

Jeffrey Rubin and Dana Chisnell

Foreword by Jared Spool

Handbook of Usability Testing



How to
Plan, Design,
and Conduct
Effective Tests

S E C O N D E D I T I O N

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Second Edition

How to Plan, Design, and Conduct Effective Tests

Jeff Rubin
Dana Chisnell



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Design, and Conduct Effective Tests

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Dedicated to those for whom usability and user-centered design is a way of life and their work a joyful expression of their genuine concern for others.

—Jeff

To my parents, Jan and Duane Chisnell, who believe me when I tell them that I am working for world peace through user research and usability testing.

—Dana

About the Authors

Jeff Rubin has more than 30 years experience as a human factors/usability specialist in the technology arena. While at the Bell Laboratories' Human Performance Technology Center, he developed and refined testing methodologies, and conducted research on the usability criteria of software, documentation, and training materials.

During his career, Jeff has provided consulting services and workshops on the planning, design, and evaluation of computer-based products and services for hundreds of companies including Hewlett Packard, Citigroup, Texas Instruments, AT&T, the Ford Motor Company, FedEx, Arbitron, Sprint, and State Farm. He was cofounder and managing partner of The Usability Group from 1999-2005, a leading usability consulting firm that offered user-centered design and technology adoption strategies. Jeff served on the Board of the Usability Professionals Association from 1999-2001.

Jeff holds a degree in Experimental Psychology from Lehigh University. His extensive experience in the application of user-centered design principles to customer research, along with his ability to communicate complex principles and techniques in nontechnical language, make him especially qualified to write on the subject of usability testing.

He is currently retired from usability consulting and pursuing other passionate interests in the nonprofit sector.

Dana Chisnell is an independent usability consultant and user researcher operating UsabilityWorks in San Francisco, CA. She has been doing usability research, user interface design, and technical communications consulting and development since 1982.

Dana took part in her first usability test in 1983, while she was working as a research assistant at the Document Design Center. It was on a mainframe office system developed by IBM. She was still very wet behind the ears. Since then, she has worked with hundreds of study participants for dozens of clients to learn about design issues in software, hardware, web sites, online services, games, and ballots (and probably other things that are better forgotten about). She has helped companies like Yahoo!, Intuit, AARP, Wells Fargo, E*TRADE, Sun Microsystems, and RLG (now OCLC) perform usability tests and other user research to inform and improve the designs of their products and services.

Dana's colleagues consider her an expert in usability issues for older adults and plain language. (She says she's still learning.) Lately, she has been working on issues related to ballot design and usability and accessibility in voting.

She has a bachelor's degree in English from Michigan State University. She lives in the best neighborhood in the best city in the world.

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From Jeff Rubin

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- Terri Hudson from Wiley, who initially suggested I write a book on this topic.
- Ellen Mason, who brought me into Hewlett Packard to implement a user-centered design initiative and allowed me to try out new research protocols.

For this second edition, I would like to acknowledge:

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- The staff of The Usability Group, especially to Ann Wanschura, who was always loyal and kind, and who never met a screener questionnaire she could not master.
- Last, thanks to all the clients down through the years who showed confidence and trust in me and my colleagues to do the right thing for their customers.

From Dana Chisnell

The obvious person to thank first is Jeff Rubin. Jeff wrote *Handbook of Usability Testing*, one of the seminal books about usability testing, at a time when it was very unusual

for companies to invest resources in performing a reality check on the usability of their products. The first edition had staying power. It became such a classic that apparently people want more. For better or worse, the world still needs books about usability testing. So, a thousand thank-yous to Jeff for writing the first edition, which helped many of us get started with usability testing over the last 14 years. Thanks, too, Jeff, for inviting me to work with you on the second edition. I am truly honored. And thank you for offering your patience, diligence, humor, and great wisdom to me and to the project of updating the *Handbook*.

Ginny Redish and Joe Dumas deserve great thanks as well. Their book, *A Practical Guide to Usability Testing*, which came out at the same time as Jeff's book, formed my approach to usability testing. Ginny has been my mentor for several years. In some weird twist of fate, it was Ginny who suggested me to Jeff. The circle is complete.

