Designing the **iPhone** User Experience

A User-Centered Approach to Sketching and Prototyping iPhone Apps

Suzanne Ginsburg

Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and the publisher was aware of a trademark claim, the designations have been printed with initial capital letters or in all capitals.

The author and publisher have taken care in the preparation of this book, but make no expressed or implied warranty of any kind and assume no responsibility for errors or omissions. No liability is assumed for incidental or consequential damages in connection with or arising out of the use of the information or programs contained herein.

The publisher offers excellent discounts on this book when ordered in quantity for bulk purchases or special sales, which may include electronic versions and/or custom covers and content particular to your business, training goals, marketing focus, and branding interests. For more information, please contact:

U.S. Corporate and Government Sales (800) 382-3419 corpsales@pearsontechgroup.com

For sales outside the United States, please contact:

International Sales international@pearson.com

Visit us on the Web: informit.com/aw

Library of Congress Cataloging-in-Publication Data

Ginsburg, Suzanne.

Designing the iPhone user experience : a user-centered approach to sketching and prototyping iPhone apps / Suzanne Ginsburg.

p. cm.
Includes index.
ISBN 978-0-321-69943-5 (pbk.)
1. iPhone (Smartphone)—Programing. 2. Application software—Development. I. Title.
QA76.8.I64G56 2010
005.1—dc22

2010021718

Copyright © 2011 Suzanne Ginsburg

All rights reserved. Printed in the United States of America. This publication is protected by copyright, and permission must be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise. For information regarding permissions, write to:

Pearson Education, Inc. Rights and Contracts Department 501 Boylston Street, Suite 900 Boston, MA 02116 Fax: (617) 671-3447

ISBN-13: 978-0-321-69943-5 ISBN-10: 0-321-69943-2

Text printed in the United States on recycled paper at Courier in Kendallville, Indiana. First printing, August 2010

Editor-in-Chief Karen Gettman

Senior Acquisitions Editor Chuck Toporek

Managing Editor John Fuller

Full-Service Production Manager Julie B. Nahil

Copy Editor Barbara Wood

Indexer WordWise Publishing Services

Proofreader Christine Clark

Technical Reviewers Marion Buchenau, Nancy Frishberg, Patrick Jean, Christian Rohrer, Mirjana Spasojevic, Mike Shields, Brian Arnold, Dan Grover, and August Trometer

Editorial Assistant Romny French

Interior Design and Composition Bumpy Design

Cover Designer Chuti Prasertsith

Contents

Preface xv We'd Like to Hear from You xxvii Acknowledgments xxix About the Author xxxi
PART ONE: iPhone Application and Device Overview 1
Chapter 1: iPhone Application Overview 3
Utility Apps4Minimal Setup4Simple Layouts and Flows5Standard User Interface Elements5Utility App Tour5Productivity Apps7Hierarchical Structure7Accelerators and Shortcuts8Productivity App Tour9Immersive Applications12Focus on the Content13Customized User Experience14Immersive App Tour17
Chapter 2: iPhone Device Overview
Reviewing the iPhone and iPod Touch's Features20Multi-Touch Display21Supported Gestures22Custom Gestures22Keyboard23Light, Proximity, and Motion Sensors27Ambient Light Sensor27Proximity Sensor27Motion Sensor27Motion Sensor27Location and Compass Information29Location Information29
Compass

Bluetooth 30
Still and Video Cameras 31
Image Capture 31
Image Enhancement 32
Image Recognition 33
Microphone and Speaker 33
Summary

PART TWO: Defining Your iPhone App 37			
Chapter 3: Introduction to User Research	39		
Common User Research Questions	40		
What Will I Learn?	40		
How Is Up-front User Research Different from Usability Research?	42		
How Much Is This Going to Cost Me?	42		
Two Weeks Is Still Too Long; What Are My Alternatives?	42		
Shadowing and User Interviews	43		
Shadowing	43		
Field Interviews	45		
Interviews with Subject Matter Experts	45		
Phone Interviews	46		
Street Interviews	46		
Focus Groups	47		
Documenting User Interviews	47		
Notes	47		
Still Camera	48		
Audio	48		
Video	48		
Diary Studies	49		
Choosing a Research Method	53		
No Clear App Concept	53		
Rough App Concept	54		
Existing App	54		
Planning Your Research	54		
Purpose and Objective	55		
Study Dates	56		
User Profiles	56		
Methods	57		
Questions for Research	58		
Roles	58		
Equipment	59		
Report Contents	60		

Recruiting	 60
Screener	 61
Number of Participants	 62
Compensation	 63
Facilitating Interviews	 63
Ask Open-Ended Questions	 64
Look for Concrete Examples	 64
Probe What's Not There	 65
Capture Relevant Artifacts	 65
Wrap-up and Debrief	 66
Related Research Activities	 67
Summary	 67
Chapter 4: Analyzing User Research	 69
Share the Wealth	70
Analyze Notes	 70
Handwritten Notes	 71
Transcripts	 71
Verbatim Notes	 72
Document Implications and Ideas	 74
Report Findings	 75
Methodology and Goals	 75
Team Members	 76
Participant Profiles	 76
Findings	 76
Presenting the Findings	 79
Create Design Tools	 79
Personas	 80
Scenarios	 82
User Journeys	 85
Revise the Product Definition Statement	 86
Summary	 86
Case Study 1: Windspire	 88
Case Study 2: Aardvark Mobile	 90
Chapter 5: Evaluating the Competition	 93
Benefits	 94
Best Practices	 94
What to Avoid	 94
Needs Alignment	 94
Inspiration	 95
Apps to Include	 95

Methods
Needs Alignment Charts 95
Two-by-Two Diagrams 97
Heuristic Evaluations
Competitive Usability Benchmarking 102
Choosing a Method 105
Impact on the Product Definition Statement 106
Summary 107

