

# The Importance of the User Experience in End-User Documentation

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## Introduction

The value of end-user documentation, such as instruction manuals, cannot be overlooked. Even the most cutting-edge technology would be worthless if no one could use it, and the quality of its documentation could determine whether or not this is the case. As such, the impetus for this report was the question of what qualities make for effective end-user documentation. While researching that question, it quickly became apparent that above all else, one concept forms the heart of effective documentation: a focus on the user experience. Designing for the user means knowing your audience, avoiding cognitive overload, including context and motivation, and being aware of cultural differences.

End-user documentation is a form of technical writing, and the first heading of the first chapter of John M. Lannon's *Technical Communication* textbook states that "technical writing is user centered" (2). More so than any other form of writing, technical communication is "highly pragmatic" (Johnson-Sheehan 12). As the cover of *The Essentials of Technical Communication* boldly proclaims, "No one wants to read anything you write!" The text itself adds that users "will read because they need to, not because they want to" (Tebeaux 3). Practitioner Tyler Ruffin says of his own experience, "I have learned that it is very difficult to get audiences to read every word I write, and there are many times when I've received questions that are clearly answered within the document, but were not visible/accessible enough for the reader to notice. It has actually helped me to know just how to place certain elements of my documentation." Since users are often reluctant to read documentation from the outset – and even once they do, may read it selectively – effective design becomes that much more paramount.

These statements reflect the core philosophy of technical communication: a well-written document is one that enables its readers to perform a certain action. Johnson-Sheehan defines

technical communication as “a process of managing technical information in ways that allow people to take action” (10). Thus, the “usability” of technical documentation is determined by its effectiveness in achieving that goal. Lannon defines a document’s usability as the “measure of how well that document fulfills the information needs of its audience” (26). Byrne narrows this definition further, specifically framing it in terms of end-user guides, stating that usability is the measure of “how quickly and effectively users can work with a user guide and their levels of satisfaction with the user guide” (Byrne 156). The usability of user documentation is consistently judged in terms of its ability to help its readers achieve their goal.

End-user documentation supports a product, but it is also a product in and of itself. Just as the user experience of a piece of technology directly affects its quality, the user experience of its documentation is equally important. Sometimes companies will become so focused on the features of a product that they lose sight of this fact. Jesse-James Garrett notes that “When a product is being developed, people pay a great deal of attention to what it does. User experience is the other, often overlooked, side of the equation – how it works – that can make the difference between a successful product and a failure” (6). With this in mind, this report examines how a focus on user experience can be used to maximize the effectiveness of end-user documentation.

## Methods

To construct this report, I analyzed a variety of sources, both primary and secondary. I consulted “How-to” texts on technical writing, technical communication, and user experience to understand the fundamental concepts of the field. Blog postings and academic conference presentations provided a less formal perspective. I also read a number of research articles from

industry journals such as *Technical Communication* and the *Journal of Technical Writing and Communication*. These provided concrete data that measured the effectiveness of different aspects of user documentation. In addition, I used the online portfolios of current industry practitioners to find examples of their work that demonstrate best practices of usability in instruction manuals. In order to get the perspective of someone who presently works in the field, I interviewed Tyler Ruffin, a technical documentation specialist for SmartCo Services LLC, an information technology company.

## Results and Discussion

### Knowing your Audience

Before creating a document, a technical writer should know for whom it is intended, and he or she should keep this audience in mind throughout the document's creation. In addition to demographic information that may be relevant, such as age or cultural background, knowing your audience means figuring out what they already know and therefore what they need to know to perform the given task. In user-centered document design, deciding what users do not need to know can be just as important as deciding what they do need to know.

