Learning about Users When You Can't Go There: Remote Attended Usability Studies

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Abstract

This paper describes a method for conducting usability test sessions remotely, when the user researcher is in a different location from the participants, and observers from the product team can watch from different geographic locations. This remote attended usability methodology (also called the remote synchronous method) is distinguished from automated user data collection, which is more suitable for quantitative research. Two case histories describe studies of nonprofit and commercial websites, with details about facilitating the user sessions that characterize the remote methodology. The paper concludes with a summary of the strengths and weaknesses of remote attended usability studies. Keywords: usability, user experience, user research, remote usability testing.

Introduction

Since the 1970s, developing products and systems that support knowledge work has been enhanced by the profession now called *user experience*, where practitioners trained in user-centered design apply their skills to help knowledge products become more usable and useful to their target audiences. Usability testing and other user research methods are now accepted best practice in the product development process [1].

Most large organizations maintain laboratories for usability testing. User experience practitioners conduct usability studies both in these labs and in the field, where they visit and observe people in their own environments [2]. A key element for this user research has been the ability to observe user behavior and interact "face to face" with representatives of the target audiences.

However, our 21st-century world is different. In today's multinational markets, the target audiences for products and systems may be anywhere in the world, yet the time and resources to learn about users are no greater. More than ever, product development teams must understand the needs of geographically distributed customers—and it's often impractical to visit them in person.

This paper describes methodology that the authors' firm has evolved to meet the challenge of observing faraway audiences: remote attended usability studies.

Remote Usability: Automated versus Attended

With the inception of Web analytics and other research methodology for tracking users' online activities, organizations can now collect extensive quantitative data about their customers' online behavior. Analytics help track where users click on a Web page, how long they stay on a page, where they quit during processes such as online registration and purchasing, and more. These data can greatly assist organizations as they develop Web-based products and services.

The evolution of software instrumented for user data collection led to the development of tools for "automated usability testing." Commercial products and services for automating user data collection are available from companies such as Keynote. Also called asynchronous methods [3], these tools are best for collecting quantitative data from a large group of users [4].

Automated usability testing can record users' onscreen behaviors and collect users' opinions, but it cannot provide insight into the reasons why people behave as they do. Questionnaires and other self-reporting by users are limited, because we don't know the rationale behind their answers.

In contrast, a skilled user researcher conducting in-person qualitative research observes and explores people's overall behavior—onscreen, verbal, and body language—to gain deeper understanding of user needs, goals, and expectations.

Therefore, the authors—and other practitioners—have developed the practical solution of remote-attended usability studies, also called remote synchronous methods, which give us many of the benefits of the researcher's facilitating, interviewing, and observational skills. We use tools such as WebEx or TechSmith's UserVue, combined with telephone conferencing, so that the researcher and members of the product team observe the participant's screen and hear the participant's voice, while the researcher facilitates the session by telephone. The researcher, the participant, and the product team observers can all be in different locations during the session.

Case Histories of Remote Attended Usability Studies

The following two case histories illustrate applications of remote attended usability research. Although these are examples of the many remote attended studies conducted with websites, the method is effective with any software. Whatever is running on the researcher's computer can be "handed over" to a user whose interactions can be observed through remote viewing.

These case histories focus on the methodology each study used to support remote participants and observers. The methods and practices the authors used to select and recruit participants, identify and prioritize user tasks, create session materials, and analyze the collected data are essentially the same as for in-person laboratory and field usability testing [5, 6, 7].

Website for Volunteer Organizations

A non-profit provider of training and technical assistance that helps volunteers run more effective service programs planned a major redesign of its website, to better support many different types of volunteer organizations throughout the United States. To inform the redesign, the authors' consulting firm conducted remote attended usability sessions with 20 project directors, sponsoring agency staff members, and state commission members. The study participants were from more than a dozen states, the client design team was located in California, and Tec-Ed's researcher worked from our Michigan office.