A lot of people will be thankful that this edition is done, none of them more than I. But Janice James probably comes a close second. Her excellent technical review of every last word of the second edition kept Jeff and me honest on the methodology and the modern realities of conducting usability tests. She inspired dozens of important updates and expansions in this edition.

So did friends and colleagues who gave us feedback on the first edition to inform the new one. JoAnn Hackos, Linda Urban, and Susan Becker all gave detailed comments about where they felt the usability world had changed, what their students had said would be more helpful, and insights about what they might do differently if it were their book.

Arnold Arcolio, who also gave extensive, specific comments before the revising started, generously spot-checked and re-reviewed drafts as the new edition took form.

Sandra Olson deserves thanks for helping me to develop a basic philosophy about how to recruit participants for user research and usability studies. Her excellent work as a recruiting consultant and her close review informed much that is new about recruiting in this book.

Ken Kellogg, Neil Fitzgerald, Christy Wells, and Tim Kiernan helped me understand what it takes to implement programs within companies that include usability testing and that attend closely to their users' experiences.

Other colleagues have been generous with stories, sources, answers to random questions, and examples (which you will see sprinkled throughout the book), as well. Chief among them are my former workmates at Tec-Ed, especially Stephanie Rosenbaum, Laurie Kantner, and Lori Anschuetz.

Jared Spool of UIE has also been encouraging and supportive throughout, starting with thorough, thoughtful feedback about the first edition and continuing through liberal permissions to include techniques and examples from his company's research practice in the second edition.

Thanks also go to those I've learned from over the years who are part of the larger user experience and usability community, including some I have never met face to face but know through online discussions, papers, articles, reports, and books.

To the clients and companies I have worked with over 25 years, as well as the hundreds of study participants, I also owe thanks. Some of the examples and stories here reflect composites of my experiences with all of those important people.

Thanks also go to Bob Elliott at Wiley for contacting Jeff about reviving the *Handbook* in the first place, and Maureen Spears for managing the “developmental” edit of a time-tested resource with humor, flexibility, and understanding.

Finally, I thank my friends and family for nodding politely and pouring me a drink when I might have gone over the top on some point of usability esoterica (to them) at the dinner table. My parents, Jan and Duane Chisnell, and Doris Ditner deserve special thanks for giving me time and space so I could hole up and write.

Foreword

Hey! I know you!

Well, I don't know you personally, but I know the type of person you are. After all, I'm a trained observer and I've already observed a few things.

First off, I observed that you're the type of person who likes to read a quality book. And, while you might appreciate a book about a dashing anthropology professor who discovers a mysterious code in the back of an ancient script that leads him on a globetrotting adventure that endangers his family and starts to topple the world's secret power brokers, you've chosen to pick up a book called *Handbook of Usability Testing, Second Edition*. I'm betting you're going to enjoy it just as much. (Sorry, there is no secret code hidden in these pages—that I've found—and I've read it four times so far.)

You're also the type of person who wonders how frustrating and hard to use products become that way. I'm also betting that you're a person who would really like to help your organization produce designs that delight its customers and users.

How do I know all these things? Because, well, I'm just like you; and I have been for almost 30 years. I conducted my first usability test in 1981. I was testing one of the world's first word processors, which my team had developed. We'd been working on the design for a while, growing increasingly uncomfortable with how complex it had become. Our fear was that we'd created a design that nobody would figure out.

In one of the first tests of its kind, we'd sat a handful of users down in front of our prototype, asked each to create new documents, make changes, save the files, and print

them out. While we had our hunches about the design confirmed (even the simplest commands were hard to use), we felt exhilarated by the amazing feedback we'd gotten directly from the folks who would be using our design. We returned to our offices, changed the design, and couldn't wait to put the revised versions in front of the next batch of folks.

Since those early days, I've conducted hundreds of similar tests. (Actually, it's been more than a thousand, but who's counting?) I still find each test as fascinating and exhilarating as those first word processor evaluations. I still learn something new every time, something (I could have never predicted) that, now that we know it, will greatly improve the design. That's the beauty of usability tests—they're never boring.

