# Chapter 6: Usability

## Objectives

Upon completion of this chapter, readers will be able to

1. Define usability and explain its importance in technical and workplace writing.
2. Identify key characteristics of a usable document or website.
3. Differentiate between various methods of usability evaluation and usability testing, including lab testing, testing without a lab, and field testing.
4. Explain the steps involved in planning and conducting a usability test, including how to recruit participants and analyze the results.

## Usability: Evaluating Documents and Websites

I will never forget a Christmas Eve many years ago, when the kids were finally asleep and Mr. and Mrs. Santa Claus began the assembly of the much desired "brand name" doll house. Out came the tools, out came a hundred or so tiny plastic parts, and out came an instruction sheet written by someone clearly from another land far away. After several hours of attempting to decipher some of the worst instructions ever written, we recruited a neighbor's 12-year-old, a seasoned veteran in the world of dream houses, and the assembly was completed in time for Christmas morning.

Whenever usability is mentioned, this incident comes to mind. **Usability**, a term that refers to how easily and effectively a person can use a document, website, or product to achieve a purpose, is an integral element of workplace and technical writing and must not be overlooked at any level. On the web, it's critical for survival: If users can't figure out how to purchase that awesome table lamp, they will quickly go elsewhere on the web to shop. The vendor loses money.   If users can't find the information that they need, they will move on because plenty of other options are typically available. In the office, if employees spend large amounts of time figuring out unclear documents or deciphering poorly written instructions, the company loses money.

The concept of testing usability became commonplace in the 1960's as a result of the rise of the computer industry. Computers brought about a need for user manuals. Engineers soon realized to the importance of knowing and understanding how users interacted with the materials and the technology. When personal computers became available in the 1980's and especially in the 1990's a when the internet became more commonplace in households and businesses, engineers, designers, and technical writers recognized that researching how people used and interacted with computers and documents was essential for the development of not just programs and software but also instructional materials (Jameson p. 399).

As a technical communicator in the 21st century, you must incorporate some level of usability testing or evaluation in the documents you create. Think about the standards that determine if your document will be effective. Without testing, you can’t know if your documentation is well-created or if your reader is annoyed or frustrated by inaccurate, incomprehensible, inaccessible, missing, or non-functional information and design features.

## Characteristics of Usable Documents

According to Jakob Nielsen (2012), a usable document or website must have several key elements.

1. It's easy to learn so that the person can quickly accomplish the desired tasks
2. It's efficient, enabling the person to accomplish the task in a timely manner
3. It's easy to remember the process needed to use the document or web site to accomplish this task
4. It's free from errors, enabling the user to complete the task without mistakes
5. It's satisfying to use; the user will find it pleasant or enjoyable to use this design

In addition, a usable document or website combines utility (it has the functions needed) with usability (how pleasant or easy it is to use).

In addition, a usable document has some other attributes, one of which is utility. Does the document or website do what the user needs it to do? If it meets the criteria above, then it is useful. Usefulness is essential to effective technical writing or design.

Think about the last time you paid a bill online or shopped on an app on your phone. How easy was it to do what you needed to do? Did you experience any frustration?

## Usability Evaluation

The best way to guarantee that your site or document is usable and useful is to evaluate it or test it. The methods you choose in your test will largely depend on the size and significance of the project, ranging from the simple to the complex.

At the first level, careful proofreading or evaluation of the document using a checklist may reveal areas that need development or clarification. Ask someone to review your draft or prototype and offer suggestions that will improve the design of the document. Most types of usability evaluations involve three groups of individuals: Users, the primary audience for the document; subject matter experts (SMEs) who are knowledgeable about the topics of the document or web site; and usability experts, who are trained to determine what questions to ask about the draft or prototype and how to best acquire the answers that will be most useful (Markel, 2015). Usability evaluations also come in different forms and may include interviewing users, using a questionnaire or survey, conducting focus groups, and observing users.