The goal of the usability study was to evaluate the overall ease of use of the current website, including initial reactions to the website, how well participants navigated to different types of content, and opinions about specific aspects of the website. The test sessions were 45 minutes long, during which participants performed up to three of the following tasks (depending on their typical use of resource sites):

- Find a course on how to write a proposal.
- Look up resources on fundraising.
- Find an example of what other programs have done in the area of volunteer recruitment.
- Find a conference or training event that interests you.
- Find how to borrow a book or video from the lending library.
- Find how to order a free catalog, poster, CD, or DVD.
- Find out what kinds of training and assistance are available to you as a grantee.

During all tasks, participants "thought out loud" to help the test facilitator understand what they were doing, and why. Each session ended with a final debriefing collecting the participant's opinions about the website.

Tec-Ed remotely facilitated the usability testing sessions using WebEx. Prior to their session time, each participant was sent instructions for how to join the WebEx session, along with a recording release to confirm and return by reply email. Observers from the client company also received invitations to join each session.

For each session, the facilitator connected to WebEx and initiated a teleconference 10 minutes prior to the start time for each session. If the participant did not join the teleconference a few minutes before the scheduled session time, the facilitator phoned to see if s/he needed assistance in joining the teleconference.

After the participant joined the teleconference, the facilitator helped the participant troubleshoot issues starting WebEx, as necessary. Once the participant joined the WebEx meeting and after an introduction to the session, the facilitator gave control of Tec-Ed's usability lab computer to the participant to complete tasks. Figure 1 shows the facilitator's script segment used to share the desktop.

Say to the participant:

"We're going to take a look at the XXXX website next, but first I'm going to share my desktop. That will take just a moment."

[Go to the WebEx control panel and choose Share -> Application. Then select the desktop and click the Share button in the dialog to display the desktop.].

"There are 2 icons in the center of the screen, one for Internet Explorer and one for Firefox. Which browser are you more comfortable using?"

[Open the participant's preferred browser]

"For you to be able to use my computer, I need to pass control of the mouse to you. Please wait just a moment while I do that."

[On the Sharing menu in the upper-right corner of the browser, choose Allow to Control Remotely and the participant's name.]

"To take control of the mouse, click a button on your mouse. After a moment, you'll be able to move the mouse pointer for both of us. Go ahead and try that now—take control of the mouse and point to the center of the screen."

Figure 1: Facilitator's script for sharing the desktop in WebEx

The results of this remote attended usability test were consistent with our expectations for a similar in-person laboratory test. In this study, nearly all of the participants

were able to successfully find the intended content when attempting the activities. Of the 54 total activities attempted by all of the participants, there were only four occurrences of failure to find intended content.

The most significant requested change to the website was suggested by several participants: to aggregate content for the specific user roles the site supports. Currently the site is organized by topic, and participants did not criticize that approach; rather they requested that those same resources be channeled more directly for the user role they represent.

The only major usability issue encountered was that participants had difficulty navigating back to the home page. During the final debriefing conversation at the end of the session, participants were asked to return to the home page to answer a question. Half of the participants had difficulty finding the home page; many of those were progressively prompted by the facilitator until they could navigate to the home page.

All participants judged the website valuable, and several participants said the site should be marketed or advertised more than it is currently. Some pointed out that their colleagues and other volunteers do not know about the existence of this resource.

Local News Online

A newspaper in the southeastern United States was concerned that their website was less popular as a source of local news than the website of a local radio station. Before redesigning the site, the newspaper's digital design agency engaged the authors' consulting firm to collect behavioral and perception data about the ease of use and the usefulness of both sites. With only a small budget available, we were able to conduct remote attended sessions with ten participants and provide valuable feedback to a local business with a local audience, although our research team was more than 600 miles (almost 1,000 km) away.

The remote attended study compared similar tasks on both websites, to provide input to our client for redesigning their website (Site1) to compete more effectively with the radio station website (Site2), known to have a high number of visitors. The research also examined other sites when participants expressed an interest in them for the tasks at hand.

The overarching question the study addressed was how to make Site1 the number-one choice for news in the local area. Our client also wanted to know:
- Why do people choose Site1, and why do they choose Site2?
- What is appealing and useful about each site?
- What don't users like about each site?
- What changes would users like to see that would make them more likely to visit Site1?

