

# Usability Studies: Testing Your Website

## Introduction

The web is no longer “new and exciting.” Having a website does not automatically make a company innovative or creative. Web users and surfers are expecting more from the websites they visit. They are no longer impressed by animated gifs and interesting icons. Users come to a site for a reason. They have a goal when they visit. They are seeking information and they want to be able to find it quickly and easily. They want a site that is easy to use. A new word that has entered the vocabulary within the past few years is *usability*. Usability can be defined as “the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use” (Bevan, 1997). How do you know if your site is usable? The best way to find out is to conduct a usability study.

## Significance of Topic

A usable website can be the difference between gaining or losing a new customer. If a user visits a site for a specific reason but can't figure out the navigation structure or the layout, he may leave in frustration, never to return. If a user visits a site and effortlessly finds the information he needs, most likely you have made a customer for life (or at least until the next redesign). Usability is no longer a “nice-to-have” on a website; it is now a requirement. For this reason, companies and designers have realized that usability studies (also called usability testing) are an essential part of the web design process. Usability studies enable designers to learn from representative users if the site “works” the way it is expected to. Usability testing is the best way to uncover problems in a site's design.

Usability studies can be involved and detailed, with many respondents participating, or may follow a more stripped-down model, with only a handful of participants. They can be conducted on the live site or on paper prototypes. It is important to be aware of the different characteristics of usability testing, the different types of testing that can be conducted, and how to conduct a typical usability study.

## Discussion of topic

### Usability

Before discussing usability studies, the idea of “usability” should be understood. When discussing websites, usability can be defined as the aspects of a system that make it pleasing to use, easy to learn, and easy to use and navigate. Usability can make the difference between “performing a task accurately or not, completing a job or not, and enjoying the process or being frustrated” (Usability Introduction, 1998). In other words, to be usable, a website's layout should be intuitive; it should require as few steps as

possible to retrieve information; steps to retrieving information should be easy to remember; and the site should leave the users with a positive feeling about the site and the organization (Bernard, 2000).

Usability is important in keeping users at the website. There is no training in how to use a website. A user visits the website and begins looking for information. If a website is not effective within the first few seconds of arrival, the user is lost (Rhodes, interview with Jakob Nielsen, 1999). One of the core usability concepts is the ability of the user to navigate to find what they want. “Without usability you are dead in the water in this regard” (Rhodes, interview with Jakob Nielsen, 1999).

Jakob Nielsen is one of the chief experts in web usability. He has written a book on web usability entitled Usability Engineering and writes a biweekly column on web usability. In his article “What is ‘Usability’?” (1998) he gives the five characteristics of usability. The first characteristic is ease of learning. Can a user who has never seen the website before learn it well enough to accomplish basic tasks? The second characteristic is efficiency of use. How fast can an experienced user accomplish tasks once he or she has learned to use the system? Memorability is the third characteristic. If a user has previously visited a website, can he or she remember enough to use it more effectively the next time? The fourth characteristic is error frequency and severity. How often do users make errors while on the website and how serious are these errors? The final characteristic is subjective satisfaction. How much does the user enjoy using the website?

According to Jakob Nielsen in the article “Web Usability: Why and How: How to Get a Usable Website” (1998), the best approach to creating a usable website is to follow some basic steps during the design process.

1. If a website has already been created and will be redesigned to be more usable, don't throw out the old site immediately. It is a good idea to run a small test on the old design to see if there are some good parts that should remain.
2. Test sites that have a similar purpose to the one you are designing. Interesting solutions to a current problem may be found on other websites.
3. Conduct a field study to learn how users work in their own environment. Real work practice is always different than what a manager says it is.
4. Create some simple prototypes of a variety of designs on paper and test with a few users.
5. From these tests, choose the best design and create a web prototype (that is not completely built).
6. Test as many times as possible.
7. Prepare an almost-finished user interface that contains the important pages and the navigation elements. Test again.
8. Once the design is launched, start planning the next redesign.

It is obvious that many of the steps to creating a usable website involves user testing. Once designers know exactly what makes a usable website they can begin the creation process. Before the site goes live, usability studies should be conducted. The next section will discuss different types of usability studies, and then focus on the most common type of usability study, which uses a “lab test” environment.

### **Usability Studies**

In their most common form, usability studies take a website and put real users in front of it with real-world situations (“Usability,” 2000). It is important to always keep in mind that the ultimate goal is to create a great website. The best tool for determining if a website is great is to watch users use it. If they can use it then the goal has been attained. If not, fix the problem and test again (Rhodes, interview with Jared Spool, 1999).

