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User-Centered Design

User-centered design, by its very nature, contains all of the characteristics of qualitative research. Qualitative research puts the user at the center of research and focuses on what things affect the user's ability to succeed in the tasks set before him. To fully explore the relationships between user-centered design and qualitative research, each of the three main descriptor categories of qualitative research will be examined individually in the way that it relates to user-centered design.

Qualitative research is described as being descriptive, exploratory and naturalistic.

All methods used during the research process and the conclusions obtained from it should be well-recorded in order to best understand the results.

Understanding why the users are doing certain things will help the researchers decide how to proceed in fixing something that is not exactly working for the users. This is why it is so important to have descriptive notes taken by a scribe during the usability tests of the product's prototype.

Following the processes and reasons of the users' actions will allow the researcher to understand what is and is not working and why certain things are clear to the user.

The people taking part in the research study should be an adequate representation of the actual users of the system. Each constituency that would normally use the product should be represented by five usability testers. These groups could include undergraduate students, graduate students, faculty and staff for an academic library or, for a public

library, the groups could include students of various ages, teens, young professionals, middle-aged individuals and seniors. Of course, the make-up of these groups would depend on the specific community that the library serves.

In regard to the actual test questions during usability tests of a prototype, the questions should be designed for something that specific user group would use the product for. In qualitative design, the researcher does not set out to judge the user's skills; the researcher is looking for how a product or system works and why it works that way. The user is never being judged; the product is.

Qualitative research focuses on process rather than results.

There is no clear goal that the researcher is trying to reach or hypothesis that the researcher is hoping to prove while conducting qualitative research.

As stated above, in doing usability tests of prototypes, there is a scribe who takes notes about what the user is doing and recording why the user says that he is doing that. This allows the researcher to go back and examine the users' reasons for doing certain things during the testing, which is an invaluable resource because it answers the "why" questions.

The researcher is looking for how the user found (or did not find) the answers to the given questions and why the user did certain things—and this is paramount. These are the sort of questions that can only be answered by paying close attention to the processes of a study rather than tallying up the results of numbers of questions answered. Looking at results will tell you only how many of the test subjects were able to answer the questions correctly; this will not help the designers understand why some questions were

easily answered and others were not. Only by looking at the processes that the users took in their search for the answers will the designers understand enough to decide how to change the prototype in order to make it clearer.

In order to ensure that these things are being understood by the designers, a moderator would be present and tell the users that the product is being tested, not the users. The moderator would also tell the users that thinking aloud will help the designers make the product work better and that nothing the users say will be wrong. It is important to stress these things because the user needs to be made to feel comfortable.

Qualitative research is open and inductive.

The researcher does not know what results could arise from his study or what may happen during the course of the study. However, qualitative research methodologies require him to take anything that occurs during his testing and relate it to his conclusions.

User-centered design is based completely around the user. While this may seem like an obvious fact given its name, it is still an important point to make. The designers of the system must put their own biases and viewpoints aside and listen to the user.

Designers cannot use their preconceived notions on what sort of design will work for the users of the product when things observed during usability testing and the user-based design process show otherwise. The user cannot be made to fit the design. The process needs to have a human face to ensure that the users' needs are being met.

The user-centered approach will not provide a clear-cut answer to problems; rather, it provides a method to understanding why problems are occurring from the user's perspective. Then researchers or designers can begin to compile reasons why things are not working and begin to fix them. Because products are designed for users to use, it is important that users can actually use the products easily and not become frustrated with unintuitive design choices.

By following the notes taken by a scribe from a usability test of a Web site prototype, the Web site designers can see where the path the user took from the home page to finding whether a specific journal was available at the library broke down. It should be able to tell the designers where in the process things became unclear for the user, thus making the designers aware of why the user had such problems.

For example, Susan McMullen writes that users of the Roger Williams University Library's Web site did not know where to find proper resources to meet their needs because of the Web site's poor interface design (8). All of the information was there, but users did not know how to find it. The Web site designers then had something to work with because they better understood why the users of the Web site were not having their needs met.

The Web site design team in Ruth Dickstein and Vicki Mills' article decided to abandon the results obtained through their card sorting exercise, which meant that they abandoned one of the tenants of qualitative research—they tried to make the results fit what they thought the results should be despite what the user told them. The designers focused too much on what they thought the results should be rather than the users' reasons why it should be another way. Because of this, users of the Web site could not

find the information that they were looking for. Once the team realized that users were having trouble finding their resources, they realized that their failure to keep the users' needs first was the cause of the confusion (146).