Creating a Design-Friendly Environment 112 Set Aside Enough Time 114 Have an Agenda 114 Provide Inspiration 115 Capturing Ideas 116 Select Promising Ideas 117 Additional Sketching Examples 126 What If I'm Working on an App with Few Visuals to Sketch?..... 128 How Much of My Design Time Should Be Devoted to Case Study 4: Not For Tourists 132 Why Prototype?..... 138

0
Communicate Design Ideas 138
Common Questions
How Many Variations Should I Prototype?
How Much of the App Should I Prototype? 139
What If the Designs Aren't Completely Worked Out?
What If My Support Content Isn't Finalized?
What Is the Appropriate Level of Fidelity? 140
What Should I Do Before I Start Prototyping? 141
Prototyping Approaches 142
Paper Prototypes 143
Static Images on the Device 148
Interactive on the Device 151
Video Prototypes 152
The iPhone SDK 156
Summary 157
Case Study 6: Prototyping at Dan4, Inc 158
Case Study 7: What's Shakin' 160
Chapter 8: Usability-Testing App Concepts
What Is Usability Testing? 164
Why Usability Testing? 164
Help Resolve Known Design Issues 164
Uncover Unknown Design Issues 165
Set a Baseline for Future Study 165
Set a Dasenne for Future Study
Gather Information for the Next Release
Gather Information for the Next Release165Get Stakeholder Buy-In165
Gather Information for the Next Release165Get Stakeholder Buy-In165Role of Context166
Gather Information for the Next Release165Get Stakeholder Buy-In165Role of Context166Usability-Testing Methods167
Gather Information for the Next Release165Get Stakeholder Buy-In165Role of Context166Usability-Testing Methods167Traditional Usability Testing167
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170Study Dates and Times171
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170Study Dates and Times171User Profile171
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170Study Dates and Times171User Profile171Method171
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170Study Dates and Times171Method171Questions for Research171
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170Study Dates and Times171User Profile171Method171Roles171
Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170Study Dates and Times171User Profile171Questions for Research171Prototype Supplies172
Gather Information for the Next Release165Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170Study Dates and Times171User Profile171Method171Questions for Research171Prototype Supplies172Equipment and Location172
Gather Information for the Next Release165Gather Information for the Next Release165Get Stakeholder Buy-In.165Role of Context166Usability-Testing Methods167Traditional Usability Testing167The RITE Method167Paper Prototype Testing168Usability-Testing Timeline169Planning Usability Tests169Purpose and Objective170Study Dates and Times171User Profile171Method171Questions for Research171Prototype Supplies172Equipment and Location173

Drafting the Discussion Guide 174
Introduction (5 Minutes) 174
Background Interview (15 Minutes) 175
Tasks (40 Minutes) 175
Follow-up Questions (10 Minutes) 175
Wrap-up (5 Minutes) 175
Pilot Session 177
Facilitating Usability Tests 178
Be Encouraging 178
Ask Open-Ended Questions 178
Know When to Stop 179
Analyzing Usability Tests 179
Presenting Usability Findings 180
Guerrilla Usability Testing 181
Coffee Shop Testing 181
Walk-up Testing 182
Common Ground Testing 182
Beta Testing 183
Cast a Wider Recruiting Net 183
Ask for More Structured Feedback
Provide an Incentive
Choosing an Approach 184
Summary 184
Case Study 8: REALTOR.com 186

PART FOUR: Refining Your iPhone App 189

Chapter 9: User Interface Design	. 191
User Interface Best Practices	192
1. Be Welcoming	192
2. Know Thy User	194
3. Let the Content Shine	196
4. Make Selections Fast and Error-Free	199
5. Provide Appropriate Feedback	201
6. Minimize the Pain	205
User Interface Q&A	207
Which Productivity Style Should I Use?	207
How Should I Present Tasks on the Productivity-Style Detail View?	209
How Do I Choose the Right Control?	210
Back-End UI Checklist	215
Summary	217
Case Study 9: Sonos	218
Case Study 10: FlightTrack	220

Chapter 10: Visual Design 223	;
The Importance of Visual Design	ł
Attract Users	ł
Improve Usability	ł
Delight Users	ł
When Should Visual Design Begin? 224	ł
Visual Structure	;
Grouping	5
Hierarchy	7
Alignment)
Color)
Differentiation)
Emphasis	2
Classification	3
Туре	ł
Typefaces	ł
Type Size	5
Type Weight	5
Icons and Other Imagery 237	7
Tab Bar Icons239)
Toolbar and Navigation Bar Icons 241	l
Other Contexts	3
Summary 245	;
Case Study 11: USA TODAY 246	5
Case Study 12: Voices	3
Case Study 13: Convertbot 250)
Chapter of Dranding and Advertising	,
Chapter 11: Branding and Advertising 253)
What Is Branding? 254	ŀ
Distinctiveness	Ł
Relevance	;
Memorability	;
Extensibility	;
Depth	,
Brand Expressions	7
Naming	7
Trademarks	3
Branding via the User Experience)
Mobile Advertising Formats	L
Advertising Integration Tips 263	\$
Summary	\$

Chapter 12: Accessibility and Localization
Accessibility
Built-in Accessibility Features
VoiceOver
Custom Accessibility Solutions
Internationalization and Localization
Language
Dynamic Content
Culture
Local Laws
Summary
Looking to the Future
Handheld Forms Will Evolve 276
Mobile Payments Will Become Ubiquitous
Health Care Monitoring and Delivery Will Improve
Environmental Monitoring Will Lead to Scientific Discoveries 278
Privacy Issues Will Come to a Head
Conclusion
Index

Preface

With over 200,000 apps in the App Store, it has become increasingly challenging for app designers and developers to differentiate their apps. The days are long gone when it was possible to crank out an app over the weekend and refine it *after* receiving a few not-so-flattering user reviews. Users now have choices—lots of them. If your app is difficult to use or doesn't meet their needs, finding another one is just a tap away.

To illustrate, consider the ever-growing field of Twitter clients. There are hundreds of variations in the App Store, but only a handful stand out from the pack (such as Tweetie and Twitterific). For most apps, it boils down to one thing: the user experience. The same is true for countless other categories within the App Store; well-designed apps are more likely to attract and retain users. Of course there are other critical aspects of iPhone app development: the coding, the marketing, the customer support. All of the elements must come together.