Usability studies may have variations on this method. One variation is the Expert Assessment method (Whitehand, 1997). With this method, one or two usability experts test a site throughout the development process. This is a quick and inexpensive way to conduct a usability study and provides quick feedback. However, in using experts it may be difficult to judge how much trouble certain problems will cause the average user (Whitehand, 1997). Another variation is Participatory Evaluations, or experts with users. Several usability experts pair up with a representative user and work together on a set of pre-defined tasks centered around the website (Whitehand, 1997). This method enriches the experts’ understanding of how users use the website, but the users’ way of working may be affected by having an expert as a partner.

Some studies do not use actual sites at all. In some studies, a paper prototype is placed in a three-ring binder with dividers and labeled tabs that represent destinations of hyperlinks. “The person using your prototype will view one ‘page’ at a time, and skip to the next ‘link’ by checking the labeled tab on the divider” (“Usability: Testing Sites with Prospective Users,” 1996). In fact, some usability experts recommend testing this way. “This allows testing at a stage where we know enough about what the application is supposed to do to be able to make meaningful design recommendations but where we have not invested too many resources” (Wilt, 1997).

The most common type of usability study, however, is mentioned above: “take a website and put real users in front of it with real-world situations.” This method uses a “lab test” environment, where participants follow a set of pre-defined tasks while being observed (Whitehand, 1997).

### **Planning the Study**

A usability test with five users will usually uncover 80% of usability problems (Nielsen, “Cost of User Testing a Website,” 1998). In his article “Why You Only Need to Test With Five Users,” Nielsen states that when a single user is tested, he finds about a third of all there is to learn about how usable the website is. With the second user, there is some overlap in what is found because he does some of the same things as the first user.

He will also find some things the first user missed, but not as much as the first user did. The third user will do many of the things User 1 or User 2 did, as well as some of the things they both did. He will offer some new insight, but less than the first and second users. As each new user is added, the study facilitator will learn less and less because the same thing is seen again and again. After the fifth user, the facilitator is wasting her time as she observes the same findings repeatedly.

Once the number of users has been determined, the next step is to decide whom to test. Define the target audience and then find people fitting that profile. Find people in the target audience who haven't visited the site before and invite them to participate in the usability study (Instone, 1997). The study will yield the best results when you test a good breadth of users.

The next item to be determined is the goal of the usability study. Common goals include checking if users can collect information or perform certain tasks (Gordon, 2000). It is also important to keep in mind the goal of the website, as this will shape the tasks provided for participants. Why do people come to the site? Is "that" easy to do on the site (Instone, 1997)?

The final step in the planning phase is deciding what to ask participants. The questions are influenced by the goals of the study that were previously defined (Gordon, 2000). Have users perform tasks that will be common to site visitors. Ask users what they think of the site: What do they like or dislike, and why (Kuniavsky, 1998)?

The facilitator may also want to test the vocabulary and icons used on the site. Does the vocabulary used for buttons and links lead the users where they want to go? Are the icons meaningful? To test vocabulary, ask participants what information they think they would get by clicking on a certain word, or ask participants which word they would pick if they were looking for information about a specific topic (Redish, 1997). To test icons, ask participants to identify the meaning of pictures that are used as icons, or ask them to match the pictures with brief descriptions (Redish, 1997). For these types of questions, the facilitator may want to use paper prototypes and test this information before designing the site, since this may save valuable web authoring time.

At this stage, it is important to keep a few characteristics of usability testing in mind. A usability test is context-specific (Boling, 1996). It is designed to provide data about a specific audience and a specific set of tasks on a specific website. The team conducting the study should resist the temptation to "generalize findings across projects" (Boling, 1996). Usability tests are data driven. Decisions on the design of the site should be determined from observation and participant responses, not from speculation. Finally, the usability test should be descriptive, not prescriptive (Boling, 1996). Instead of determining design principles, problems should be identified and described. There should be no expectation that the discovery of a design flaw will automatically yield a solution (Boling, 1996).

### **Conducting the Study**

When a participant enters the testing room, several things should be said to her to ensure the best results. Explain the purpose of the study if it wasn't explained when the participant was enlisted (Gordon, 2000). Probably the most important thing to say is that the site is being tested, not the participant (Gordon, 2000). This generally relieves some of the pressure the participant may be feeling. She should also be told to be honest in her responses—don't worry about hurting the facilitator's feelings (Gordon, 2000). Very important to the success of the study is asking the participant to think out loud as she moves through the site, to verbalize what she is doing and why. Finally, ask that she not do anything differently than she would if she were at home or work. "Respondents often try to hard to complete tasks to please the moderator. For example, make sure they don't spend more time reading instructions than they normally would" (Gordon, 2000).

Not required of a usability study, but important if possible, is to videotape the sessions. This allows the interested parties to go back over them later to see what participants did during the study (Outing, 1997). The videotape is important because it means the facilitator does not have to sit behind participants and look over their shoulder to see what they are doing. Instead, they can sit at a table facing the participant and look at the monitor (showing their mouse clicks) and their facial expressions at the same time.

