From Data to Development—Using Qualitative Data to Create Ideas and Solutions

Åsa Forsberg and Ingela Wahlgren
Lund University, Sweden

Abstract

During autumn 2015 we conducted a large qualitative user study on our library as a learning space. The purpose of the study was to find evidence regarding user needs in order to be able to make well-informed decisions for a development project.

This paper will discuss both the usefulness of qualitative methods in understanding students' and researchers' needs and requirements when using the library, and how you can work with the collected data as a base for development.

Introduction

Lund University is the second largest university in Sweden, with around 41,000 students and 7,500 employees. It is organised in eight faculties and each faculty has a library unit. The university library is the largest library unit with 100 staff members, but it is not part of a faculty. It is a both a legal deposit library and an academic library.

The present library building was constructed at the beginning of the 20th century. Since then it has more than doubled its size through several extensions. The library has around 500 study places, both in traditional silent reading rooms and in more open spaces. One of the consequences of the many reconstructions is that the public space is difficult to understand and find your way in. It also has problems with acoustics and light. Another problem is the location of the open collections. They are too large to be held on the entrance floor; therefore the reference collection, which is not extensively used, is placed on the entrance floor, and the heavily-used open stack collection is located on the third floor.

As a legal deposit library, with collections of the Swedish print since the end of the 17th century as well as rare books and manuscripts, the library has a focus on preservation, which also affects the public space. For instance, no food is allowed in the library and a large part of the collection is only available by in-house use.

Due to these facts, and in order to meet changes in the research and education at Lund University, it was decided to develop a proposal to improve the public space.

The task was given to the Library Services Unit, a small unit with five staff members (including the authors of this paper) who work with library space, reference services, and teaching activities. The unit formed a project team to accomplish this task.

During autumn 2015 we conducted a large qualitative user study of the library as a learning space for students and researchers. The purpose of the study was to find evidence regarding user needs in order to be able to make well-informed decisions for the development project.

Design and methodology

> The project was a wake-up call. We saw over and over again how much we did not know about our students and their academic endeavors. But, perhaps more important, we saw how often our personal assumptions about the students, which have guided years of decisions, were incorrect.[1]

The study incorporated several different methods. Some were of the user experience (UX) variety: cognitive maps, touchstone tours and observations. Other methods were focus groups and individual interviews. We also analysed the comments in a recently conducted LibQUAL+® survey and on a graffiti board in the library.

The target groups of Lund University Library are students, researchers, and the general public. Since the study concerned the library as a learning space, we chose to focus on students and researchers.

Interviews

We used several interview methods to collect data and input from end users.

Focus groups

The focus group method was originally used in marketing, but has become quite common in social sciences, including library and information sciences (LIS). A focus group is a group of people discussing a specific topic. We wanted to use the method since it allows participants to interact with each other, and not only with the interviewer. This method is also often used in combination with other methods.[2]

Since the project consisted of several different qualitative studies, we decided to do only two focus groups, one with researchers and one with students. According to the literature it is possible to use smaller groups when the participants have a lot of involvement with the topic,[3] as in our case; even so it was quite difficult to recruit enough participants, and we also had some last-minute dropouts. We finally ended up with only three participants in each group (one of the researchers who could not make it to the focus group participated instead in an interview; see below). The focus group sessions were around one hour each, and one moderator and one scribe/observer from the project team participated. The sessions were transcribed.

The main topic and the questions asked were the same for the two focus groups, focusing on the participants' reflections on criteria for a good and sustainable environment for study and research. We encouraged the participants to think outside of the library, which the student focus group mainly did. In the focus group with researchers, however, it was very difficult to broaden the discussion and talk about good study places in general as the participants preferred to talk about the public space in the university library. They were also quite biased toward the content of and access to the collections.

The different approaches in the two focus groups may be due to the recruitment processes; the researchers were recruited by posters in the physical library and on our websites, while the students were mainly recruited through contacts with the student unions. Consequently the researchers were regular visitors, and heavy users of the collections. Two of the students rarely used the library.

Semi-structured interviews

A semi-structured interview has predetermined questions but is flexible enough to adjust the questions according to the situation, and the questions are open enough to prompt discussion.[4]

For a couple of weeks during the project time, a student in library and information science did vocational training in the university library. The student conducted interviews with 10 students studying in the library, mostly individually but in two cases with a pair of students. According to the literature it is important to build rapport with the interviewees,[5] and we assumed that, as a student, he could more easily create an environment in which the interviewees felt more relaxed. The topic of the interviews was how the students experienced the learning space of the library, and they were also asked to describe the space. Some of the findings, discussed below, were quite eye opening.

