From the moment you know enough to talk about a product—any product, whether it’s hardware, software, games, or Web pages—you know too much to be able to tell if the product would be usable for a human being who doesn’t know what you know. As Jakob Nielsen, one of the major proponents of usability in product design, puts it, “Your best guess is not good enough” (10). Bad guesses or misguided hunches are the reason usability came into the world: first as an effort to stem the rising tide of complaints about designs that didn’t work for users, then as a discipline that encompasses many areas, including computer science, cognitive science, engineering, psychology, and technical communication. The aim of the discipline is to set aside the developers’ knowledge about products and put in its place knowledge about users. Thus, the watchword for the discipline, which goes by many names, is user-centered design, a term that encompasses human factors, ergonomics, information architecture, instructional design, software engineering, and usability. Although representatives from these various disciplines may claim responsibility for one area or another of the development of the product, all must embrace the philosophy of user-centered design and work together to create products that work for real users performing real tasks to attain real goals. This book is about the part that usability testing plays in the user-centered design process.

How Did We Get Here?

The history of usability and its place in user-centered design is a short, but rapidly expanding one. Although work in human factors (or ergonomics, as it is more commonly called in Europe) got its start during World War II as a result of specialists’ study of human interaction with new tools and technology operating on land, at sea, and in space, the focus of attention initially was on improving the efficiency of existing systems and human interaction with them. The Human Factors and Ergonomics Society was formed in 1957 with the International Ergonomics Association formed shortly afterward in 1959. Human–computer interaction interest didn’t come until later in the 1970s, following the introduction of mainframe computers into commercial use in the 1960s. In 1960 there were 2000 computers in the United States. By 1970 there were 125,000 and by 1985 there were close to 500,000, following the introduction of the Apple II in 1978, the IBM PC in 1981, and the Apple Macintosh in 1984 (Landauer 14; Schriver 42). The Internet had its start in the 1960s but the World Wide Web didn’t come into use until the early 1990s.
As the 1980s saw the rapid expansion of computer use in offices and homes, interest in computer–human interaction emerged, tying together the fields of computer science, graphic design, psychology, and technical communication. Two breakthrough works, appearing one year apart, introduced the concept of a design methodology that focused on the user, rather than the technology: Gould and Lewis (1985) described the principles that came to be recognized as the basis for user-centered design, and Norman and Draper edited a collection of essays called User Centered System Design (1986). At the same time, new organizations were forming that addressed the issues associated with usability. In addition to the Human Factors and Ergonomics Society (HFES), four other organizations with overlapping interests in this area were established:

- SIGCHI: the Association for Computing Machinery (ACM) Special Interest Group on Computer–Human Interaction (formed in 1982)
- SIGDOC: the Association for Computing Machinery (ACM) Special Interest Group on Documentation (formed in 1983)
- UPA: the Usability Professionals’ Association (formed in 1991)
- Usability SIG of STC: the Society for Technical Communication’s Special Interest Group on Usability (formed in 1992)

**Where Do You Fit into This Field?**

Your interest in this subject could come from your interest in any of the many overlapping disciplines that have a hand in making usable products. You could be in the field of computer science, cognitive science or psychology, human factors engineering, or any of the other engineering disciplines. You could be a technical communicator, information developer, or information architect. You could be a Web developer or graphic designer. Or you could be a content specialist in science, medicine, health care, environmental issues, or a myriad of other areas where information and products touch people’s lives.

If you’re a student pursuing a degree in any of these fields, this book will help you understand the process of usability testing, give you the principles and the tools to practice usability testing, and, hopefully, give you the inspiration and motivation to advocate usability in the companies and organizations you will join after graduation.

If you’re a professional in any of the disciplines described earlier, you may already be doing usability testing. For you, this book provides a systematic approach to expand what you already do, as you work to incorporate usability testing into a user-centered design process. If you are a member of a usability team or a cross-functional team, your team may want to read the book as a source for new ideas, supported by current research in usability testing methodologies. If you haven’t already participated in a usability test but you want to learn how to do it, this book will provide the groundwork to help you get started.
The chapter organization is as follows:

1. What Is Usability and What Is Usability Testing
2. Other Methods for Getting Feedback about Product Usability
3. User and Task Analysis
4. Iterative Testing for User-Centered Design
5. Planning for Usability Testing
6. Preparing for Usability Testing
7. Conducting the Usability Test
8. Analyzing and Reporting Results
9. Web Usability

Appendix: Making It Work as a Team

Depending on your interest in the subject and your current knowledge and experience, you may want to read the book chapter by chapter, or you may want to skip around. Some advice about how to take either approach follows.

**If You’re a Student or New to the Field**

If you’re a student or new to the field of usability testing, you will most likely want to begin at the beginning of the book and progress through each chapter. The first chapter provides you with an introduction to usability, usability testing, and user-centered design, and to some basic terminology to understand how usability testing can be done with or without a lab or in the user’s home or business. It also provides you with information that documents the ways in which usability testing can be cost-justified by showing the savings from usability testing as well as the costs of not testing.