Designing the iPhone User Experience will help you tackle the user experience part of the iPhone challenge. Three key themes will be reinforced throughout the book: know thy user, the design life cycle, and attention to detail.

Know Thy User

Millions of people depend on iPhone apps to get them to work, find their next meal, and stay in touch with family and friends. Professionals of all kinds also rely on iPhone apps: Doctors look up drug interactions; photographers fine-tune lighting; cyclists find the best routes. To truly understand how apps can fit into their lives, designers and developers must learn how users do things today, what's important to them, and what needs have not been met. **FIGURES P.1–P.5** illustrate contextual observations from field interviews, an effective way to uncover user needs. Part Two, "Defining Your iPhone App," will introduce a variety of user research methods.



FIGURE P.1 Child using an iPhone in the yard. It's his mother's phone, but he uses it almost as much as she does! (*Courtesy of Alison* Oshinsky)



FIGURE P.2 The contents of a user's handbag help show how the iPhone fits into the person's life. This person has two phones to keep her work and personal lives separate. (*Courtesy of Michael Massie*)



FIGURE P.3 iPhones aren't just for young people. This lady quickly learned how to use her grandson's iPhone. (*Courtesy of David Pegon*)



FIGURE P.4 A cyclist incorporated the iPhone into his biking routine. (*Courtesy of Marcus Kwan*)



FIGURE P.5 A Volkswagen Beetle owner converted the bud vase into an iPhone holder. (*Courtesy of Nathan Barry, njb@mac.com*)

The Design Life Cycle

Award-winning designs rarely happen overnight; they usually occur only after many rigorous design cycles. To illustrate, **FIGURE P.6** shows how USA TODAY went through at least seven iterations for the article view in its app. These kinds of iterations should happen *before* you launch your app; doing so will save valuable time and money. More important, you may have only one chance to impress your users—you do not want to sell them half-baked ideas.

Part Three, "Developing Your App Concept," will explain how to iteratively design and test your app concepts.



FIGURE P.6 Progression of USA TODAY's article view. Chapter 10, "Visual Design," includes a case study about the USA TODAY iPhone app design. (*Courtesy of Mercury Intermedia*)

Attention to Detail

Most professionals know that attention to detail is important, but hundreds of apps fail to incorporate even the most basic design principles. This lack of attention is not merely an aesthetic issue (which is important); it also affects the way apps function. For example, a news article without proper alignment is difficult to read, and a poorly rendered icon is challenging to interpret. Apps with a razor-sharp attention to detail stand out because they look good *and* perform well.

Part Four, "Refining Your iPhone App," will show you how to make your app shine, from visual design and branding to accessibility and localization.

Mastering these three areas—know thy user, the design lifecycle, and attention to detail—will help set your app apart from the crowd. You may not have an award-winning app overnight, but knowing your users, iterative design, and attention to detail are important first steps.

Audience for This Book

This book is intended for anyone who wants to improve an existing iPhone app or create a new app.

Individuals new to the iPhone should start with Part One, "iPhone Application and Device Overview." This section of the book introduces important aspects of the iPhone and Apple's *iPhone Human Interface Guidelines* (known as the "HIG"). Although the overview will be helpful, you should download the iPhone HIG and read through it at least once so you can familiarize yourself with the terms, concepts, and design principles.¹ If you are already familiar with the iPhone's capabilities and the HIG, feel free to skip ahead to Parts Two, Three, and Four, which jump into product definition, prototyping, and usability testing.

To learn how the book may benefit your specific role, read the following highlights:

• Entrepreneurs

Many iPhone entrepreneurs wear more than one hat: developer, designer, product manager, and more! These individuals will appreciate the "guer-rilla" user research methods outlined in the book. They will also enjoy reading the case studies, which show how companies big and small approach user-centered design. As their companies grow, entrepreneurs can use this book to help build their own user experience team of iPhone designers and researchers.

• Developers

Developers who are new to user-centered design will learn how to bring users into their process, from up-front research to iterative design and usability testing. They may use this knowledge to run their own studies or to improve collaboration with designers and user researchers (e.g., internal or outsourced teams). Developers will also appreciate the best practices included throughout the book, particularly those outlined in Part Four, "Refining Your iPhone App."

• User experience professionals

Designers, researchers, and other user experience (UX) professionals will learn how to adapt a variety of user-centered design methods for the iPhone (e.g., how to prototype and test location-based apps). These individuals may be inspired by the range of sketching and prototyping examples in

^{1.} iPhone Dev Center, *iPhone Human Interface Guidelines*, http://developer.apple.com/iphone/library/documentation/UserExperience/Conceptual/MobileHIG/Introduction/Introduction.html#//apple_ref/doc/uid/TP40006556-CH1-SW1.

Part Three, "Developing Your App Concept." The best practices outlined in Chapter 9, "User Interface Design," will also be a valuable resource, particularly in the later design stages.

• Product managers

Product managers who work with iPhone designers and developers will find the book valuable on a number of levels. First, product managers may want to participate in up-front user research and usability studies, so it will be helpful for them to learn more about user-centered design methods. Second, product managers may want to understand the rationale behind certain app flow and user interface decisions. References to the HIG and usability principles will provide a common vocabulary and improve team collaboration.

• QA and customer care

Quality assurance (QA) and customer care team members can also benefit from this book. Understanding iPhone task flows and usability issues will help QA folks create test plans and customer care folks create support documentation. Additionally, these individuals may participate in team brainstorming and design review sessions. Having an understanding of the HIG and other iPhone best practices will help them contribute to these sessions.

Definitions

Before we delve into the book details, let's quickly review some design terminology. User experience design and user-centered design are most synonymous with the book's overarching goals:

• User experience design

According to Donald Norman, "User experience design [abbreviated to UX or UE] deals with all aspects of the user's interaction with the product: how it's perceived, learned, and used."² In the case of the iPhone, these "aspects" can include everything from the interaction and visual design to the app's performance.