For each session, participants visited both Site1 and Site2. Each session included three main news and information lookup tasks, as well as interview questions to learn about people's preferences and impressions. The participants included four people who mostly visited Site1, four who mostly visited Site2, and two who identified other sites as their most-visited local news and information site.

Although all participants said they used the Internet daily and were accustomed to using websites for information-retrieval tasks, Tec-Ed carefully managed the set-up and desktop-sharing process. Figure 2 shows the facilitator's script used for getting started; the desktop-sharing script was similar to Figure 1.

Start time: _____

"Hello __[participant name]___, this is Mary Smith, your UserVue test administrator for today. Thank you for agreeing to participate in our usability study. Have you received your invitation email to a UserVue session?" [*If no, verify that participant is at computer and looking for email. If still not found, verify email address and resend.*]

[*If necessary walk participant through the steps of downloading UserVue session.*]

"Do you have applications running other than UserVue? If so, please close anything such as Instant Messaging programs that may interfere with our session.

"Before we get started, I just want to remind you that we will need approximately 45 minutes from this point to finish the study. Also, as William discussed with you during scheduling, you will need access to the following list of things. Please let me know if your current set-up meets each of these needs:

- Working high-speed Internet connection
- Internet Explorer version 6.0/Firefox 2 or higher.
- Preferably a hands-free headset or speakerphone arrangement for your telephone line. *[Don't cancel session if they have the handset in the crook of their neck, though.]*
- A quiet spot where you won't be interrupted and where you won't bother others

"Okay now the environment is set, let's get started."

Figure 2: Facilitator's script for getting started.

The facilitator's script also introduced the thinking-aloud process in context of the remote testing setting:

> "Because we are doing this study remotely, it's important that you and I communicate as well as we can about your experience. I can see what you are clicking on, but I want you to think aloud as you use the sites and share what's leading you to click where you're clicking, when you feel lost, when you are searching for something you don't see on the screen, etc. To get you into practice for thinking aloud, I will ask you to read aloud some Thinking Out Loud instructions before we begin."

The results of the usability test provided our clients with valuable insights. Participants said they tended to trust and rely on Site1 for in-depth news, editorial opinions, classifieds, and other items that they associate with the physical newspaper. In addition, many said they found the correspondence between the website and the physical newspaper comforting and used the site regularly. However, participants believed that Site1 is not the place to go for breaking news coverage, weather, traffic, or other fast-changing stories that they associate more with television coverage.

Participant comments indicated they cared deeply about weather information, and all participants preferred Site2 for weather over Site1. Several participants said they had Weather.com bookmarked, and over half the participants mentioned going to Site2 for live radar. After viewing weather on Site1, many spoke positively of the Home Page presentation, but negatively of the weather pages beyond the Home Page.

While ads are a necessary revenue stream to support both websites, users expressed irritation with them and in general regarded Site2 as less obtrusive in ad presentation, with the exception of commercials that appeared before video content.

Although this brief summary focuses on participants' perceptions of the sites, the research results included detailed findings reporting user behavior during the lookup tasks on both sites, as well as quotations from participants' think-aloud comments. The greatest insights came from the combination of task performance and spontaneous verbal comments during the tasks.

Guidelines for Remote Attended Usability Studies

This section summarizes the strengths and weaknesses of remote attended usability studies, based on published guidelines [3, 8, 9, 10] and on the authors' experience.

Why to choose remote attended testing

1. Larger and more diverse pool of participants. The single greatest benefit of remote attended usability testing is the ability to collect data from users anywhere in the world, without travel costs. Sometimes the target audience is in a single location that is remote from the user research or development groups, as in the second case history above. More often, with today's geographically distributed teams, developers as well as users may be located throughout a country, or in several countries.

   The majority of the authors' remote attended studies are planned to use that methodology from their inception. However, remote sessions can also be added in mid-stream. For a recent project, we initially planned to hold in-person sessions in the U.S. Midwest and in Silicon Valley. However, after the project was underway and some of these sessions had taken place, the client identified a key target audience segment only to be found in India. With remote attended methodology, we were able to include a participant from India within the project budget and schedule.

