

In a series of intensive planning meetings, we created both a usability test plan and a document plan with high-level outlines for a hard-copy getting-started guide and an online quick tour. The primary goals for the usability test were to examine:

- How easily people perform tasks with the product, especially those tasks involving features new to the forthcoming release.
- Problems people encounter with the VUI and GUI.
- Problems people encounter with the product functionality, and their possible causes.
- Any explicit user behaviors involving documentation, such as requests for documentation or comments about when/how they'd use it.

Both support documents were to be aimed at “end users”—people who use the system to schedule and attend meetings. The purpose of the getting-started guide was to instruct VUI and GUI users how to perform basic tasks such as scheduling and attending meetings, inviting participants, using the special in-session features, and so forth. The purpose of the online quick tour was to introduce new users to the basic functionality and principal features of the GUI.

First, the usability test

Our working procedure called for conducting the usability test first, then producing the documentation. This way, we could apply to the design of the documentation what we learned about our target audience and their experiences using the software. To fully leverage the lessons learned from the usability test, one member of the two-person usability testing team also served as writer for the getting-started guide and quick tour.

As always, we expended considerable effort in identifying usability test participants whose characteristics matched those of the product's target users [Kantner 1994; Rosenbaum 1995]. In this case, we recruited eight people who regularly attend meetings via telephone conferencing systems and/or who arrange teleconferences for others. All participants were new users—people who had not previously seen the product.

In 1-1/2 hour sessions under the guidance of a test administrator, the participants performed the following sequence of tasks:

- Attend a teleconference and request a meeting-related document by phone
- Use the GUI to retrieve and add meeting-related materials
- Set up a teleconference and invite attendees
- Listen to and record post-meeting comments

By observing the test and analyzing the collected data, the test observer/writer gained valuable information about the users' responses to the software: their likes and dislikes, problems they had performing tasks, and which new concepts were difficult to grasp.

After analyzing the data and preparing a results report, the Tec-Ed team met with the product development and marketing teams to discuss the findings. This in-depth discussion helped the company decide which concerns from the usability test should be addressed before the next product release, and which could or must be deferred until later—which, in turn, helped us make decisions about the documentation.

Next, the documentation

After the meeting to discuss the usability test findings, we prepared the getting-started guide and quick tour. The guide—a 25-page, 7- by 9-inch “minimalist” booklet—was laid out as a series of two-page spreads with illustrations on each spread. Each page or spread describes how to perform a key task with the VUI or GUI; see Figure 1. The online quick tour is a user-controlled “walk” through the software, giving an overview of the product features and functions, but not explicit instructions on using the functions.