Many test sessions stand out in my mind. There was the one where the VP of finance jumped out of his chair, having come across a system prompt asking him to “Hit Enter to Default”, shouting “I've never *defaulted* on anything before, I'm not going to start now.” There was the session where each of the users looked quizzically at the icon depicting a blood-dripping hatchet, exclaiming how cool it looked but not guessing it meant “Execute Program”. There was the one where the CEO of one of the world's largest consumer products companies, while evaluating an information system created *specifically for him*, turned and apologized to me, the session moderator, for ruining my test—because he couldn't figure out the design for even the simplest tasks. I could go on for hours. (Buy me a drink and I just might!)

Why are usability tests so fascinating? I think it's because you get to see the design through the user's eyes. They bring something into the foreground that no amount of discussion or debate would ever discover. And, even more

exciting, is when a participant turns to you and says, “I love this—can I buy it right now?”

Years ago, the research company I work for, User Interface Engineering, conducted a study to understand where usability problems originate. We looked at dozens of large projects, traipsing through the myriad binders of internal documentation, looking to identify at what point usability problems we'd discovered had been introduced into the design. We were looking to see if we could catalogue the different ways teams create problems, so maybe they could create internal processes and mechanisms to avoid them going forward.

Despite our attempts, we realized such a catalogue would be impossible, not because there were too many causes, but because there were too few. In fact, there was only one cause. Every one of the hundreds of usability problems we were tracking was caused by the same exact problem: someone on the design team was missing a key piece of information when they were faced with an important design decision. Because they didn't have what they needed, they'd taken a guess and the usability problem was born. Had they had the info, they would've made a different, more informed choice, likely preventing the issue.

So, as fun and entertaining as usability testing is, we can't forget its core purpose: to help the design team make informed decisions. That's why the amazing work that Jeff and Dana have put into this book is so important. They've done a great job of collecting and organizing the essential techniques and tricks for conducting effective tests.

When the first edition of this book came out in 1994, I was thrilled. It was the first time anyone had gathered the techniques into one place, giving all of us a single resource to learn from and share with our colleagues. At UIE, it was our bible and we gave hundreds of copies to our clients, so they'd have the resource at their fingertips.

I'm even more thrilled with this new edition. We've learned a ton since '94 on how to help teams improve their designs and Dana and Jeff have captured all of it nicely. You'll probably get tired of hearing me recommend this book all the time.

So, read on. Learn how to conduct great usability tests that will inform your team and provide what they need to create a delightful design. And, look forward to the excitement you'll experience when a participant turns to you and tells you just how much they love your design.

—Jared M. Spool, Founding Principal, User Interface
Engineering

P.S. I think there's a hint to the secret code on page 114. It's down toward the bottom. Don't tell anyone else.

Preface to the Second Edition

Welcome to the revised, improved second edition of *Handbook of Usability Testing*. It has been 14 long years since this book first went to press, and I'd like to thank all the readers who have made the *Handbook* so successful, and especially those who communicated their congratulations with kind words.

In the time since the first edition went to press, much in the world of usability testing has changed dramatically. For example, “usability,” “user experience,” and “customer experience,” arcane terms at best back then, have become rather commonplace terms in reviews and marketing literature for new products. Other notable changes in the world include the Internet explosion, (in its infancy in '94) the transportability and miniaturization of testing equipment, (lab in a bag anyone?), the myriad methods of data collection such as remote, automated, and digitized, and the ever-shrinking life cycle for introducing new technological products and services. Suffice it to say, usability testing has gone mainstream and is no longer just the province of specialists. For all these reasons and more, a second edition was necessary and, dare I say, long overdue.

The most significant change in this edition is that there are now two authors, where previously, I was the sole author. Let me explain why. I have essentially retired from usability consulting for health reasons after 30 plus years. When our publisher, Wiley, indicated an interest in updating the book, I knew it was beyond my capabilities alone, yet I did want the book to continue its legacy of helping readers improve the usability of their products and services. So I suggested to Wiley that I recruit a skilled coauthor (if it was possible to find one who was interested and shared my sensibilities for the discipline) to do the heavy lifting on the second edition.