• User-centered design

User-centered design (UCD) gives extensive attention to the needs, wants, and limitations of users at each stage of the design process. This book includes many user-centered design methods, but it's not exclusively dedicated to UCD.

^{2.} Donald Norman, The Invisible Computer: Why Good Products Can Fail, the Personal Computer Is So Complex, and Information Appliances Are the Solution (MIT Press, 1999).

• User interface design

Strictly defined, user interface (UI) design refers to the design of the "interface" between users and the underlying software. However, in reality, most UI designers think beyond this superficial level to create designs that meet users' needs.

• Interaction design

David Kelley, the founder of IDEO, defines interaction design this way: "Interaction design is using your technical knowledge in order to make it useful for people, to delight someone, to make someone get excited about the new technology they're using."³ Given its broad scope, this definition is most closely aligned to UX design.

• Information architecture

Information architecture (IA) is the categorization of information into a coherent structure. The term was popularized when vast web sites started cropping up during the dot-com boom. Many people use the term interchangeably with interaction design but the scope is arguably narrower.

What This Book Teaches You

This book provides an end-to-end overview of the user-centered design process, specifically for iPhone applications. After reading this book, you will know how to

- Conduct up-front user and competitive research to inform your app's vision statement, also known as the Production Definition Statement.
- Brainstorm, sketch, and prototype your app concepts. The prototypes covered take many different forms, from simple paper to scripted videos.
- Refine your app's user interface and visual design, using best practices based on established design principles.
- Make your app accessible to individuals with impairments, with specific attention to VoiceOver, the screen-reading software built into the iPhone.
- Localize your app's user experience with an emphasis on language, content, and culture.

While the book is focused on the iPhone and iPod Touch, many of the principles you will learn here can also be applied to user experience design for the iPad. For example, the research methods in Part Two, "Defining Your iPhone App," and sketching and prototyping in Part Three, "Developing Your App Concept," can also be applied to the iPad. Many sections in Part Four, "Refining Your iPhone

^{3.} Quoted in Bill Moggridge, Designing Interactions (MIT Press, 2007).

App," are also relevant; however, there are some new iPad user interface controls and transitions that are not covered in this book. To learn more, consider reading the *iPad Human Interface Guidelines*.⁴

How This Book Is Organized

This book is organized into four parts, which take you through the process of developing the Product Definition Statement for your app to prototyping and testing your designs with target users. The book concludes with best practices that cover key aspects of the user experience: the user interface, visual design, branding, accessibility, and localization. Case studies are included throughout the book to illustrate how other companies approach user experience design.

• Part One: "iPhone Application and Device Overview"

The chapters in this part provide the grounding and foundation you'll need for the rest of the book. You'll learn about the *iPhone Human Interface Guidelines*, as well as specifics about the iPhone hardware and what that means for application design teams.

• Chapter 1: "iPhone Application Overview"

This chapter reviews applications that clearly fit into Apple's three classic definitions—Productivity, Utility, Immersive—as well as apps that build upon principles set forth in the HIG. The chapter also provides advice on how to choose an application style.

• Chapter 2: "iPhone Device Overview"

Here we explore the iPhone device with an emphasis on the technologies and hardware that define the iPhone user experience, such as the multitouch display, motion sensors, and location information.

• Part Two: "Defining Your iPhone App"

The chapters in this part discuss the value of up-front research, with an emphasis on user research and competitive research. Case studies are given to illustrate how companies have put these methods into practice.

• Chapter 3: "Introduction to User Research"

This chapter reviews a variety of user research methods such as shadowing, field interviews, and diary studies and suggests ways to tailor these methods for your app.

^{4.} iPhone Dev Center, *iPad Human Interface Guidelines*, http://developer.apple.com/iphone/library/documentation/General/Conceptual/iPadHIG/Introduction/Introduction.html.

• Chapter 4: "Analyzing User Research"

This chapter has step-by-step advice on how to effectively analyze your user research. You'll also learn how your findings can be used to create valuable design tools such as personas, scenarios, and user journeys.

• Chapter 5: "Evaluating the Competition"

Here I introduce a variety of ways to conduct competitive user experience analyses and explain how your findings can help shape your Product Definition Statement.

• Part Three: "Developing Your App Concept"

Once armed with your up-front research findings, you'll learn how to translate these discoveries into design solutions for your own applications. In addition to sketching and prototyping, Part Three explains how to evaluate your app designs through usability testing.

• Chapter 6: "Exploring App Concepts"

This chapter starts by explaining how to create a design-friendly environment and hold effective brainstorming sessions. The remainder of the chapter discusses ways to illustrate and communicate your early design explorations.

• Chapter 7: "Prototyping App Concepts"

In this chapter, we look at a variety of iPhone prototyping approaches paper, software, and video—and I give suggestions for how to choose the best approach for your app.

• Chapter 8: "Usability Testing App Concepts"

A variety of usability testing methods—ranging from "traditional" tests to the Rapid Iterative Testing and Evaluation (RITE) method and guerrilla testing—are explored in this chapter. It also discusses beta testing and ways to enhance it with traditional usability methods.

• Part Four: "Refining Your iPhone App"

Although user testing is a critical part of the iterative design process, the book also reviews best practices that have emerged in the iPhone space, considering a variety of application styles and categories. Topics covered in Part Four include user interface design, visual design, branding, accessibility, and localization.

• Chapter 9: "User Interface Design"

In this chapter, I introduce user interface best practices that can be applied across many app types, covering topics such as the first-time user experience, personalization, and feedback. • Chapter 10: "Visual Design"

This chapter begins with a discussion of visual structure—grouping, hierarchy, alignment—then explores how color, type, and imagery can reinforce visual structure and create harmonious designs.

• Chapter 11: "Branding and Advertising"

This chapter focuses on ways to express your brand within your app's design. It also discusses mobile advertising and ways to integrate ads into your designs.

