

# **An Overview of ergosoft's Usability Testing Method**

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## **Characteristics of Usability Tests**

What is usability testing? How is it different from – and similar to – other forms of user input, such as product reviews or focus groups? What makes usability testing uniquely useful? What must be specified before you can begin?

Usability testing is a method for assessing the ease with which products are learned and used. The underlying model for virtually all usability tests is that real users carry out real work with a product. The “product” in this model can be a shrink-wrapped application or a website, a working product or a prototype, or even a series of screen designs mocked up on paper. The important concept is that in usability testing, users are asked to do something realistic with a product, and to do enough of it to approximate the experience they would have with the real product in the real world. This is a key difference between usability testing and other forms of user input.

A second important characteristic of usability testing is that it generates quantifiable data. For example, usability testing can tell you how long it takes, on the average, for users to perform typical tasks or reach particular usage goals with your product. This measure, called Time on Task, is frequently used as a yardstick for both the intuitiveness of a user interface and the efficiency with which the product is used. Other types of quantitative measurements capture how users evaluate the product subjectively, such as how the product made them feel and whether they believed the product was simple or complex. A third type of data comes from direct observations of user behavior made by a trained usability research team during testing. When catalogued, these observations provide data which point to specific features of the user interface that made a task take longer or a product be perceived as more difficult than others.

A third and very important characteristic of usability testing is that it propels everyone on the product team to agree on what is meant by “usability.” Without this sort of definitional framework, usability remains an opinion-based, ambiguous concept that is often not defined or measured at all.

## **Conducting a Usability Test**

The starting point for planning a usability test is a definition of the questions the study should answer. The second step is to define the kinds of users who should participate in the study and a set of usage tasks appropriate to both the users and the questions under study. Next, it is necessary to agree on a set of usability measures with good validity for these users, their tasks, and the environment in which the product will be used.

The fourth and final planning step is the development of a detailed study design which takes all of this information into account, along with providing a way to deliver data-driven answers to specific questions about the product. Because it can involve considerable interchange with the client and up-front research into the capabilities of the product, **ergosoft** undertakes detailed study design after contract award.

In parallel with the development of the detailed study design and other preparatory activities, study participants are recruited to fit the user profile. Users meeting our client's criteria are recruited through market research firms, contract professional employment agencies, and direct postings to local media. An abundance of users of all types exists in Austin. When testing begins, participants are brought one at a time to **ergosoft's** fully-equipped usability lab, where they carry out the test tasks and provide usability data.

After testing ends, data are analyzed (using statistical tests where appropriate), videotapes of testing sessions are carefully reviewed, and the research team is thoroughly debriefed. The very large amount of information these activities produce is then studied by the **ergosoft** research team and applied to answering the specific questions identified before the study began.

### **Usability Measures (Data)**

#### *Performance Data*

Time on Task is routinely recorded during usability studies conducted by **ergosoft**. This measure of user performance provides an excellent yardstick for both the intuitiveness of a user interface and the efficiency with which the product is used.

#### *Subjective Impressions*

After each task users are asked to rate the product on a variety of attributes related to the his or her subjective experience of usability. Examples include perceived effort, visual complexity, and the perceived importance of the task. Differences among tasks with regard to the various attributes are informative concerning specific properties of the user interface that affect the user's experience of usability. For example, on some tasks users will experience difficulty due to the visual complexity of the display and on others they will experience difficulty due to cognitive factors such as high mental effort and memory. Another aspect of users' experience is the perceived importance of the task being performed. Some types of usability problems – for example, navigation difficulty – can also make users feel that the task is unimportant. Ratings of impressions like these suggest design recommendations for improving the user's subjective experience of the product.

#### *Behavioral Observations*

Observations on users' immediate responses and comments are made by **ergosoft's** interdisciplinary team of trained psychologists, human factors engineers, and usability professionals during testing. Like the other usability data **ergosoft** collects, this information allows us to recommend design changes to improve usability.

#### *Videotaping*

All testing sessions are videotaped. This permits an examination of user behavior in more detail if needed. Session videotapes may also be used to create a highlight tape if desired. Highlight videotapes graphically illustrate the problems users have with products and so make highly useful visual aids for driving home the need for change.

## **Nature of Results**

Results provide complete and detailed answers to all of the questions identified as questions the study should answer. In addition, **ergosoft's** usability testing methods routinely provide the following information:

- A detailed list of usability problems with the product under study.
- An overall expert opinion (based on data) about the usability of the product or website.
- Recommendations for short-term, relatively inexpensive user interface improvements that will noticeably improve usability. These typically deal with language, prompts, dialogs, some aspects of navigation, the functional options provided, keyboard interaction techniques, screen layout, use of color, audio feedback, visual feedback, the use of user interface controls, and the addition or clarification of help information, FAQs, "tool tips," and other forms of on-line assistance.
- Recommendations for longer-term, more comprehensive improvements that would significantly differentiate the usability of the website from others. These typically deal with deep and pervasive changes to the information architecture which may be required to make the website correspond more closely with the user's mental model of the information space; this correspondence will in turn dramatically simplify and improve navigation.