User-Centred Library Websites: Usability evaluation methods

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User-Centred Library Websites

Usability evaluation methods

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This book covers methods that can be used to gather feedback from users of your website about the organisation, navigation, terminology and general usability of a website. This book is a guide to usability evaluation techniques that are employed to design a user-centred website.

The following is an excerpt from Chapter 4, Designing the website – participatory design.

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Chapter 4

Designing the website – participatory design

To create a user-centred website, it is important that all stakeholders or stakeholder representatives, from content experts to target users, are involved in the design of the website or interface from the very beginning of the design and development cycle. They offer feedback concerning the site design from their own perspectives. Early in the project, content experts help to define the scope of the project and the structure of the content; designers provide feedback relative to the design and layout of the site; analysts, evaluators, and usability specialists provide feedback about the evaluation plan and usability guidelines; and target users provide feedback about the ease of use and usefulness of the site.

Though we are certain that feedback from many different stakeholders’ perspectives is necessary to design and develop a user-centred website, the question remains about how to generate this feedback. The methods used are referred to as participatory design – quite literally, a group of diverse stakeholders participate in the design of the site.

Participatory design

Participatory design describes methods of inquiry that generate feedback from a diverse group of stakeholders about all aspects of website design and development. Sometimes referred to as participative inquiry, participatory design describes multiple methods that bring together stakeholders, most importantly representative users, to work towards developing a user-centred design (Rubin, 1994: 20).

This process is especially helpful for the designers and developers in the early stages of development when the focus is on the design. In other evaluation methods, designers and developers often work apart from other stakeholders. By involving representatives from various stakeholder groups, who bring their own perspectives to the discussion, key players in the website’s development have a better understanding of the problems and issues related the design, thus enhancing the process (Kneifel and Guerrero, 2003: 407).

Because participants do not always know what they want, getting useful design information from prospective users is not just a matter of asking’ (Gould and Lewis, 1985: 303). Specific methods produce useful information in the participatory design process. The methods are often similar to a focus group with the addition of activities that are designed to achieve specific objectives. They involve stakeholders in a hands-on manner to elicit direct feedback on development and design issues, for example, how the information should be grouped or what the interface should look like. Using stakeholder feedback early in the process can save time and effort. When feedback is collected
late in the cycle design, redesign efforts are labour-intensive, more costly and time-consuming.

**What is the objective?**

The primary objective of participatory design is to gather feedback from all stakeholders to feed the design or redesign of an interface, website, software or system. A secondary but equally important objective is for members to learn from each other, therefore leading to a better understanding of the different perspectives of the problems and issues. As described by Gaffney (2000b), participatory design sessions:

- provide an opportunity for all stakeholders and target users to have a voice in the design of the system, increasing the probability of a more usable design;
- enable both technical and non-technical stakeholders to interact, enabling them to provide feedback and also have a greater understanding of their diverse perspectives;
- provide an opportunity to identify the issues using a highly-productive method.

**Who are the participants?**

Participatory design includes all stakeholders, that is, everyone who participates in the design, development, management and use of the website. In a university or college library, stakeholders can include content experts such as librarians and archivists, developers and designers, usability professionals, human factors researchers and representative users. While participatory design sessions that include all stakeholder representatives in one meeting are an opportunity to learn about the perspectives of the diverse groups, they also risk affecting the responses. Some
stakeholders might be concerned about offending others, for example, users concerned about offending designers and developers. To avoid this problem, multiple meetings are often scheduled that follow a similar format but with a subset of representative, but similar, stakeholders.

**What are the advantages?**

Participatory design methods are the best way to involve all representative stakeholders, especially representative users, in the design and development process early in the development cycle. When used in the early stages of the development cycle, feedback gathered from these methods will contribute to the development of a user-centred website with the least amount of effort and cost.

**What are the disadvantages?**

The potential danger is that representative users can become so familiar with the interface design that they begin to think more like the design and development experts and less like target users (Rubin, 1994: 20). Participatory design requires additional time for stakeholders. Bringing all stakeholders together in a meeting could affect the input from users who might be reluctant to provide ideas or feedback when developers are present, either because they do not want to appear critical or are afraid of appearing uninformed.

**What methods are used?**

Participatory design is effective with group activities such as affinity diagramming, card sorting, and prototyping. These methods are described more fully in the following section.
Affinity diagramming

Affinity diagramming is a useful method of grouping and understanding information, organising concepts and ideas, and analysing ideas (Gaffney, 2000c). Similar to brainstorming, where participants offer suggestions, comments and ideas in a free-flowing manner, with affinity diagramming the ideas are written rather than submitted verbally. In a group session, participants are encouraged to write issues on sticky notes – one issue per note. Issues are anything related to the target website and can be about such things as design, content links, navigation or help. Figure 4.1 gives an example of an affinity diagram.