• Chapter 12: "Accessibility and Localization"

This chapter reviews accessibility on the iPhone, with specific attention to VoiceOver compatibility. Additionally, the chapter explains how to localize the user experience of your app, covering both built-in and custom solutions.

The book wraps up with a look to the future of the iPhone and how its evolution may impact the user experience.

Case Studies

Parts Two through Four contain iPhone app case studies, which show how different companies approach user experience design. Although the methods and tools vary from company to company, these organizations have at least one common goal: the desire to offer the best user experience possible. You'll learn how successful companies manage to deliver on this promise, and you may find ways to bring similar approaches into your own organization.

Here are some highlights from the 13 case studies:

• Case Study 1: Windspire (Chapter 4)

The Windspire app helps users determine whether they have enough wind for a turbine and how much money they could save with one. In the early design phase, the company conducted field research to understand the needs of potential customers.

• Case Study 2: Aardvark Mobile (Chapter 4)

The Aardvark iPhone app lets users ask friends and friends of friends for advice while on the go. The company involved users throughout the design and development process, from early-stage user interviews to late-stage alpha testing.

• Case Study 3: Foodspotting (Chapter 6)

Foodspotting is a visual local guide that helps users find dishes and earn points for spotting foods. Its creators used concept posters, paper prototypes, and simple on-screen prototypes to get user feedback.

• Case Study 4: Not For Tourists (Chapter 6)

NFT helps users navigate and explore cities like a local. Personas and scenarios helped focus the team on the app's core interactions. The scenarios were then used to create storyboards, which were translated into paper and on-screen prototypes.

• Case Study 5: MUSE (Chapter 6)

MUSE is an interface that visualizes your music library as a grid of dots; each dot is a track, and all tracks are playing. It was born out of a desire for a more right-brain tool for navigating music libraries and creating playlists.

• Case Study 6: Prototyping at Dan4, Inc. (Chapter 7)

Dan4 has experimented with many kinds of prototypes—paper, Keynote, video, and more. When choosing a prototype, the company factors in time, budget, and scope but also how the wider development team works and how the prototypes could be reused.

• Case Study 7: What's Shakin' (Chapter 7)

The What's Shakin' app is an egg shaker developed with OpenAL, a crossplatform 3D audio API. Over the course of designing the app, the inventors tested their prototypes with friends, musicians, and local bar patrons.

• Case Study 8: REALTOR.com (Chapter 8)

The REALTOR.com app is for individuals who are searching for a home. After several rounds of sketching and storyboarding, the design team created a paper prototype and conducted usability tests with prospective users.

• Case Study 9: Sonos (Chapter 9)

The Sonos iPhone app lets users access their wireless multi-room music system. In addition to internal design reviews, the team improved their design through usability tests with current Sonos customers, as well as iPhone users who had never heard of Sonos.

• Case Study 10: FlightTrack (Chapter 9)

The FlightTrack app is used to look up and monitor flight information. The initial designs went through several iterations before the team found a solution that effectively addressed their customers' needs.

• Case Study 11: USA TODAY (Chapter 10)

The USA TODAY app lets users access headlines, sports scores, weather, photos, and other content from *USA TODAY*. The final app's design came after dozens of rigorous design explorations.

• Case Study 12: Voices (Chapter 10)

The Voices app lets users record their voice and change it with filters (such as Chipmunk and Fun House). The Voices team paid close attention to app details, adding special touches such as a roving strobe light and quirky background music.

• Case Study 13: Convertbot (Chapter 10)

The Convertbot app is used to convert time, mass, currency, and more. Depth was a really important aspect of the visual design; there were many iterations to make the app "feel" like a real robot.

The case studies appear in the chapters to which they are most applicable and are provided to give you additional insight into how other developers and designers approach iPhone UI design.

NOTE

Some of the case studies have been edited to fit within the confines of the printed book; however, we have compiled full-text versions as a freely downloadable PDF file on the book's web site. To download the PDF, go to informit.com/ title/9780321699435 and click on the Extras tab.

Prototyping App Concepts

7

THE WORD PROTOTYPE comes from the Greek *protos*, which means "first," and *typos*, which means "impression." In the 1600s prototyping was used to describe the first impression from a printing press. Over time, its meaning has evolved to include the early forms of many things: automobiles, retail stores, home appliances. Perspectives on prototyping often differ depending on whom you ask—designer, developer, researcher. Regardless of the industry or discipline, I find it instructive to refer to Bill Moggridge's definition from *Designing Interactions*:¹

A representation of a design, made before the final solution exists.

This chapter looks at various iPhone prototyping approaches—paper, software, and video—and suggests how to choose the best approach for your app.

This chapter also includes case studies on prototyping at Dan4, Inc., and on the What's Shakin' iPhone app. Here you'll find insights into how the application design teams used prototyping to conceptualize their applications.

^{1.} Bill Moggridge, *Designing Interactions* (MIT Press, 2007).

Why Prototype?

Prototypes can help you solve design problems, evaluate designs, and communicate design ideas. These up-front activities can also expedite the development process, saving valuable time and money.

The most common estimate is that it's 100 times cheaper to make a change before any code has been written than it is to wait until after the implementation is complete.

-Jakob Nielsen²

SOLVE DESIGN PROBLEMS

Prototypes can be an efficient way to work through design problems before getting deep into coding. They can help address everything from higher-level conceptual issues to lower-level interactions. For example, imagine that you're creating a messaging app that will display a transition when users move messages from one folder to another: What is the optimal speed of the transition? What is the best form for the visual feedback? How do these two elements work together? Storyboards with directional arrows could illustrate the general concept, but an interactive prototype would be more effective at fine-tuning the solution.

EVALUATE DESIGN IDEAS

Prototypes are often used to evaluate design ideas—concepts, flows, and interactions—before investing development time. Evaluators may include the designer, design colleagues, and, of course, end users. Internal reviews can take a critique format or employ user-centered design methodologies such as heuristic evaluation, as discussed in Chapter 5, "Evaluating the Competition." Although internal reviews are tremendously valuable, they are no replacement for usability testing, which will be discussed in Chapter 8, "Usability-Testing App Concepts."