We also conducted a semi-structured interview with a researcher, who was unable to attend the focus group.

We did not record and transcribe the interviews. Instead, notes were taken during and immediately after the interviews, and these notes were analysed.

Workshop with library student assistants

The university library employs library student assistants to staff the combined reference and lending desk in evenings and on weekends. We conducted a workshop with eight student assistants, who worked in two groups with two broad tasks: (1) describe the perfect study environment, and (2) list the positive and negative aspects of the university library learning space.

The student assistants were very engaged in the task, and could contribute two perspectives, since they are both students who use study places in this capacity as well as workers in the library, thus having deeper knowledge about it. They discussed the topics, and wrote and drew on large flipchart sheets.

LibQUAL assessment in 2014—analysis of general comments made by the users of the university library

In 2014 the Lund University Libraries conducted a LibQUAL-assessment. Lund University students and staff members were asked to answer the LibQUAL questionnaire. In our project we analysed 156 open comments concerned specifically with the university library.

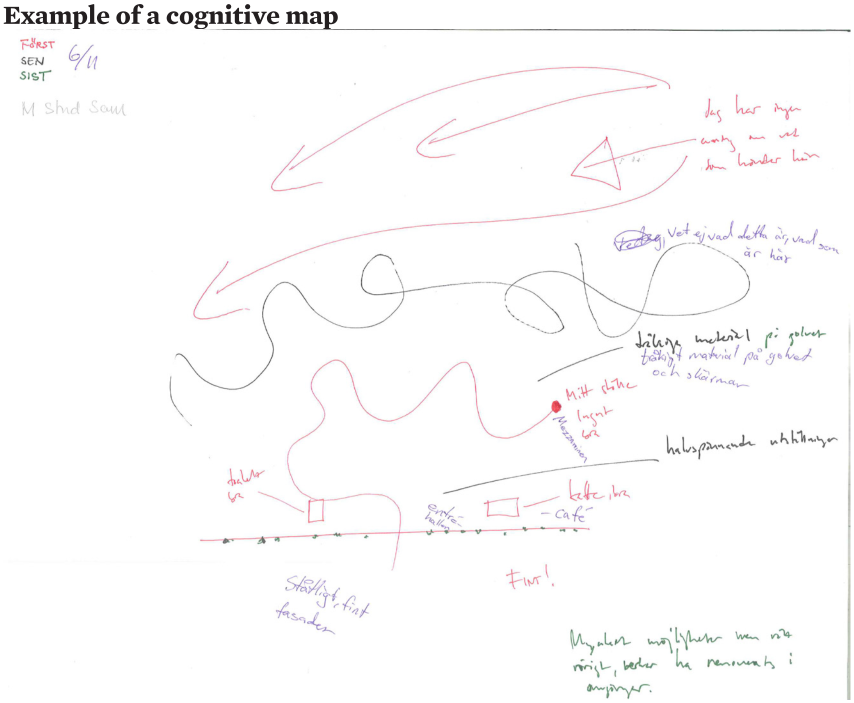
UX methodology

UX, or user experience, is typically associated with web interfaces and testing and designing those so that they are user friendly. A library space is also an interface as it connects a library user to the services of the library. If the interface does not function well, and is not pleasurable to use, the user will not enjoy using the library. Therefore many libraries have started using UX methods in recent years to assess the functionality of their spaces. One of the authors of this paper had the opportunity to attend the first UX in libraries conference in Cambridge, England, during spring 2015, and in the following paragraphs we will describe in more detail the specific UX methods we chose to employ as a consequence. To learn more about UX methodology and its use in library settings, see for example *User Experience in Libraries: Applying Ethnography and Human-Centred Design*, edited by Priestner and Borg,[6] who also organised the aforementioned conference.

Cognitive maps

Cognitive mapping has been used by other academic disciplines and in other contexts since the middle of the 1900s,[7] and has in recent years also been introduced as a method for exploring the users' experience of library spaces or learning environments, as seen for example in the work by Mark Horan from 1999.[8] There are many different ways of doing cognitive mapping. In our case we chose to let library users draw their mental image of the library on an A3 piece of paper, using three different coloured pens, changing pens every two minutes. That way we could see what the participants had drawn first, second, and last, the assumption being that the participant draws what is most important to him or her first. After the allocated six minutes of drawing were up, we also talked to the participant for about ten minutes about their map or image, asking them to explain what they had drawn, and then also taking care to take note of the words used by the participant to describe different items in the library. For example, the combined reference and lending desk was most often talked about as the "reception desk." We did ten maps in total, four with researchers and six with students. We recruited all of them by simply asking people who were using our study spaces and our reading room for participants. We did make sure, though, that we had a gender balance and also had some participants who were not Swedish speakers. As with all our methods that asked for time by participants, we offered cinema tickets as an incentive.