Although it is applied in a multitude of different ways, “the concept of user-centered design is very simple: Take the user into account every step of the way as you develop your product” (Garrett 17). The literature consistently restates this idea. Therefore, as the first step, “you should always begin by identifying the readers of your document” (Johnson-Sheehan 22). As practitioner Tyler Ruffin explains of his process, “Before I start writing. I figure out who my

audience is and determine the purpose of the document. That helps me eliminate superfluous information I may want to include.” Throughout the writing process, Ruffin says, “I like to try to put myself in my reader's shoes so that I can get into their head. I can then decide, ‘Okay, I don't know what this means’ or ‘Okay, I understand what this document is saying.’” Industry blogger Kate Thompson, speaking in regards to technical communication as a whole, advises that this audience identification take the form of questions: “What do I want my audience to do? What information do they need to do that? What do they already know – and what’s missing? How am I going to tell them?” and finally “How am I going to check that the communication has worked?” (npr).

Determining what one’s users already know and what they need to know allows a writer to “select an appropriate scope” (Tennant 94). Researchers Van Horen et al advise that “When designing a manual, one has to take into account what the intended users already know. Depending on the knowledge of the user, it can be decided how extensive or how specialized the information in the manual should be” (419). Providing information that the users do not need to know can overwhelm them, while providing information that they already know can bore them. Either way, a writer runs the risk of alienating his or her readers.

In practitioner Karen Rempel’s user guide for the OptQuest for Arena software program, she defines from the outset who her audience is with a section entitled “Intended Audience.” The program “is designed for manufacturing or business process consultants and analysts and industrial or systems engineers” (2). She goes on, addressing the reader directly when she states: “We assume that you are familiar with the basic concepts and terms used in these types of systems,” adding that “a familiarity with computers and the Microsoft Windows operating system is assumed” as well (2). By including this section, Rempel not only defines her audience

for herself but for anyone reading the document. This leaves no confusion as to who the guide is intended for and what skills they are expected to already have.

## Avoiding Cognitive Overload

Being mindful of the readers' cognitive load is a key factor in crafting usable documentation. "Cognitive load" refers to the amount of mental energy a person must exert to perform a task. However, "when the demands for working memory resources exceeds availability, cognitive 'overload' occurs, and individuals' ability to learn and process information decreases" (Cook et al 35). Since the goal of documentation is for the user to successfully perform a task, effective documentation takes measures to avoid this situation. One way in which to do so has already been discussed: defining the proper scope of a document to avoid giving users too much information. Other means, such as using "iconic linkage" and defining document conventions up front, will be discussed in this section.

In Rempel's document, for example, she avoids overwhelming her readers by including sections such as "Where can I go for help?" and "Document Conventions." The latter acts as a key to help users understand the guide:

New terms and concepts may be emphasized by use of italics or bold; file menu paths are in bold with a (>) separating the entries (e.g., go to Help > Arena Help); text you are asked to type is shown in Courier Bold (e.g., in this field, type Work Week), and dialog box and window button names are shown in bold (e.g., click OK). (3)

None of these sections add to the technical content of the guide. However, they have a tremendous impact on improving its usability by, respectively, giving users resources if they encounter difficulty and clearly explaining the conventions of the document so that users can

more easily follow it. These steps help to free up more of the user's mental faculties for use in completing the given task, thus preventing cognitive overload.

Another means of reducing users' cognitive load was explored by Jody Byrne in a 2005 study. Byrne examined the effectiveness of "iconic linkage" in technical documentation. Iconic linkage refers to the use of "the exact same textual formulation or construction" for repeated concepts in a text (Byrne 156). In most forms of writing, repetition is considered something that should be avoided, resulting in a slight rephrasing of the same concept when it appears repeatedly throughout a text. In user documentation, however, it provides a useful function, as "repetition helps reduce short-term memory load and reduces the processing load for users," since "the more predictable, automatic, and unconscious a task becomes (i.e., reading the user guide), the less likely it will degrade or compete with other tasks for resources" (Byrne 156). Byrne's study empirically confirmed this hypothesis, as subjects who used a guide with iconic linkage performed their tasks with a greater degree of success than the control group. The study concluded that incorporating iconic linkage significantly improves the usability of user guides.