2. Greater convenience for participants. Hard-to-recruit participants such as health-care practitioners and technical specialists are often more willing to serve as research participants if they can do so from their own offices or homes, without committing to travel time and expense.

3. Greater convenience for observers. Similarly, busy developers may be more likely to observe sessions—an activity demonstrated to improve the usability of the systems they design—if they don't have to take extra time from away from work to visit the usability laboratory. (Recognizing this concern, some organizations now even post recordings of in-person test sessions on their intranet for remote viewing.)

4. Participants are using the product in a more comfortable environment. As in field research, participants for remote attended research are using their own computers in their own familiar settings. Although the desktop-sharing tools may be unfamiliar, participants use their own keyboard and mouse, and are working in their own offices or homes.

5. Quality of the collected data is generally high. According to Andreasen et al. [10], "the results show that the remote synchronous method is virtually equivalent to the conventional method [laboratory-based think-aloud test]. The two methods identified almost the same number of usability problems, and test subjects spent the same time completing the tasks."

Concerns about remote attended testing

1. Limited visual observation. As noted by Bartek and Cheatham [8], "Remote testing relies solely on what the participants say and the interactions they make that can be viewed on the display. The facilitator cannot use non-verbal cues to determine if the participant is tired, frustrated, or confused." They suggest that facilitators be attentive to any indications of participant problems, then use questions to probe and solicit more information.

   Losing the non-verbal behavior (body language) we observe in face-to-face studies is unavoidable in remote testing. The authors attempt to mitigate this drawback by including a few in-person sessions at the beginning of most remote studies; at the very least, we use an in-person dry-run or pilot-test participant. These sessions can predict potential areas of difficulty in the test tasks or places where the facilitator should be especially alert to participants' verbal or mouse behavior.

2. More difficult to build rapport with participants. Most of the techniques developed to help research participants feel comfortable sharing their behavior and ideas depend on personal contact at the beginning of the session: offers of food and drink, casual chat about the weather or traffic. Dray and Siegel [3] found that remote methods "can delay development of trust and increase vulnerability to problems and misconceptions." Pauses on the phone may decrease user comfort, whereas in an in-person setting they can elicit further comments.

3. Technical and system performance problems. As in field research, when the user is not in a controlled environment, unexpected problems can occur. Even with widely used software such as WebEx, firewall issues can sometimes arise at participant or observer locations. Andreasen et al. [10] point out that it is more difficult to re-establish the test setup remotely if there is a malfunction in the hardware or software.

4. Scheduling sessions can be challenging. The more time zones the project spans, the greater is the challenge of scheduling sessions when participant, facilitator, and observers can all be present. To ensure user participation, facilitators may have to work late at night or early in the morning. Also, if only two or three hours a day are convenient for everyone, the sessions will extend over more days than comparable in-person studies.

5. Management may expect unrealistic savings. Dray and Siegel [3] say, "Many people perceive that conducting remote testing is quicker and easier than testing in person. In our opinion, they are probably underestimating the time needed to arrange and set up a remote test, especially internationally."

   The authors' experience is similar. When defining a remote attended usability study, we are careful to clarify to clients that most of the steps in the process—identifying research issues and questions, defining test tasks, agreeing upon participant screening criteria, recruiting and scheduling participants, creating session materials, conducting the test sessions, analyzing collected data, and reporting results—take the same amount of time for in-person and remote studies.

Remote attended usability testing has a valuable place in the user experience researcher's toolkit of methods. It gives us access to more diverse user audiences than we can often reach in person, without depending on user self-reporting for qualitative data (a risk to validity of automated testing).

However, using only one research method—any one method—can be limiting to product success, because a single method may miss collecting crucial data that would result in different design decisions [11]. Instead, the authors recommend ongoing user experience research programs that combine in-person and remote data collection, in the lab and in users' own environments, depending on the needs of each study.

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