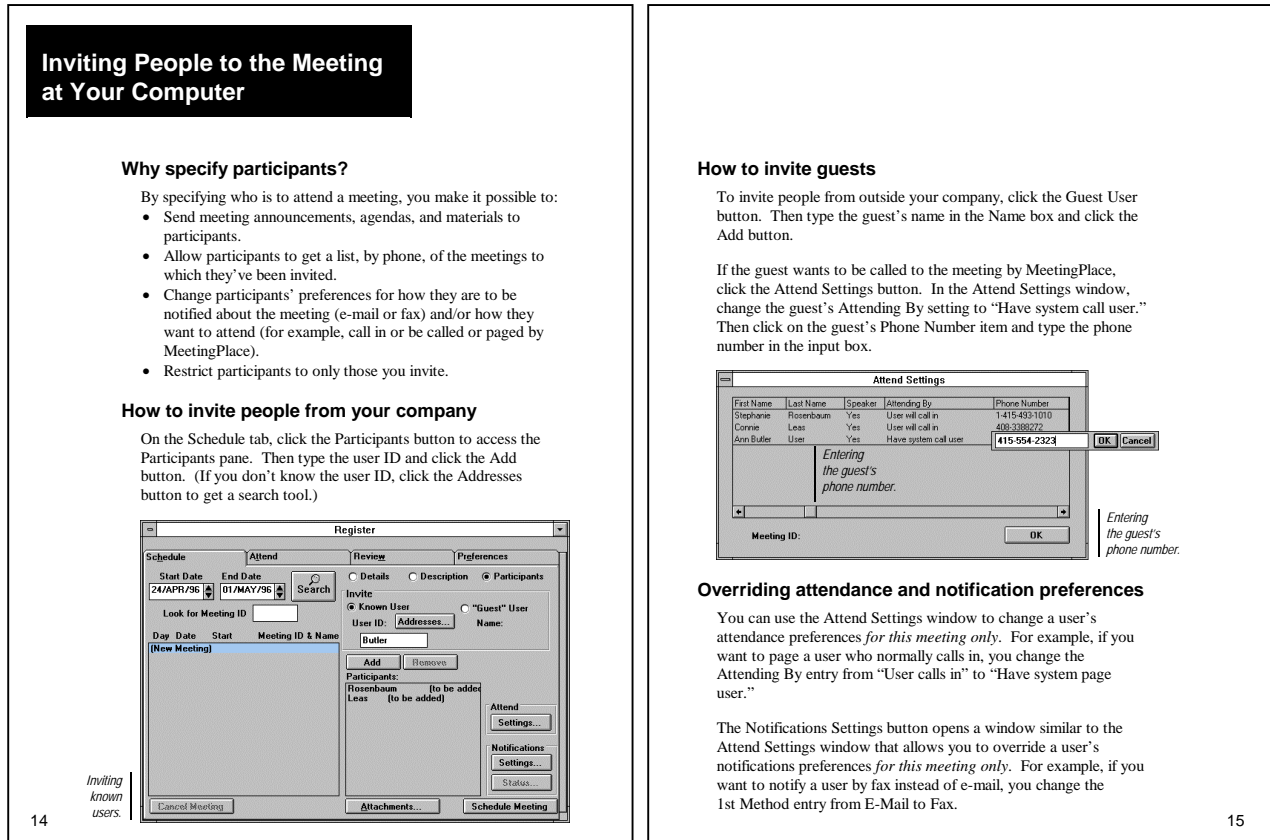


Figure 1: A two-page spread describing how to invite people to a teleconference, from the Case History I Getting-Started Guide.

After observing the test participants and analyzing the data, the technical writer was well equipped to create documents directed to the target audience. She not only had the usability data to inform the document design, but she could also *visualize* the audience for whom she was writing. As a result, the organization, language, and content of the documents reflect the target audience's approach to the software and anticipate common problems.

For example, usability test participants were uniformly stumped when the area on the computer GUI for entering scheduling information was not editable unless a list box item labeled “New Meeting” was highlighted. Technical issues prevented changing that software behavior for the forthcoming release. Consequently, in the getting-started guide, both the text and the illustration callout stress the need to “Click New Meeting (if not highlighted) to enter meeting details.” Had the writer not witnessed people getting stuck at this point, its importance may have been overlooked.

Then another usability study, and more documentation

The integration of usability testing and documentation paid off for this company, which then made the management decision to invest in an ongoing usability program. Tec-Ed began working with product development and marketing staff in a variety of areas:

- Strategic planning for an ongoing usability program that will provide before-and-after usability data to show usability progress over a five-year period.
- Usability testing of a “Question-and-Answer” feature that enables large numbers of people to participate in moderated teleconferences.
- Rewriting and editing the entire documentation library for the product, including an installation guide, contact/attendant guide, and system manager’s guide.
- A “continued-use” usability study consisting of on-site interviews with existing users of the product.

The continued-use study was most interesting and relevant to this paper, because it collected information about all aspects of the company’s product offering, from a different audience than the one we studied in the first usability test. For the continued-use usability study, Tec-Ed conducted hour-long interviews with 11 users (both end users and system administrators) at three customer sites, asking questions on the following topic areas:

- How the product compares with how they previously held teleconferences
- How the product compares with related tools such as voicemail and e-mail
- How often they use the product, for what kinds, sizes, and lengths of teleconferences
- How they learned to use the product
- Overall satisfaction with the product

We asked system administrators additional questions about installation, maintaining the system, and supporting their user communities.