## Usability Testing for User-Centered Design

Dr. Carol Barnum (2002) identifies the following characteristics of usability testing:

1. The goal is to improve the usability of a product.
2. The participants represent real users.
3. The participants do real tasks.
4. The researchers observe actions and record what the participants say.
5. The researchers analyze the findings, diagnose problems, and recommend changes.

The important thing to notice here is the inclusion of paid participants, or users, who are representative of the target audience, and a researched protocol that the testing follows. There are a number of testing models, including lab testing, testing without a lab, and field testing.

In the usability lab (which is the most expensive and time-consuming process), a number of users come into a controlled environment and are given a task to complete in a specific time frame. Observers may watch from behind two-way mirrors and record what they see or hear or use a video monitor to observe and listen to the participants. Typically, a lab requires dedicated space and lots of equipment, including video or audio recording devices.



***Figure 1: Usability Lab***

Testing without a lab requires a space like an office or conference room where the participants and observer will not be disturbed. The observer may sit next to the participant and record what the participant does, or have the participant "think aloud" during a process. Modern technology, like computers or phones with cameras and microphones, make this form of testing easily available and economically feasible, but, according to Jakob Nielson (2012), a notepad and pen are the only equipment you will need.



***Figure 2: Usability test without a lab***

Field testing means that the observer goes to the user and "tests" in the actual environment that the document or device will be used and observes users in their natural environment with supports and distractions.

### What if I Just Skip this Process All Together?

Yes, usability testing can be expensive and time consuming, but in most cases will be worth the time and expense. The costs of not testing a product or program are reflected in the amount of additional training needed to support the users, the competitive advantage of the product or program, the image and reputation of the organization, and the efficient use of employee and client time (Barnum p.23).

### How to Prepare a Usability Test

Usability tests can be “quick and dirty”—just grab some available colleagues and see how they respond to a new design you have created for an instructional website. Usability tests can be very formal, with paid participants, cameras, two-way mirrors, and evaluation forms.

#### Start by Making a Plan

If you are going to conduct a usability test, you have to start with a plan. That's how you will document what you're going to do, how you're going to do it, how many participants you need to recruit, and what you will have them do. In this case, you will be the usability specialist.

For your plan, you need to identify the scope and purpose of the testing; decide when and where you will do the testing; identify the equipment you will need; determine how many sessions you will conduct, how long each will be, and how many participants you think you will need. You must determine what tasks you will be testing and develop the metrics for evaluation. For example, subjective metrics include the questions you'll ask the participants about ease and pleasure. Quantitative metrics indicate what data about errors, completion rate, or time to complete a task you will collect. You may need to identify your staff and what role other members of the team will play.

Because you will be doing research with people, you may need approval from your research, legal, or compliance office. In academic settings, this is called seeking IRB approval. You can learn more about IRB and what it means to obtain IRB approval here.

[About IRB](https://www.hhs.gov/ohrp/education-and-outreach/online-education/human-research-protection-training/lesson-3-what-are-irbs/index.html#:~:text=Next%20%3EPart%201:%20Institutional%20Review,advance%20for%20the%20common%20good.)

But this is definitely a time when you ask your professor, mentor, or supervisor about the proper procedure for research with human subjects.

#### Recruit the Participants

Once you have a plan and have approval to use human subjects, you will recruit your participants. You will try to find people who are as close to your target audience as possible, and you may have multiple user groups. These recruits should not be familiar at all with the product or process you are testing (Homeland Security, 2025). It is okay to use your own colleagues for testing during piloting stages but not during actual testing. If you are seeking insights, Jakob Neilson states that five users will give you as much information as you will need. For quantitative data collection, seeking statistics, you will need at least 20 users. If you are going to conduct iterative testing over the course of developing a document or site, you should have a different group of participants for each test. Last, since participants are usually compensated, you will need to decide how you will pay them. Keep in mind that you cannot pay federal employees.

#### Run the Test!

A typical usability test might look like this:

The facilitator welcomes the participant, presents the IRB approval if necessary, explains the test session, and asks any demographic questions. The facilitator then explains what the participant will do, then explains the task scenario. The participant begins working on the scenario and may think aloud during the process while the observer or facilitator takes notes of what the participant says and does. The session ends when tasks are complete or the mandated time is up, and the facilitator either interviews the participant at the end of the session by asking subjective questions or thanks the participant, offers the compensation, and escorts the participant from the testing area.