Example of a cognitive map



The cognitive maps required some extra time for analysis, compared with the other UX methods we used. First of all we listed the specific items or places mentioned or shown on the maps, adding items that we were interested in seeing if they were represented on any map. We then counted the occurrences and compared the number of occurrences with the number of possible occurrences, and also divided the number of occurrences with the number of participants, to create a relative index. We also created a temporal index, using the different colours on the maps to understand when something had been drawn. The assumption here is that if something is drawn early on, that means it is more important to the participant than something that is drawn last, or not at all. One has to be careful when interpreting cognitive maps though, and take into account that many different aspects can influence a participant to draw or not draw a certain object or spot. Most of our participants, for example, drew the combined reference and lending desk during the first two minutes. However, our desk is placed right in front of the entrance to the library, and quite close to it as well, so it is very hard to miss. That means that participants might have drawn it early on, without that meaning much more than that they have noticed where it is located. It does however also make it that much more noticeable and noteworthy that one participant did not draw the desk at all and that another participant drew it during minutes 2–4.

Touchstone tours

So-called touchstone tours are a form of contextual inquiry,[9] whereby you investigate the context of the participant by visiting and/or interviewing him or her in his or her home or place of business. In our case, we wanted to learn how our library space worked for our users and therefore asked library visitors to “show us their library.” The participant was asked to take the researching librarian on a tour of the library and visit the different touchpoints that the participant usually interacts with when visiting the library. During most of our tours we recorded audio and also took photographs to document the different touchpoints. The participant was asked to talk about the different places, or touchpoints, where he or she interacts with the library or spends time when he or she is at the library and we asked follow-up questions when relevant. Most of the tours took about half an hour to complete. We conducted four tours with more or less randomly picked participants that were approached as they were walking through the door, though we did aim for, and achieved, a gender balance.

We also conducted another tour that differed from the others. Partly by design, but mostly by luck, we managed to do a tour with a first-time visitor to our library. She booked a book-a-librarian appointment and we then asked her if she wanted to let one of us tag along as she looked for books in our library. This tour took 45 minutes and gave us many insights into where the pain points in our library are for someone who tries to use the library for the very first time.

Observations

We carried out both qualitative and quantitative observations in our library space. We counted the usage of our public computers twice a day during a few weeks and we also carried out systematic observations of the usage of our quiet reading rooms and group study rooms, taking note of how many patrons were using laptops or other mobile devices. The qualitative observations were carried out by different staff members at different locations within the library and on different dates and times. These gave us insights into noise levels and the flow of people through the space, as well as the ineffectiveness of our information screen because of its placement.

Graffiti board

A few months prior to us conducting our research we put up a graffiti board in a well-trafficked area of the library (see image below). The graffiti board was an instant hit and has been so well used that we have kept it as a permanent feature in the library. Since we are using paper attached to a large notice board, we can easily replace the paper, and keep the used ones for analysis. When we analysed our other data we also included insights from the graffiti board up until that date.

Graffiti Board

Learning from theory and practice

The project team made a literature review focused on the library as a place for learning. The literature we used emphasised the importance of creating a learning space with flexibility and functionality for technical devices and collaboration. Another issue is wayfinding, which means to understand the functions in different types of spaces, such as creating different zones with different functions within the library. We also found research evidence for the importance of offering a good study environment, with good lighting, acoustics, ergonomic furniture, and access to drink and food. The library is the students' workplace, and they want to be able to access it at least during office hours, if possible 24/7.

Another important topic to cover was different methods to assess and understand the user experience of library space and learning space. One of the project members participated in the first UXLib conference, which was held in Cambridge, England during spring 2015.

For inspiration the entire library services team, together with the library's facilities manager, went on several study visits to other HE libraries, most of them in Denmark. These visits inspired some of the solutions we are proposing to solve some of the issues we found in our own library, but they also provided some insight into what not to do.

Analysing the data and ideation

We dedicated two days to analysis of the collected data and for ideation. We started by using the affinity mapping method for clustering the different issues and insights we found in our collected data. We divided the data between the five of us and extracted keywords and phrases from the data that described a problem, need, or issue. These insights were then clustered together based on some broader themes, like air quality/noise level, lack of power outlets/insufficient wireless network, and wayfinding/disposition of the library space.