Following this foundation, which provides a working vocabulary for the chapters that follow, Chapter 2 presents other methods used to get feedback from users. Although some call these other methods usability testing, most see them as part of a usability engineering lifecycle contributing to a user-centered design process, with usability testing being one part of the process. As user-centered design is a multistage process, this chapter provides information about some of the other methods used.

Chapter 3 provides information at the heart of the process of building user-centered design products: understanding the user and the user’s tasks. You will learn methods for performing this vital investigation into user and task analysis. Armed with this information about who your users are and what their goals are with the product, you can begin developing and testing products that are user-centered. Chapter 4 demonstrates how testing should not be viewed as a once-and-done activity, but should be seen, instead, as an iterative process, repeated throughout the development of the product. Techniques for incorporating iterative testing into the design process are presented, and you will learn what can be discovered at each phase in the design and which approaches work best in different phases.
While the first half of the book establishes the basis for user-centered design activities, the second half focuses on the planning, preparation, and activities of a usability test. Chapters 5, 6, and 7 focus on these testing plans and actions. Examples from both student projects and client projects support the guidelines provided. Using these, you should be able to put together your own test plan and organize the tasks for testing so that the testing days go smoothly and produce results that can be turned into actions for product improvement. Chapter 8 provides guidance on ways to report the results to your organization, including oral, written, and videotaped reports. The last chapter looks at the hot topic in usability today: Web usability. Although discussions of usability issues affecting the Web are included throughout the book, this chapter turns the spotlight on the research findings and special issues regarding Web testing and Web usability.

If you’re going to be doing usability testing as a member of a team, you will want to read the Appendix, probably before the team meets for the first time, as it can give you some important guidelines on how to be an effective team member and have a productive and satisfying team experience.

If You’re Already Familiar with Usability Testing

If you’re already familiar with usability testing or perhaps have done some of the steps in a user-centered design process, you may want to skip the first chapter. If your main interest is putting together a plan for conducting a test, you may want to go directly to Chapters 5, 6, and 7. If you’re going to be doing usability testing as a member of a cross-functional team, you should read the Appendix, and you may want to encourage your team members to also read this information. If, however, your main interest is Web testing, you will probably want to begin with the last chapter and then move back into the chapters on planning, preparing, and conducting a usability test, followed by the chapter on reporting the results, as these chapters contain examples about Web usability testing projects.

What Are the Special Features of This Book?

The special features of this book are these:

- A broad approach to usability testing that places the subject within a user-centered design process
- Relevant, up-to-date research to support the underlying assumptions and guidelines with an overall view of applying the relevant research to the development of a useful process
- A focus on iterative design and testing, including paper prototyping and “discount” usability testing that emphasizes frequent, inexpensive testing as the core of a user-centered design process
- Student and professional examples of all phases of planning, preparing, conducting, and reporting results
Special attention given to issues and examples of interest to technical communicators, including examples from paper and online documentation, tutorials and help, and computer-based training

An extended case with examples of a Web-based product

Sidebars throughout the book with examples, stories, and anecdotes (both serious and humorous), illustrating usability issues

Checklists, photographs, and line drawings to illustrate the methods and approaches for testing in different situations

A separate chapter on Web usability and Web-testing issues for those with a particular interest in this topic

End-of-chapter summaries with links to the information of the next chapter in “Coming Up” sections

End-of-chapter references to sources cited in each chapter, which can be used for additional reading and reference

End-of-chapter discussion questions and exercises, which can be used in the classroom, training room, or team meetings

**Additional Resources**

Depending on your needs and interests, you may find either or both of the following additional resources helpful to you.

**Companion Web Site**

A companion Web site, located at www.ablongman.com/barnum will supply you with additional information as well as new information. Whether you are a student, working professional, or instructor, you should check the Web site for supplementary information, including downloadable forms and templates, additional usability test reports, additional photographs of laboratory set-ups, tutorials for videotape editing, a top-10 list of usability resources, and links to useful Web sites and relevant professional organizations.

Because the field of usability testing is continually evolving, the companion Web site will also include the most recent and relevant new resources, as well as provide highlights of new findings. By checking the Web site regularly, you can keep up with the latest developments in this rapidly growing field.

**Instructor’s Manual**

To support new instructors in the field of usability testing, as well as provide some ideas for seasoned instructors, an instructor’s manual is available. It includes sample syllabi for a semester-length and quarter-length course. It also includes suggested approaches for structuring assignments related to the development of a test plan and conducting a usability test, plus additional ideas for teaching assignments, as well as strategies for teaching the course via the Internet. Suggested responses and general guidelines for using some of the end-of-chapter exercises are also provided.
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References