COMMUNICATE DESIGN IDEAS

Often prototypes are the only way to effectively communicate your app idea. In particular, apps that interact with the "real world"—location-aware apps, bar-code-scanning apps, voice recorders—must go beyond static screen designs to truly tell their stories. They need context: the people, places, and objects that are an integral part of the app.³ Similarly, immersive apps such as musical

^{2.} Jakob Nielsen, "Paper Prototyping: Getting User Data Before You Code," www.useit.com/ alertbox/20030414.html.

^{3.} Marion Buchenau and Jane Fulton Suri, "Experience Prototyping," *Proceedings of the 3rd Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques* (ACM, 2000).

instruments and games are considerably less compelling when presented in a static sketch format. Prototypes will take your app off the page and into a format that feels closer to the real thing. These may be presented within your company, shared with investors, or used to elicit feedback from users.

Common Questions

This section provides answers to common questions with regard to prototyping.

HOW MANY VARIATIONS SHOULD I PROTOTYPE?

Ideally, you should try to prototype a few divergent directions in the early design stages. As the design progresses, teams tend to get attached to one direction so it may be challenging to change course. Be sure to choose your prototype medium wisely—lower-fidelity options like paper make it easy to explore multiple directions, whereas some higher-fidelity tools tend to encourage incremental or superficial design changes.

HOW MUCH OF THE APP SHOULD I PROTOTYPE?

The scope of your prototype will depend on the design stage and your goals. At the onset of your project, it's beneficial to take a holistic approach to the prototype. This doesn't mean you must prototype every single screen and interaction, but you'll want to cover the primary scenarios identified in your up-front user research. In the middle to later design stages, you may return to prototyping to help resolve a particular flow or interaction issue. If you are creating a slideshow app, for example, you may want to fine-tune the transitions via a prototype.

WHAT IF THE DESIGNS AREN'T COMPLETELY WORKED OUT?

You don't have to wait until every aspect of the interface is completely worked out. It's fine to use *Wizard of Oz*⁴ techniques to demonstrate certain aspects of the app. *Wizard of Oz* techniques require a human to simulate app interactions. For example, let's say a usability participant wants to search restaurant listings on your app but you haven't coded search yet. With a *Wizard of Oz* approach, you could ask the participant to wait a moment while the app "processes" the request. In the meantime, you or one of your colleagues could search for the information and provide the results on the fly. In addition to uncovering usability issues, this approach could help you refine requirements before coding begins.

^{4. &}quot;Wizard of Oz Experiment," http://en.wikipedia.org/wiki/Wizard_of_Oz_experiment.

NOTE

The Lorem Ipsum web site (www.lipsum.com) has a generator to easily create filler text. The site also provides history on the origins of this practice.

WHAT IF MY SUPPORT CONTENT ISN'T FINALIZED?

Jared Spool recommends "Incredibly Intelligent Help"⁵ to simulate a help system. Essentially, when users tap on help, the human "computer" responds to their questions. This approach provides a relatively seamless experience and can also identify areas of the interface that need design improvements or support content. On the other hand, be conservative with *greeking*, the practice of including *lorem ipsum* and other filler text instead of real text. If the text is central to the user experience, include draft copy and then iterate based on user feedback.

WHAT IS THE APPROPRIATE LEVEL OF FIDELITY?

The fidelity of your prototype should match the design challenge at hand as well as the stage in the design process. For example, paper prototypes (FIGURE 7.1) can typically uncover most flow and terminology issues but are less successful when it comes to low-level interaction issues. This doesn't mean that paper prototypes should always be your starting point. As discussed later in the chapter, some apps may require a higher-fidelity prototype earlier on.

If you plan to present to company executives or investors, you should assess their comfort level with low- versus high-fidelity prototypes. Some individuals may view low-fidelity prototypes in a negative light since they can be "rough" in appearance. That said, if you want to convince them otherwise, consider how Jane Fulton Suri, a partner and creative director at IDEO, assesses whether a prototype is effective: "If it is [a good experience], people get so involved in the experience that they forget about the limitations of the prototype."



FIGURE 7.1 Paper prototype for a gaming app (Courtesy of Dennis Paiz-Ramirez, photographer)

^{5.} Quoted in Carolyn Snyder, Paper Prototyping (Morgan Kaufmann, 2003).

WHAT SHOULD I DO BEFORE I START PROTOTYPING?

Before you start prototyping, create app sketches, as discussed in Chapter 6, "Exploring App Concepts." If you haven't done so already, place these sketches in a high-level application flowchart. **FIGURE 7.2** illustrates an application flowchart for a dictionary app; notice how the legend includes symbols for supported gestures. A flowchart provides a holistic view of your app and serves as a blueprint for your prototype. In the early design stages, focus on the "happy paths" that represent typical scenarios, not ones that generate unusual error conditions.⁶ Edge cases can be added once you narrow down your concept.



FIGURE 7.2 High-level application flowchart for a dictionary app (Courtesy of Tony S. Kim)

Other points to keep in mind when working on your app flows are the following:

• Streamline, streamline, streamline.

As mentioned earlier, mobile users have limited time, so your app flows should be as succinct as possible without compromising usability. To that end, look for ways to combine or remove steps in multistep processes. For example, wizards are great for app setup and other linear processes (e.g., shopping checkout), but they can slow users down when used for frequent tasks, especially those with many optional items.

^{6. &}quot;Happy Path," http://en.wikipedia.org/wiki/Happy_path.

• Provide multiple ways to access information.

Users are often faced with dead ends, particularly when drilling down list views, but the app experience can be more fluid. For example, news article views could have cross-links to related articles, but many apps force users to navigate back to the original list view. Similarly, maps that contain points of interest (POI) should allow users to go directly to the POI, instead of requiring them to return to the corresponding list view.

• Keep users within context.