We then moved on to the Six-Eight-Five method to generate ideas. Six-Eight-Five is a structured brainstorming method, where the participants individually and quietly take five minutes to write six to eight ideas on post-it notes and then post them on a board and briefly explain them to the group. This process is repeated several times; each time the participants may generate new ideas or further develop their own or their peers' ideas. The goal was to generate as many ideas as possible, big and small, and to avoid self-censorship. This method was very fruitful and there were a multitude of ideas when we started our next and final phase.

The ideas were sorted using the How-Now-Wow method, in a matrix according to if they are: conventional and easy to carry out (Now); innovative and difficult to realize (How); or innovative and easy to realize (Wow). This method also helped us weed among our many ideas and the matrix was easily translated into a timetable for conducting small and larger changes to our library space. Our findings, suggestions, and timetable were presented to the library management during spring 2016.

How do the users experience the university library?

Our user studies showed that many users find our library difficult to navigate and unintuitive in terms of where different functions and collections can be found. The impressive facade also creates disappointment in our visitors, as the interior of the library does not match the facade very well, and the interior is perceived as quite uninspiring. The library has several floors and rooms that are closed to the public and this also seems to add to the confusion. It is difficult to understand where one is allowed to go and also what you are allowed to do, or what you are meant to do, in different rooms. In the LibQUAL comments we see that the library is seen as very large, confusing, and labyrinthine. The touchstone tour that we did with a first time user shows that not only is it difficult to find collections and functions, it is also difficult to find your way out!

The opening hours of the library are another recurring theme in our collected data. During term time the library is open from 9 a.m. to 7 p.m. on weekdays and 10 a.m. to 3 p.m. Saturday and Sunday. This seems to be inadequate for many users and they often suggest that we open earlier, close later, or that we should be open 24/7. Many users view the library as their workplace and want to work a full day, or more, without having to go very far for lunch or coffee. The wish for longer opening hours does not necessarily reflect a wish to stay longer than six or eight hours, but might indicate that users simply have a different rhythm and might want to come earlier or work only in the evenings.

Something that might seem trivial to staff, but was mentioned time and again by respondents were the state of our restrooms. Some of them are smelly, some of them are dirty, and some of them lack sound isolation, making them feel unsafe. The biggest issue, however, seems to be that most of them are hard to find; most of our users queue at the restrooms close to our entrance and never realise there are available toilets closer to where they are studying.

Our library building houses a café in its basement, which serves lunch, coffee and snacks during weekdays until 4 p.m. As the café closes before the library and is not open during weekends, many respondents wish for access to hot beverages at all times and many, especially students, want to be able to bring a packed lunch. As previously mentioned, food and snacks are not allowed anywhere in the library space.

Regarding physical aspects of the library space, users seem to have diverse needs when it comes to, for example, sound levels. Some prefer a truly silent space, some a quiet space, and some feel most comfortable surrounded by a little bit of noise. Everyone seems to appreciate being able to sometimes sit and read in a comfortable armchair, also in a quiet space. Many users express frustration that the library space is not more clearly marked or zoned off or that there is insufficient information in the various rooms about rules and the allowed noise level. Having sufficient reading light is also an issue. In general, there is insufficient lighting in most of our study spaces, both overhead lighting and desk lighting. Some of our respondents choose study space according to the amount of daylight coming in. There are also mentions of ventilation problems in some rooms and insufficient heating in the wintertime in one area of the building.

Another important piece of infrastructure that emerges as crucial in our studies is the seemingly insatiable need for power outlets, for laptops and for charging mobile devices. Some of the library study space simply lacks them; in other places they are awkwardly situated and they are often not very user friendly in our group study spaces. Since many users study in the library for long periods of time, ergonomics is also important. The library should have different kinds of seating to choose from and chairs should be adjustable to some degree. There should also be height-adjustable tables, so that users can choose to stand up and work. It is also important for users to have sufficient space when using a table. Just because users bring a laptop, that does not mean that they do not at the same time use an old-fashioned notepad as well as printed books. Users also wish to be able to leave their space for lunch or breaks without losing it; perhaps this also indicates that users do not feel that their belongings are safe if left as markers at a desk.

Finally there is an ever-increasing need for group study spaces. These also need to be designed so that the group using the space do not feel disturbed by others but also do not feel that they are disturbing others.