It was my good fortune to connect with Dana Chisnell, and she has done a superlative job, beyond my considerable expectations, of researching, writing, updating, refreshing, and improving the *Handbook*. She has been a joy to work with, and I couldn't have asked for a better partner and usability professional to pass the torch to, and to carry the *Handbook* forward for the next generation of readers.

In this edition, Dana and I have endeavored to retain the timeless principles of usability testing, while revising those elements of the book that are clearly dated, or that can benefit from improved methods and techniques. You will find hundreds of additions and revisions such as:

- Reordering of the main sections (see below).
- Reorganization of many chapters to align them more closely to the flow of conducting a test.
- Improved layout, format, and typography.
- Updating of many of the examples and samples that preceded the ascendancy of the Internet.
- Improved drawings.
- The creation of an ancillary web site, www.wiley.com/go/usabilitytesting, which contains supplemental materials such as:
 - Updated references.
 - Books, blogs, podcasts, and other resources.
 - Electronic versions of the deliverables used as examples in the book.
 - More examples of test designs and, over time, other deliverables contributed by the authors and others who aspire to share their work.

Regarding the reordering of the main sections, we have simplified into three parts the material that previously was spread among four sections. We now have:

- **Part 1: Overview of Testing**, which covers the definition of key terms and presents an expanded

discussion of user-centered design and other usability techniques, and explains the basics of moderating a test.

- **Part 2: Basic Process of Testing**, which covers the how-to of testing in step-by-step fashion.
- **Part 3: Advanced Techniques**, which covers the who?, what?, where?, and how? of variations on the basic method, and also discusses how to extend one's influence on the whole of product development strategy.

What hasn't changed is the rationale for this book altogether. With the demand for usable products far outpacing the number of trained professionals available to provide assistance, many product developers, engineers, system designers, technical communicators, and marketing and training specialists have had to assume primary responsibility for usability within their organizations. With little formal training in usability engineering or user-centered design, many are being asked to perform tasks for which they are unprepared.

This book is intended to help bridge this gap in knowledge and training by providing a straightforward, step-by-step approach for evaluating and improving the usability of technology-based products, systems, and their accompanying support materials. It is a "how-to" book, filled with practical guidelines, realistic examples, and many samples of test materials.

But it is also intended for a secondary audience of the more experienced human factors or usability specialist who may be new to the discipline of usability testing, including:

- Human factors specialists
- Managers of product and system development teams
- Product marketing specialists
- Software and hardware engineers
- System designers and programmers
- Technical communicators

- Training specialists

A third audience is college and university students in the disciplines of computer science, technical communication, industrial engineering, experimental and cognitive psychology, and human factors engineering, who wish to learn a pragmatic, no-nonsense approach to designing usable products.

In order to communicate clearly with these audiences, we have used plain language, and have kept the references to formulas and statistics to a bare minimum. While many of the principles and guidelines are based on theoretical and practitioner research, the vast majority have been drawn from Dana's and my combined 55 years of experience as usability specialists designing, evaluating, and testing all manner of software, hardware, and written materials. Wherever possible, we have tried to offer explanations for the methods presented herein, so that you, the reader, might avoid the pitfalls and political landmines that we have discovered only through substantial trial and error. For those readers who would like to dig deeper, we have included references to other publications and articles that influenced our thinking at www.wiley.com/go/usabilitytesting.

Caveat

In writing this book, we have placed tremendous trust in the reader to acknowledge his or her own capabilities and limitations as they pertain to user-centered design and to stay within them. Be realistic about your own level of knowledge and expertise, even if management anoints you as the resident usability expert. Start slowly with small, simple studies, allowing yourself time to acquire the necessary experience and confidence to expand further. Above all, remember that the essence of user-centered design is clear (unbiased) seeing, appreciation of detail, and

trust in the ability of your future customers to guide your hand, if you will only let them.

—Jeff Rubin

Part I

Usability Testing: An Overview

Chapter 1: What Makes Something Usable?

Chapter 2: What Is Usability Testing?

Chapter 3: When Should You Test?

Chapter 4: Skills for Test Moderators