As much as possible, try to keep users within your app. Leaving your app means users will require additional time and effort to reorient themselves, increasing the likelihood that they will not return. For example, many apps force users to visit their web site for help via Safari. Unfortunately, if users can't easily refer to their original problem, the external help may be useless. If users *must* leave your app (e.g., for map directions), at least provide a warning. When users return to your app, they should see the last screen visited, known as "saving state."

Prototyping Approaches

TABLE 7.1 summarizes five different prototyping approaches, from low-fidelity paper prototypes to the iPhone SDK. As the iPhone app space continues to evolve, you may find other approaches well suited to your application space. Be creative— adapt these as needed and formulate your own prototyping strategy. For example, audio can be incorporated into all of the options via a recording or live voice-over.

Prototype	Strengths	Weaknesses
Paper	Cheap and fast. Good for identifying con- ceptual, flow, and terminology issues.	Difficult to show low-level interactions; harder to simulate information-rich apps.
Static images on device	Incorporates iPhone form factor. Good for addressing visual issues, e.g., text size.	Limited interaction possible; essentially click through screen to screen.
Interactive on device	Incorporates iPhone form factor and some level of interactivity.	Achieving desired interactivity can require a significant amount of time.
Video	Storytelling approach that provides con- textual information essential for location- aware and some immersive apps.	Can be time-consuming if many itera- tions are needed. Less suitable for usability testing.
iPhone SDK	Code may sometimes be used for the final app design.	Can be costly and less malleable for up-front iterative design.

TABLE 7.1 Alternative iPhone App Prototyping Approaches

7. Todd Zaki Warfel, Prototyping: A Practitioner's Guide (Rosenfeld Media, 2009).

NOTE

For a broader discussion on prototyping (not iPhonespecific), consider reading Todd Zaki Warfel's *Prototyping: A Practitioner's Guide.*⁷

PAPER PROTOTYPES

Paper prototypes are essentially paper models of your iPhone apps (FIGURES 7.3–7.4). They can be used as a communication tool, but they are often developed for usability testing. In these situations the designer or developer plays "computer," hiding and showing user interface elements as needed. In contrast to electronic prototypes, Jared Spool, the founder of User Interface Engineering, describes paper prototypes the following way:⁸

We think of paper prototyping as the coarse-grain sandpaper and electronic-version testing as the fine grain. Once we've used the paper prototypes to validate what each screen contains and how it will work, we then move over to the electronic version to fine-tune the look and feel.



FIGURE 7.3 Paper prototype of a ride-sharing iPhone app (Courtesy of Alex Jameson Braman, Joseph Lau, and Andreas Nomikos)



FIGURE 7.4 Paper prototype of an iPhone with the Home screen (Courtesy of Steven Toomey)

^{8.} Jared Spool, "Looking Back at 16 Years of Paper Prototyping," www.uie.com/articles/looking_back_ on_paper_prototyping/ (July 2005).

Benefits

The benefits of paper prototypes range from quick iterations to improved collaboration:

• Quick iterations

Paper prototypes enable you to rapidly iterate and experiment with many ideas. The modest time investment makes it easier to throw away less promising directions.

• Inexpensive

Ordinary office supplies can be used for paper prototypes: Sharpies, Postits, printer paper. Most important, these up-front paper iterations can reduce costly changes on the development end.

• Collaborative

Paper prototypes do not require any technical skills; thus everyone (users, too!) can participate.

• Easy to edit

You or your users can edit paper prototypes on the fly (e.g., change labels, add screens, add buttons).

Issues to Explore

User experience issues often explored with paper prototypes include

• App concept

Do users understand your app's central concept?

• Workflows

Is the overall navigation clear? Are there too many steps to complete tasks?

• Information organization

Does the current organization match users' expectations?

• Terminology

Are the labels on tabs, screens, and buttons clear?

• Additional features

Over the course of evaluating your app, you may uncover additional features that users need. Users may vocalize these needs, or you may observe them trying to complete tasks not supported in the app. You may also learn which features users *don't* want, which could save valuable development time.

Challenges

As mentioned previously, paper prototypes are less suitable for refining low-level interactions such as transitions, scrolling, and swiping. They may also be less useful for certain classes of apps, such as musical instruments, videos, and games.

HOW TO DO IT

iPhone paper prototypes typically include the "device" and some combination of screens, overlays, and controls. Steps for creating paper prototypes are summarized in this section.

Step 1: Gather materials.

In the previous chapter we listed office supplies that can be used when brainstorming and sketching your app designs; these items are also useful for paper prototyping. In addition, you may want to have the following materials on hand: cardboard, removable tape, glue, correction fluid, and scissors.

Step 2: Determine the form factor.

At some point your designs will have to match the iPhone screen dimensions— 320×480 pixels (640×960 for iPhone 4)—but paper prototypes can be less exact. Using a larger form factor will make it easier for others to interact with the design (e.g., rearrange the layout and write in text fields).

Step 3: Create the prototype.

Your prototype will include a background, the screens, and the user interface controls. As you create the prototype, be sure your scenarios, as discussed in Chapter 4, and application flowchart are readily available.

Background

If your prototype is much larger than the iPhone, you may want to frame your designs with a cutout iPhone made with foam core or cardboard. This frame can help orient participants when usability-testing your app. Alternatively, if your prototype matches the iPhone dimensions, you can adhere it to the device, potentially making it "feel" closer to the real thing.

Screens

Your app screens can be hand-drawn or screenshots. Hand-drawn sketches tend to elicit high-level conceptual feedback, whereas screenshots may lead to low-level visual feedback. If possible, stick with one approach, not half hand-drawn screens and half screenshots. A few notable exceptions are photos, maps, and keyboards: Printing these out will save time, and they'll work fine when combined with hand-drawn sketches.

Prepare the Controls

This section includes tips on building standard controls for your paper prototype.

• Tab bar

Create highlighted and non-highlighted versions of tab states (**FIGURE 7.5**). Use text if you haven't decided on the appropriate tab icon.

• Keyboard

As mentioned earlier, you can use hand-drawn keyboard sketches or screenshots (**FIGURE 7.6**). It's not necessary to have the pressed state for each button, but pay attention to the default colors and special contextual keys such as those for web and email addresses.