The interviews provided us with in-depth information about the people who use the telephone conferencing product and the context in which it is used. Here, talking to customers in their own work settings, we gained another perspective on the target audiences: how they actually use the product, the conditions under which it is used, where and under what circumstances they turn to other people or to the documentation for help, and so forth. We learned about the diverse types of teleconferences conducted over the system, most- and least-used features, users’ understanding and awareness of features, and their strategies for dealing with problems.

Naturally, our customer interviews put us in a “if we could only do it over” frame of mind. Ideally, we would also have conducted these interviews prior to creating the documentation. However, schedules and budgets permitted only one usability project at that time, in which case a usability test where we could observe users’ actual behavior with the product was more important. Nevertheless, our customer interview experience provided us with a better understanding of the target audience and its needs, including information that cannot be gleaned from a laboratory usability test.

While both Tec-Ed and our client company are pleased with the documentation, we would have done some things differently if we’d held the customer interviews earlier. For example, we learned that current customers rarely use a feature that allows them to break into subgroups during a teleconference, so we would probably not have devoted space in the getting-started guide to this feature. We also learned that users had trouble figuring out how to “rewind” teleconference recordings, a topic not covered in the guide.

Because our interviews gave us new insights into the ways in which the system is used by different groups of people, we would also have recommended to our clients a slightly different organization for the documentation—one that differentiates more between the key user groups. In our meeting with the client to discuss the findings from this usability project, we also recommended several changes for the next edition of the documentation library.

Case History II

For the past two years, Tec-Ed has worked with a large fraternal benefit society (4,000 employees and 1.5 million members) that specializes in insurance and retirement products. One of the projects they asked us to perform was a laboratory usability test of their newly-developed customer information software system, a system that will be used by virtually all employees to provide customer service, enter data, and look up customer information. The new system will ultimately replace several different existing systems used by a variety of departments throughout the company, and thus provide a consistent approach to handling customer information.

First, the usability test

In introducing a new, integrated user interface to provide the functionality different groups needed, the organization commissioned Tec-Ed to perform a usability test. We recruited 18 participants (all company employees) who represented the diverse target audience. We sought people from seven different departments, people both familiar and unfamiliar with the Windows GUI, and both casual and heavy system users. Unlike the test participants described in Case History I, these participants were actual members of the target audience; because this was an internal system, we could obtain participants who will be users of the system.

In test sessions that lasted between 1-1/2 and 2 hours, a test administrator guided participants through a series of tasks to perform, such as finding a customer's file and changing customer information. A second usability team member observed the session and recorded participants' behavior and remarks.

The usability team then analyzed the data and prepared a results report that described the usability problems the test revealed and summarized participants' attitudes about the new system. Usability problems occurred primarily in three areas: updating customer information, saving changes, and adding a new customer.

For example, participants didn't always know how to begin the process of adding a new customer. They were then perplexed when the system presented a window for searching rather than a data-entry form after they clicked Open or Add in the button bar.

Next, the documentation

About a year after conducting the usability test, the company asked Tec-Ed to prepare the online help for the customer information software—the same software we tested earlier. Before embarking on the project, we helped the company design a survey questionnaire to learn employees' preferences regarding the use of online help systems.

The questionnaire consisted of five statements followed by a series of choices. For example, one question asked employees to indicate the level of help they'd start with (table of contents, context-sensitive help for the currently displayed window, search a topic, and so forth). The results of the survey indicated that most people preferred context-sensitive help ("Help for the currently displayed tab or window").

Using RoboHelp, we prepared an online help system consisting of over 400 topics organized under 13 major categories. Except for information on basic operations such as using Windows features and functions, the major categories corresponded with the various work areas in the software, such as the windows for finding a customer or for entering customer address information. The help is context-sensitive at the window level: clicking on the help button provides access to topics that provide complete information about the currently displayed window. (Of course, a table of contents and search facility are also available through the Help menu.)