After allowing time for participants to collect their thoughts and complete their notes, each participant, in turn, reads their notes and places them in an existing or new group on a wall, white board, or bulletin board. Once the first note has been placed, other participants can place

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related notes. Categories can be labelled in advance, labelled during the placement of notes, or after all notes have been added. After all notes have been placed, allow time for discussion and movement of notes from one category to another. Encourage discussion surrounding the placement of the notes. Because the placement is arbitrary, notes can be moved into other categories, to a new category, or to more than one category. For additional information to report in the results, observe and record the discussion surrounding the placement of notes. Observe when there is agreement or disagreement surrounding an issue. The discussion and categories of notes will be the data that you analyse for the report.

When participants are satisfied that notes are in appropriate categories, you can ask them to complete an activity to prioritise the notes (Snyder, 2003). Each participant will choose the top three items in each category that they feel are the most important. Participants can also be asked to choose the top three categories that are the most important.

**What is the objective?**

Affinity diagramming is used to elicit feedback from owners, developers, users and other stakeholders about categorising, prioritising and understanding information on your website. It can be used to identify, organise and analyse issues related to website design and development. It is also useful for organising large amounts of qualitative data similar to that which results from contextual inquiry or brainstorming ideas (Barnum, 2002: 250). This method is often useful during the planning and design stage of website development.
Who are the participants?
Participants need to represent stakeholders. For a library website, participants can include target users, reference librarians, designers, developers, and human factors and usability experts. A group of six to ten works well.

What is the role of the facilitator?
The facilitator welcomes participants, introduces the activity, and describes the activity. During the session the facilitator responds to questions, reminds participants of the types of issues, and encourages all to participate and none to take control. Facilitators encourage participants to read notes aloud, place one note at a time, and remind others to place similar notes. They determine when the session ends, trying not to extend the session past the point when participants are tired or bored. Facilitator also need to pay attention to what is happening and record the discussion around the issues.

The process is sometimes confusing and difficult for participants, although by the end of the activity, they usually understand the value. As Barnum (2002: 251) suggests, you should consider that that participants in this activity may go through the following stages:

- they might become overwhelmed, or confused about how to begin;
- after becoming familiar with the process, they might do gross categorisation;
- they might become frustrated with the details of categorisation and unclear about the rationale of the process;

• they understand that the process is valuable for transforming information into meaningful concepts.

How long will it take?

The amount of time to plan and conduct affinity diagramming will vary depending on the objectives of your evaluation, the depth of the discussion, the number of groups and participants, and the type of report you complete. The entire process can take anywhere from several days to several weeks. You need to determine the objectives, write a script and develop materials to focus the activity, as well as recruit and schedule participants. You might decide that in order to generate optimal representative feedback, you need to conduct more than one group. These planning and preparation activities will take several days. Add more time for multiple groups and more participants. If you are planning more than one group, you need to allow time for all group sessions; these might take one to two hours for each session.

You need time to analyse and interpret the data and write the final report. This could take several days to a few weeks depending on the scope of the activity and the type of report. If the objective of affinity diagramming is to gain information that informs the design of an interface, allow time to make recommendations for the revisions or to revise the prototype.

What materials do you need?

Physical materials include sticky notes, pens and a pad for each participant. Use a different colour of sticky notes for
the group labels. You also need a script for the moderator and materials to focus the activity. This might be screenshots of the target website, a prototype, or the actual functioning website. The moderator might need a flip chart, notepad or laptop to record observations and the discussion surrounding the issues.

**Where are they held?**

Group sessions can be conducted in a private space with a table that has plenty of space for participants to write their notes. You need a flat wall space (bulletin board or white board) to place notes.

**How do you report the results?**

**Summarise the data**

The data from affinity diagramming are the groups or categories of sticky notes that were placed by the participants. Data also include the moderator’s notes and observations of the verbal discourse and behaviour of the participants as they completed their tasks. These data provide the basis for the categorisation and analysis used to prepare the summary report.

Summarise the notes, categories and category headings, and the issues surrounding each category including the moderator’s observations. Include priorities of issues and feelings of participants (frustration, agreement or nonagreement).
Write the report

First decide if you will write a formal or informal report. An informal report might include a few sentences that describe the process and participants. Include a list of the findings, the primary groupings, the issues and the recommendations. A formal report includes a more detailed description of the methods used, the participants, the process and the findings. Important information to include in the summary report consists of a short description of the procedures, the participants’ demographics, a summary of the data, in this case, the groupings and issues, and the recommendations by the participants.

