and use of the feedback button showed that the Library welcomed its users’ views on its services. This is not new but it was emphasised. Liaison with the four departments targeted by the Rooms pilot was particularly improved, with the subject librarian’s profile raised for academic staff and students by all the communication needed through the organisation of the focus groups. Whilst Rooms was the focus of discussions in the groups, other issues were raised naturally and the subject librarian’s knowledge of the information seeking habits of users generally improved. As well as this, the Library heightened its understanding of the needs of its user population, which could then be drawn upon when deciding on the purchase or design of other new electronic services. The issue of navigation around a product and screen design applies
equally to the front end of a new Library catalogue, and as Leicester moved from Sirsi’s WebCat to iLink in the Summer of 2005, it was very helpful to be aware of user views.

Our supplier also benefited from our work. As the first European university to implement Rooms on such a scale, it was helpful for them to know about the feedback that we had received. The positive nature of the feedback was included in press releases by all parties. They could also understand why we needed changes to some parts of the software, as we had evidence to support our requests. This evidence from a UK university had not been available to them before. It was also helpful for us to refer to the results of the studies when responding to requests for information about Rooms from other universities.

Looking at the wider picture, the usability study is one small example of the benefits of evidence-based practice, which is of growing importance in librarianship, as in other professions. The fact that we had the time to reflect on and analyse our user needs, directly benefited our work and hopefully others will benefit too. Having used all three evaluation methods we can see the strengths and weaknesses of them all and, whilst we would change our methods slightly for the focus groups and feedback button, we would repeat the usability studies in a similar format. The only slight difference is that we would ensure that all of the big design changes had been implemented before repeating the tests. We had intended to do this but time ran out. The time consuming nature of usability tests means that they can only be used for large projects, such as redesigning our Library website, but the skills that the subject librarians gained through the project will be utilised again in the very near future.

The main beneficiaries of the usability testing, however, will be the users. They have had the opportunity to trial the system and provide feedback in a variety of structured and unstructured ways, which we have been able to analyse effectively. This means that they should have a service that will be attractive to them and useful for their research, learning and teaching. The rooms that will be launched in October 2005 will be superior to those designed and built in January 2005. The users should also be aware that a change to the subject webpages is coming and this should help them to adapt to the new system and accept it. We will continue to collect feedback from the users from the Feedback button within Rooms and will analyse this to implement changes as the new service settles down into regular use over the next academic year.

Bibliography