As with Case History I, the writer assigned to the online help project had also been a member of the two-member usability testing team. She was familiar with the target audience, their approach to the new system, and the problematic areas. While writing the online help, she could visualize the users and anticipate their problems. For example, having witnessed participants become alarmed when fields cleared after they pressed an Add button, she included a note in the online help explaining that the data is not lost.

Then another usability test

After the first draft of the online help was completed, its usability was tested in a laboratory test similar in approach to the test we performed on the software. This time, however, Tec-Ed and the client together designed the test, and the client administered the test. In hour-long sessions, 12 participants performed tasks with the software, using online help to determine where to go and what to do. The online help writer observed the test and recorded participants' behaviors and remarks, just as she did during the first test.

The participants' profiles were the same as those who participated in the first test: they were company employees who represented the various departments and who had varying degrees of experience with their existing systems and with Windows-based computers. None of the participants had used the customer information software before.

A surprising result of this second usability test was that, contrary to the user-preference survey, almost all participants turned first to the keyword search facility instead of to the context-sensitive help button. This may have been due, at least in part, to the fact that the test administrator encouraged participants to begin each task by going to the help system. Previous usability testing experience of help systems [Rosenbaum and Anschuetz 1994] has shown that if you want to learn about the usability of a specific help system, rather than simply learning *whether* users choose to access help, you must direct users explicitly to the help system.

In an actual use situation, people might first explore the various data entry windows (arranged as a series of labeled tabs on the user interface). Users who wanted to change a customer's address, for example, might begin by clicking the Address tab, then turning to help if needed.

Nevertheless, we discovered a serious flaw in our online help system: the keyword search facility frequently took participants to field-level information, but the information in the help window didn't indicate the window/tab where the field was located. It told them what to do, but not where to go. We had imagined users already viewing the appropriate window, then accessing context-sensitive help for detailed information on its fields. The usability test set us straight.

We also learned that some terms were understood by some of the participants, but not by others. While the first usability test had elicited a number of commonly used terms that we incorporated

into our search keyword list, the online help usability test revealed additional terms about which we were unaware.

Participants' familiarity with terms depended on their departments in the company. Moreover, different departments used different terms for the same entity or process. For example, some people refer to an agent as "servicing agent," while others use the term "district representative" or "DR." Similarly, various participants used the terms "benefit" and "contract" and "certificate" to refer to the same item.

We also discovered that a few terms were unfamiliar to all participants. These terminology problems were most apparent when participants used the search function and entered a search term, such as DR, for which there was no corresponding topic. Equipped with our new-found knowledge, we revised the help system, adding search keywords, editing topics, and modifying links to topics.

Conclusions

Combining usability testing and documentation projects is indeed the best of both worlds. For writers to watch people use their products is enormously instructive; writers become much better equipped to prepare useful documents that speak to the intended audience. By joining the usability team, writers observe troublesome elements of products, gain insights into users' concerns, hear users utter new terms, and develop a sense of the users' backgrounds and experience. As a result, throughout the writing process, writers can accurately visualize their readers.

Until fairly recently, few technical writers had the opportunity even to "rub elbows" with their target audience; at best, they learned about their audience by asking questions of people in marketing or tech support. Collecting first-hand information about the target audience is especially valuable for writers of specialized documentation, such as biotechnology and insurance. For writers without personal experience in these domains, participating in usability programs provides access to the behavior and reactions of domain specialists.

In conducting these iterative usability and documentation projects, we were reminded that a single usability test, while of enormous value to the writer, cannot provide comprehensive information about the target audiences and their use of the product. Usability research should be an ongoing process—as practiced by both organizations described in this paper. In each of the case histories, follow-on research revealed additional valuable information.

To combine iterative usability testing and documentation design requires time and resources. But the effort pays off in many ways, just as an ongoing program of usability research does:

- Fewer calls to help desks, tech support, and other service groups
- Lower lifecycle cost for the product
- Increased customer satisfaction

Some organizations have observed how technical writers and usability specialists can work together to improve product quality; in fact, a few companies have merged these two departments or tied them together organizationally. Recognizing that documentation is an integral part of products, we can gain the "best of both worlds" by combining projects to improve both documentation and other product features.

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