The facilitator's job may be made easier by having a script to work from. The script should provide specific prompts for note-taking about user activities (Kantner, 1997). In addition, it is helpful to have a printout of the web pages that participants will be accessing. The facilitator can take notes about where participants visited and in what order. Following this method provides the facilitator with information about the order of web pages visited and "which pages received the most time from the user" (Kantner, 1997). This information is invaluable in understanding the extent of the usability problems on the site.

After giving an overview of the usability study, the facilitator hands the participant a list of "tasks" to accomplish. Once the participants begin answering the questions, the facilitator assumes a passive role. If a participant asks for help, the facilitator should not answer. In fact, it is best not to interfere with the participant in any way (Outing, 1997). If she continues to struggle for several minutes and continues to look in the wrong direction, tell her the correct answer and ask her to move on to the next question.

When a particular task causes problems for several users, the facilitator should remove that task from the list. The task should be noted as being a problem for later study, but there is no need to waste time and have every participant try something that is clearly hanging up the majority of participants (Gordon, 2000).

This is a time to get valuable feedback from the participant. When respondents identify a problem, the facilitator should make sure to document it (Gordon, 2000).

Besides evaluating the participants' performance during the test, the facilitator should notice body language and facial expressions. Nonverbal communication is often more revealing than the spoken word (Gordon, 2000). Observation is the most important part of conducting a usability study. "Keep a record of what the subjects do; then examine these records to pinpoint problems in the design. Figure out why the problems occurred, and revise the design" ("Usability: Testing Sites with Prospective Users," 1996).

If a video camera is not available to tape the study, then the facilitator may want to have an assistant. This person can help take notes and observe, since it is hard to facilitate and gather feedback at the same time (Gordon, 2000).

Larry Wood encourages testers to go beyond a task-based usability study and ask WHY. "Asking why had a more profound effect on the outcome than I had anticipated" (Wood, 2000). He was asked to conduct a usability study for the Brigham Young University library's website. When he asked participants who had completed a task correctly why they chose the option they did, he learned that most of them had guessed. Therefore, the usability of the site was actually lower than the results indicated (Wood, 2000).

### **After the Study: Interpreting the Results**

After the final participant, the facilitator should immediately summarize her notes. The next step is to analyze the results and determine what needs to be changed or redesigned on the website. The most effective thing to do is look for trends (Kuniavsky, 1998). If one person struggled with an item but the remainder of the participants had no trouble with it, it is probably best to leave that item alone. If several people missed the same thing than some changes need to be made. "Focus on the shared issues that were raised" (Fleming, 1998). Ultimately, the facilitator will need to make some judgment calls. "Look for the underlying patterns in what people say; don't try to follow their desires verbatim" (Kuniavsky, 1998).

According to Greg Wilt, Manager of Usability Engineering at Bell Atlantic, some of the most valuable data that comes out of usability studies is time spent to complete search tasks (1997). Too much time spent on tasks indicates a failure on the part of designers to promote "a clear visualization of the information space" (Wilt, 1997). In other words, the information is not organized in a structure that is easy for participants to decipher. When this is the case, users view their search tasks as "digging instead of browsing"—moving down into material instead of across it (Wilt, 1997).

Use what was learned to improve the website (Instone, 1997). Participants may have suggested more descriptive labels, or the majority may have ended up getting lost while trying to complete a task. Redesign around these observations.

At a later date, another usability study should be scheduled to evaluate the success of the redesign.

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The author is a trained ergonomist who consults on web usability evaluation and design support activities. He presents several of the different models he has used in testing and explains the pros and cons of each method.

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Wood, Larry (May, 2000). Why Ask Why in a Usability Evaluation? The UPA Voice, volume 2, issue 2. Retrieved October 20 from the World Wide Web:

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This article is from the publication for the Usability Professionals' Association. In the article, the author discusses a case study on a usability study he did at Brigham Young University. He discusses the results he got and how, when he asked participants why they made the choices they did, he got very meaningful feedback.

## Related Links

1. Usable Web. <http://www.usableweb.com>. This page divides up usability into several categories, and then lists multiple sites for each category. Their tag line is “1122 links about web usability.”
2. Jakob Nielsen’s (usability guru) website. <http://www.useit.com/>  
If you will be designing a website or a usability study, this is the place to start. Jakob Nielsen is the undisputed leader in the usability field.
3. <http://www.webpagesthatsuck.com/>. Examples of poorly designed websites can be found here. Very valid comments about what makes a website confusing.
4. <http://www.coolhomepages.com/>. Examples of well-designed web pages can be found here.

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