The objective is to simplify the wealth of issues and information by similarity and main concerns so that the information is easily managed. The groupings can be reported in the form of a chart or in a spreadsheet.

How to use the information

It is best if the results can be used quickly to address the design of the website. A follow-up session should be conducted to discuss methods to address any issues raised (Gaffney, 2000c). Remember that the small number of participants is not enough to be a true representation of the population of targeted users; the groupings can therefore be considered arbitrary. Use this information with other relevant information when designing the end-user interface or website.

What are the advantages?

Affinity diagramming is an inexpensive, effective and relatively simple method for including all stakeholders in

the process of interface, website or system design. It is a means of sorting large amounts of information, identifying issues and determining priorities (Usability Net, 2006b).

**What are the disadvantages?**

The process can be long and tiring. Because it uses a small group, this method will not represent the general population of users. Consider the results as arbitrary and use the results of affinity diagramming with other methods. Tables 4.1 and 4.2 provide examples of how an affinity diagramming session might be planned and facilitated.

<table>
<thead>
<tr>
<th>Table 4.1</th>
<th>Example: Planning an Affinity Diagramming Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify the problem</td>
<td>We defined the problem, that is, how we would focus the session. For example, during the planning stage of the redesign of the library website, we needed to generate student views of the issues related to the website including content, usability, navigation, and usefulness. We focused on the homepage.</td>
</tr>
<tr>
<td>Prepare materials</td>
<td>We assembled pens and sticky notes (one for each participant), using different colours of notes for category headings. We included note-taking materials for the moderator. We prepared other materials to focus the activity (e.g. screenshot of the homepage). We arranged for beverages/refreshments and incentives, and brought extra materials.</td>
</tr>
<tr>
<td>Determine incentives</td>
<td>Student participants were offered a monetary incentive of $20, in addition to the opportunity to contribute to the design of the website.</td>
</tr>
<tr>
<td>Arrange for a room</td>
<td>We used the library conference room. It had a large table that provided space for participants to write notes and plenty of wall space to arrange notes. The room was quiet and private.</td>
</tr>
<tr>
<td>Recruit participants</td>
<td>We recruited a representative sample of students by posting an e-mail announcement on university electronic bulletin boards that are frequented by students. We asked volunteers to respond to the e-mail. The e-mail included a few demographic questions that we used to screen and select a representative group. We also asked librarians for recommendations of students and student workers.</td>
</tr>
<tr>
<td>Send out the ‘acceptance’ letter</td>
<td>We selected representative participants based on responses to the e-mail and sent an ‘acceptance’ letter to each with details of the sessions and scheduling information.</td>
</tr>
<tr>
<td>Remind participants</td>
<td>A couple of days before the session we e-mailed all scheduled participants reminding them of the session date, time, and place.</td>
</tr>
<tr>
<td>Prepare the room</td>
<td>The day of the session we prepared the room arranging materials, seating, and beverages.</td>
</tr>
</tbody>
</table>

### Table 4.2 Example: Facilitating an Affinity Diagramming Session

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome</td>
<td>We welcomed participants with introductions, described the objective of the session, and gave instructions on how to complete the activity.</td>
</tr>
<tr>
<td>Distribute the materials</td>
<td>We gave each participant a sticky note pad and placed other sticky note pads of different colours on the table for the category headings. Each participant had a copy of the screen display that would be used in the target website. We began the activity by asking participants to write down one issue per note about the target website. We gave them some examples and answered questions.</td>
</tr>
<tr>
<td>Place notes</td>
<td>When most participants had completed their notes, the facilitator asked one participant at a time to place their notes on the wall, trying to keep similar issues in the same category. When a note was placed, she asked if anyone had something similar and then added it to the category. After all items were placed, the facilitator, with the help of participants, labelled categories.</td>
</tr>
<tr>
<td>Observation and note-taking</td>
<td>The facilitator observed participants as they completed the task, noted difficulties they were having, and offered help as needed. She also recorded the discussion and her observations.</td>
</tr>
<tr>
<td>Summarise the activity</td>
<td>When all notes had been placed, the facilitator read each group of notes aloud and asked if anyone thought that a note should be moved. Some notes were placed in more than one category.</td>
</tr>
<tr>
<td>Conclude session</td>
<td>When participants had completed the task and the discussion was concluded, the facilitator collected the materials. She thanked the participants for coming and distributed the incentives.</td>
</tr>
<tr>
<td>Thank you</td>
<td>The following day we sent an e-mail thanking each participant for their contributions.</td>
</tr>
</tbody>
</table>

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