Wallbridge alludes to the fact that the time spent with computer programmers discussing proper design for a web site could be better spent using a prototype and actually conducting usability testing on it with actual users. She says that “the best way to determine the effectiveness of choices is to ask the user” (3022). This relates to the fact that understanding why problems are occurring is the first step to solving the problem. In fact, designers may not even know that there are problems until it is too late and the Web site is live. Usability testing helps get to the “why” of the problem.

The only way designers of a product—in this case a Web site—could know whether it is being used appropriately is to talk to the people who are actually using it. After understanding what problems they are having and why those problems are occurring through usability testing, the designers can use the data gathered during the testing and make changes.

Looking over the steps involved in taking a user-centered approach to designing a Web site, it seems to take a lot of time and effort whereas simply putting up a Web site designed with no user input seems to take very little time. In taking the user-centered approach, not only does someone need to create the site, there are many other steps involved before the site even begins to take virtual shape. It is no surprise, therefore, that someone who does not understand the benefits to a user-centered approach to creating a

Web site would push for simply putting something on the Web just to have something there.

There are a few major points that can be made to convince the director of the benefits of the user-centered approach.

To begin, I would take a sort of philosophical approach with the director and remind him of Ranganathan's fourth law of library science: save the time of the reader. A library Web site is representative of the library, and information needs to be arranged in such a way that it is easily understood and obtained. If only one person is designing the Web site, or only librarians critiquing it, the Web site's main audience may not be able to use it as it is designed, which will cause them more trouble than help and they will probably not turn to the library's Web site again. In today's society, people are having less face-to-face contact with librarians in libraries. The library needs to put its best foot forward—through its Web site—to attract potential users, and having a Web site that is hard to navigate is not the proper way to attract people.

In this world of ever-increasing competition by commercial Web sites claiming to have all of the information users need, it is important that the library's Web site be a portal for nonbiased resources designed to meet the needs of its specific community. Of course, every community is different, so conducting focus groups and surveys would be two ways to learn more about the community and what they expect from the library. In locations with a diverse community, what works for one group may not work for another. If the library really wants to serve its community, it needs to know its community. Following a user-centered design approach will help make that happen because those

community members will be coming into the library and stating what works and doesn't work.

In today's world of new technologies appearing daily, users are somewhat wary of new things—including online resources. By taking the users' needs and fears into account throughout the process—not to mention making them a part of the process—they will be more willing to use the Web site. It is important not to forget the expensive subscription databases that users often access from the library's Web page. If users are not attracted to the Web page or cannot figure out how to get to the databases, the library is throwing away the money spent on those subscription databases. I am sure that the director wants library users to use those databases.

The director probably wants to forgo the user-centered design approach because he fears that it will take too much time and cost too much money to implement, despite numerous articles stating the exact opposite.

There does seem to be a lot of steps involved in the user-centered design approach, but most of the steps that involve users are only dealing with a select group of representative users; there is no need to get a huge group of users into the library for testing. Much of the testing that is required costs little money. There needs to be a computer for the actual testing of the Web site, paper and pens to record notes, index cards for the card sorting exercise and a small token of compensation for the participants. While usability testing can get expensive with fancy equipment, there is not a need for it.

As far as the time statement, following a user-based design process can actually save time in the long run. By understanding what users want from the Web site, designers can focus their time and energy on things that really matter. It will also help the designers

keep the design and the Web site's goals on track. When a decision needs to be made, a simple look back to the master plan obtained from users' comments can be consulted and the proper direction can be chosen. If a user-centered approach is not taken and there ends up being a huge usability problem that is only discovered after the site is live, it can actually take more time to fix it than it would have taken to prevent the problem through proper use of the user-centered approach.

In closing, I would remind the director that libraries are traveling in new waters when it comes to Web site design. Librarians are not used to creating systems; for the longest time, libraries were at the mercy of computer programmers and vendors for their technology needs. With the Internet, the playing field is somewhat leveled. Libraries can now have total control over how to best serve their users, but the only way to understand how we can best serve the users is to include them in the design process. The days of librarians telling users what information they need to know is over; users have many other options right at their fingertips now. To keep users happy and interested in the library, we have to change our way of thinking to fit their needs.