## **Including Context and Motivation**

As with reducing cognitive load, including context and motivation in user documentation is an important factor that could easily be overlooked because it does not add technical information. However, such methods serve to help the user effectively perform a task, and studies show that providing context and motivational elements alongside instructional content results in a greater user success rate, which is ultimately the goal of user documentation. This is especially important for elderly users, who are more likely to have difficulty navigating an



instruction manual, and thus have a greater need for motivation and context to guide them through.

The importance of such elements in documentation was outlined in a study conducted by Walters and Beck, which compared “primary” and “secondary” computer manuals. “Primary” manuals are the manufacturer’s documentation included with the product, while “secondary” manuals are independent “how-to” books often sold in retail bookstores – a popular example being the “For Dummies” series. The study found that “all the texts integrate factors designed to support learning. They use techniques that encourage short- and long-term memory, invoke existing work schemas, build new schemas, and make text processing easier” (Walters and Beck 156). However, they also discovered that unlike in the primary manuals, in the secondary manuals:

[...] the writers provide a richer context by giving more examples for applying the software; the writers provide global and structural frameworks; the writers use persuasive marketing techniques to ease the reader’s anxieties and remind them of the software’s benefits; and the writers identify themselves. (Walters and Beck 156)

They conclude that “these differences have the common effect of creating a stronger bond between writer and reader” (156). This demonstrates how primary documentation can be improved by following the example of the secondary manuals, such as by including more context – informing the user of *why* they would want to perform an action, rather than simply *how*.

Primary manuals are notable for generally being more formal than secondary manuals, so incorporating more personal, humanizing elements may be met with some resistance. However, scholar Edward A. Malone argues that “technical communicators need to be aware of and make accommodations for their audiences, but the influence of traditional forms and conventions can limit audience adaptation in unproductive ways,” adding that “technical communicators should

sometimes consider media, formats, and delivery methods that are not typically associated with technical communication” (Malone 58).

Lauren LaLonde and Amy Turbin utilize this method of including context with instructions in their user guide “Adding Feedback in Electronic Editing: Using the Commenting Feature of Microsoft Word to Edit a Memo”, which is specifically aimed at students of technical writing. On the first page, opposite the table of contents, they include two paragraphs, respectively titled “Scenario: editing a memo” and “The commenting feature in Microsoft Word: enabling efficient, communicative editing.” The former section explains why one would want to have an editor comment on a memo, such as the case when “the editor will want to show why certain changes have been made and identify areas that need further development” (1). The latter section describes why this feature in particular is useful and also defines the goal of the document itself: “This tutorial illustrates how the commenting tool can be beneficial to technical and professional communication students for editing documents, specifically memos” (1). Even beyond the introduction, the guide consistently provides context for each action; each section begins with a paragraph of context before giving step-by-step instructions. For example, the section detailing how to insert a comment to explain minor changes begins with “Whether you have substituted a word, rearranged sentences or corrected grammar within the memo, its author will more than likely want to know why” (3). These additional paragraphs may not add technical information, but they provide the user with context and motivation, features that research has proven to improve usability.

Such features are especially important in regards to older users. Seniors have more difficulty than younger people in following instruction manuals due to a variety of reasons, including visual and cognitive problems as well as a distrust or misunderstanding of technology.

Loorbach et al theorized that adding motivational elements to an instructional manual would increase the success rate of its users. Using subjects aging from 60-70 years old, they confirmed their hypothesis, as those using the manual with motivational elements were able to operate the product (in this case, a cell phone) with greater success than the control group. Although the study was conducted with seniors, the conclusion can be more broadly applied, as the researchers contend that “a focus on audience motivation is needed to create effective technical communication,” and therefore “technical writers should strive to write instructions that stimulate users to put enough effort into actually achieving their goals” (343). Again, the research supports the idea that user-focused design results in more effective documentation.