Identifying both effective interactions and problem areas is important during usability testing. This includes noting any user mistakes—even those corrected—as well as incomplete tasks, misunderstandings, or deviations from instructions. Be alert to issues tied specifically to the material being tested.

Pay attention to participant behavior, including questions they ask, moments when they request help, and both verbal and nonverbal reactions. Emotional responses like frustration or satisfaction are also valuable. Look for adaptive actions (like adjusting their position or using glasses), unexpected incidents or comments, and any environmental distractions such as noise or glare. These observations provide insight into the usability and clarity of the product or system (Homeland Security, 2025).

Olmsted-Hawala and Bergstrom (2012, p. 86) observe that choosing the best moderation technique for the session depends on the goals of the session. A concurrent think aloud (CTA) is useful for understanding participants’ thoughts as they work through the task. The retrospective think aloud (RTA) has the participants retrace their steps when the session is complete. Concurrent probing (CP) requires that the facilitator ask follow up questions whenever the participant makes a comment or does something out of the ordinary. Retrospective probing (RP) waits until the end of the session and then asks questions about the participants' thoughts and actions as a follow up. Each method has its pros and cons, and none of them contribute to collecting quantitative metrics data.

#### Interpret and Record the Data

After you finish conducting your tests, you must turn that data into usable information to improve the document or site. Essentially, you will sort the quantitative data, like performance measures, and the subjective data, like attitude. You will analyze it carefully, looking for problems. Lastly, you will present your research in a report.

Here are some sample usability reports and presentations from the Human Centered Design and Engineering program at the University of Washington.

[Sample Usability Reports and Presentations](https://www.hcde.washington.edu/sample-usability-projects)

For detailed instructions on how to run various types of usability tests, including testing kits, visit the [Homeland Security DHS Usability Testing Site website.](https://www.dhs.gov/cx/resources/guides-kits/dhs-usability-testing-kit)

### Don't Forget Accessibility!

Typically, usability testing does not consider the user with a disability.   As a technical communicator, you have a responsibility, both legally and ethically, to produce documents and sites that meet are compliant to Section 508 of the Americans with Disabilities Act. A site that is accessible presents information through multiple channels that allows users with disabilities to access the same information as users without disabilities. Check out the [Americans with Disabilities website](http://ada.gov/ada_intro.htm) for more information.

## Activities and Discussion

* For discussion: Why must you, as a technical writer, need to consider usability evaluation and/or testing through all stages of generating documents or websites?
* For discussion: How does the concept of "usability" support the key characteristics of effective technical communication?
* Activity or discussion: Take a look at your school's website. Imagine you are going to conduct a usability test on it. What tasks would you generate? What participants would you involve? For example: Find out how a community group not affiliated with the university can book a space to host an event.
* Activity or discussion: Locate a set of instructions for something you own and evaluate the instructions based on the five characteristics of usability. Are you able to suggest improvements to the design?
* Activity or discussion: In small groups, choose some of your favorite websites, examine them, and create a user profile. Your profile will include gender and sex, age, education level, economic status, profession, or whatever else you determine. Then turn it around. Create a different user profile and identify what changes you would make to improve the site for this new user.
* Activity or discussion: The [FEMA](https://www.fema.gov/) (Federal Emergency Management Agency) website has resources for people who need assistance. Consider the usability of the site for an individual with limited computer experience. What would you do to improve the chances of this individual in a flood or hurricane?
* Activity: In the instructions chapter, you created an instruction manual. Recruiting friends or classmates, design a usability test for your manual, conduct it, and then write up the report following the format of a scientific or lab report.

## References

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## Attribution

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## AI Assistance Notice

Some parts of this chapter were brainstormed, drafted, and/or revised in conversation with ChatGPT 4o and Google Gemini 2.5 Flash. All AI-generated content was reviewed and revised as needed by a human author.