Outcomes

A learning process

The project has been a learning process for the library service team. We have worked with the project according to the principles of evidence-based librarianship and information practice (or, as some authors prefer the term "practice when based on qualitative studies, research based library and information practice"), and tried our best to keep the focus on the users' experiences, and how to improve these experiences.

The proposal

The proposed changes/improvements are based on the study undertaken during autumn 2015, in which we identified problems and generated ideas to solve these problems. The most important suggestions are:

- Activities to open up the library and integrate it better with the university
- Extended opening hours
- Best-practice study places, offering the technical and functional support needed for different study activities; offer a canteen where students can bring their own food and eat
- Improving wayfinding, by creating zones for different purposes and with different noise levels, from silent areas to group activity areas
- Improve the physical and virtual information and sign system
- Relocate the collections: move the open collection to the entrance floor to make it more accessible; in order to make place for the open collection, move the reference collection to the third floor
- Replace the combined reference and lending desk with smaller, open information points.

The proposal was presented to the library management in spring 2016. The management decided that it should be presented to and discussed by all staff members before making any decisions on how to continue the process to develop and improve the library's public space.

Accordingly, the project team arranged a series of workshops and meetings open to all staff members. We also offered a virtual notice board where colleagues could post comments, questions, and ideas about the proposal and the public space.

This feedback was reported back to the management in May. From the reactions from the management and the staff members we learned that the content in the proposal to develop the public space was more controversial than we had anticipated. In the discussions about the proposal on different levels and groups, it has become obvious that the organisation has different views and understanding of the university library's mission, its *raison d'être*. For some staff members, the university library is a legal deposit library with the responsibility to preserve and provide access to the collections. For other groupings within the organisation, the university library mainly should be a resource for the core activities of the university—that is, research and education. In other words, within the organisation two cultures coexist, one with a focus on the collections, another with a focus on the users.

In these discussions it has also become obvious that within our organisation, the user perspective is not always the dominant perspective, and thus not everybody agrees that we should apply user experience to our library.

We have begun a process to work with the library's missions, involving a large part of the library staff. As a parallel process, the library service unit has continued to develop the proposal, and how to implement it during the next three to four years. The implementation will start in 2017, with two main projects. The library service unit will develop a programme of visual communication, in order to improve the information and sign system throughout the library. Secondly, we will further investigate and plan the relocation of the collections.

Åsa Forsberg is a librarian and is head of the library services unit at the university library in Lund. asa.forsberg@ub.lu.se

Ingela Wahlgren holds an MLIS and works at the university library in Lund in the library services unit. ingela.wahlgren@ub.lu.se

Notes

1. Susan Gibbons and Nancy Fried Foster, "Library Design and Ethnography," in *Studying Students: The Undergraduate Research Project at the University of Rochester,* eds. Nancy Fried Foster and Susan Gibbons (Chicago: American Library Association, 2007), 29, http://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/booksanddigitalresources/digital/Foster-Gibbons_cmpd.pdf.

2. Barbara Wildemuth, "Focus Groups," in *Applications of Social Research Methods to Questions in Information and Library Science*, ed. Barbara Wildemuth (Westport: Libraries Unlimited, 2009), 242–255; Bryony Ramsden, "Using Ethnographic Methods to Study Library Use," in *User Experience in Libraries: Applying Ethnography and Human-Centred Design*, eds. Andy Priestner and Matt Borg (Abingdon: Routledge, 2016), 9–20.

3. Wildemuth, "Focus Groups," 246.

4. Lili Luo and Barbara Wildemuth, "Semi-Structured Interviews," in *Applications of Social Research Methods to Questions in Information and Library Science*, ed. Barbara Wildemuth (Westport: Libraries Unlimited, 2009), 222–231.

5. Wildemuth, "Focus Groups," 246.

6. Andy Priestner and Matt Borg, *User Experience in Libraries: Applying Ethnography and Human-Centred Design* (Abingdon: Routledge, 2016).

7. Fran Ackermann, "Cognitive Mapping," in *The SAGE Dictionary of Qualitative Management Research*, eds. Richard Thorpe and Robin Holt (London: SAGE Publications Ltd, 2008), 43–46.

8. Mark Horan, "What Students See: Sketch Maps as Tools for Assessing Knowledge of Libraries," *Journal of Academic Librarianship* 25 (1999), 187.

9. Barry Brown, "Ethnographic Approaches to Digital Research," in *The SAGE Handbook of Digital Technology Research*, eds. Sara Price, et al. (London: SAGE Publications Ltd, 2013), 189–202.