Likewise, Van Horen et al’s study “Manuals for the elderly: which information cannot be missed?” further examined the difficulties seniors face with instruction manuals. The researchers began by identifying four crucial types of information in user documentation: the goal, the action, the consequence (what happens once an action is performed correctly), and the starting point (the required state before the action should be performed). They then researched how the presence or absence of any of this information would affect older users as compared to younger users. Overall, the older users performed worse on all tasks, supporting the idea that “elderly people indeed have more problems when working with a manual than other age groups” (Van Horen et al 428). Part of the reason for this, they discovered, was that younger people are better able to infer information, possibly as a result of being more familiar with technology in general. However, both age groups suffered from the lack of consequence information, causing the researchers to conclude that users of all ages “need information that helps them check to see whether they performed an action correctly or incorrectly so they know whether they can move on to the next step in a procedure” (Van Horen et al 429). LaLonde and Turbin consistently

provide consequence information, such as when, after a step instructing the user to hit the “Insert Comment” button, the next step begins with “You should now have a comment window at the bottom of the document, with the cursor in this window” (5).

## Being Aware of Cultural Differences

In addition to age and skill level concerns, the culture of the audience should also be considered. This is more important in the current technological age than ever, since “the use of computers, especially the Internet, has only heightened the necessity of working and communicating with people from different cultures” (Johnson-Sheehan 28). When writing cross-cultural documentation, a writer must be mindful of differences in audience expectations. For instance, “in Arabic cultures, documents rely on repetition to make their points,” and therefore “to Arabs, American documents often seem incomplete because they lack this repetition” (Johnson-Sheehan 33). Arabic and Asian cultures may also find American directness to be off-putting (Johnson-Sheehan 33-35).

Even visual elements, which one might consider to be fairly universal, can actually be culturally-based. A study conducted by Wang Qiuye set out to examine the universality of graphics in technical communication, asking “Are pictures universal or are they culturally specific?” (553). The study compared popular science articles and instruction manuals – all intended for a general audience – from the U.S. and China. The study concluded that “when communicating to the Chinese reader, technical communicators should use visuals and text that provide an overview or context,” whereas “when communicating to the American reader, the technical communicator should be direct and focused. In an instruction manual, the emphasis should be on performing tasks” (Qiuye 559). Due to these conflicting values, a truly universal

user guide may be an unrealistic goal, but a writer should still keep in mind that the culture of the audience can affect a document's usability.

## Conclusion

Instructor Roy Tennant notes that when teaching technical subjects, "it can help sometimes to not be too far ahead of those you seek to teach," because in his experience he "knew in rather vivid detail what they must be thinking and experiencing" (96). While this may seem counter-intuitive, it speaks to the importance of understanding the user experience. Remaining cognizant of the user throughout the creation of a document drastically improves usability, as "being able to visualize the context in which [your document] will be read and used can often guide you in deciding not only what to say but also how to organize the information and arrange it on the page" (Tebeaux and Dragga 15).

From the outset, the writer must identify his or her audience. Age, culture, and skill level are three of the primary demographics to consider. Age and culture will determine how to present information, while skill level will determine how much information to present. Even if the audience is broad, being mindful of the different demographics contained therein prevents a writer from alienating certain groups of users.

Managing the cognitive load of users is crucial, as overwhelming them can lead to frustration, confusion, and failure. Features such as glossaries or keys help in this regard. In addition, research proves that repeating concepts using the same construction, as opposed to rephrasing them, can reduce the user's cognitive load while navigating the document.

Providing context and motivation are also key factors in maximizing usability. It can be easy to overlook these factors, since they do not contribute to the factual content of a document. However, since the goal of user documentation is to provide information that enables users to perform a task, keeping users motivated is important. Studies show that users perform tasks with a greater success rate if the documentation includes motivation elements and explains *why* the user would perform an action, in addition to *how*.

Finally, the writer must be aware of cultural differences that exist in the realm of technical communications, because “more than ever, technical communicators are involved in global communication, which requires them to reach out to readers who do not share their background” (Qiuye 559). If a document is intended to cross cultural boundaries, the varied expectations and values of different cultures must be taken into account throughout the document’s creation.

End-user documentation does not exist in a vacuum, and so only has value as it relates to its users. Therefore adopting a user-centered approach throughout the writing process is the best way for documentation to achieve maximum usability. In the end, the user experience will determine the success or failure of user documentation.

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