• Sliders

Sliders can be created with a tiny piece of construction paper folded over a narrow strip of paper (FIGURE 7.7). If you're short on time, you can provide verbal feedback as the user moves a finger back and forth across the slider. This verbal approach can also be applied to progress bars (e.g., "Downloading 1 of 10").



FIGURE 7.5 Paper prototype with a tab bar



FIGURE 7.6 Sample sketch with a keyboard printout



FIGURE 7.7 Example of a slider (Courtesy of Angela Chiang, Andrew Hershberger, and Charles Naut)

• Text entry

For text entry, participants can write on Post-its or removable tape. Alternatively, they can use a pencil to write directly on the prototype. Be forewarned: Even with good erasing, if participants write too hard, your next user may see what the previous one wrote.

• Pickers

Pickers provide essentially the same function as drop-down lists on web or desktop applications (**FIGURE 7.8**). Given that they can include a large number of items, you may need a long strip of paper to display all of the options. The strip can be folded and tucked away when the user is not interacting with the picker.

• Highlight

Consider creating a highlight cutout that you can move up or down as the user makes selections (**FIGURE 7.9**). Another option is to buy transparent plastic sheets, which come in a variety of colors.

• Alerts

Consider using a different background color for your alerts. Make sure they don't completely obscure content that should be visible underneath (FIGURE 7.10).



FIGURE 7.8 Example of a time picker



FIGURE 7.9 Example of a highlight



FIGURE 7.10 Example of an alert overlay

• Segmented controls

Include different states of segmented controls, which are typically used for filters or sorts. Each state can show a different "segment" of the control highlighted. The segmented control in **FIGURE 7.11** lets users sort the list by Popularity, Rating, and Title.

1.1		1.0
A. F. M.	Mivie Finder,	Power Mary Co
1	POPULARITY PATING TITLE DECEMBER 15,2009 The Hangorea	POPULARITY RATING TITLE
el en	G-Force	

FIGURE 7.11 Segmented control example

Here are some additional elements you may need to include:

- Loading page indicator
- On/off versions for switches that work like radio buttons
- Check mark for selected items

Word of Caution

As discussed earlier, paper prototypes can improve collaboration and reduce costs. These benefits can occur only if the approach supports rapid iterative design.

With that in mind, try not to go overboard with your paper prototypes. For example, cutting tiny bits of paper for each key on a keyboard probably isn't necessary. Users generally understand how the keyboard works, so you can say things like "Imagine that the keyboard would display the text you entered."

Similarly, if you are preparing a prototype for a study, don't worry if you haven't created every single interface element users may expect—the beauty of paper is that you can always sketch the widget and add it on the fly.

STATIC IMAGES ON THE DEVICE

Once you have refined your overall concept and flows, you may want to create screen captures of your designs and display them on the iPhone. If you link the images with "hot spots," you can offer a more exploratory user experience since

NOTE

Apple's *iPhone Human Interface Guidelines* contain details on iPhone controls. In addition, some will be discussed in more detail in Chapter 9, "User Interface Design." no one needs to play the role of "computer" while switching out user interface elements. Moreover, the precise form factor may make it easier to refine visual design details such as type size, layout, and color.

HOW TO DO IT

To start, you'll want to create 320×480 images of your app screens. Many drawing programs have iPhone templates built into the software or available for download. Keep in mind that these templates do not have all of the user interface elements in the iPhone universe; developers often create controls that look and feel like standard controls, but they are actually custom-designed and custom-coded. If there's something you need that's not available, be prepared to sketch the desired solution. There are four drawing programs widely used by iPhone UI designers:

- OmniGraffle (see Graffletopia, www.graffletopia.com, for iPhone templates)
- Fireworks
- Photoshop
- Illustrator

I prefer OmniGraffle and Fireworks since the "page" framework translates well to iPhone screen design. Photoshop and Illustrator are excellent products, but the number of tools and options tends to overwhelm novice users. Three easy ways to view images on the iPhone are via the built-in slideshow, Safari, and LiveView.

Viewing via Built-in Slideshow

The downsides of the slideshow approach are the linearity—you can only swipe forward or back—and the presence of zoom and slideshow controls. On the plus side are speed and simplicity: Save your sketches in an acceptable iPhoto format, then add them to your iPhone photo collection. Be sure to include the status bar (battery and connection information) if it is part of your design.

Viewing via Safari

Another option is to create images with "hot spots" and display these images in Safari. With this approach, users can tap on rows and buttons just as they would with a real app. UNITiD design put together some scripts that enable you to disable zoom and view the images in full-screen mode. An easy-to-follow tutorial can be found on their web site.⁹

NOTE

Screens can be handdrawn, but it may be harder to fit them into the iPhone form factor.

^{9.} Matthijs Collard, "Prototyping for the iPhone using Fireworks," http://unitid.nl/2009/04/ prototyping-for-the-iphone-using-fireworks-cs3/ (April 2009).

LiveView

LiveView,¹⁰ created at IDEO Labs, allows you to view desktop designs from your iPhone (**FIGURE 7.12**). This can help you evaluate the app layout, type sizes, and other visual elements, but it's not possible to interact with the prototype. Additionally, LiveView must be accessed over WiFi, so the geographical range of your testing may be limited.



FIGURE 7.12 iPhone app viewed via LiveView, which was developed at IDEO (Courtesy of Marcin Ignac)

Word of Caution

Creating on-screen prototypes with static images isn't necessarily more effective than paper prototyping. Static images can't display alerts and control states, so you may need to create a hybrid prototype (e.g., onscreen plus paper overlays). Also, you can't simulate scrolling content with static images, but you can do so with paper.

^{10.} Gentry Underwood, "LiveView: An iPhone App for On-Screen Prototyping," http://labs.ideo.com/2009/01/20/liveview-an-iphone-app-for-on-screen-prototyping/ (January 2009).

INTERACTIVE ON THE DEVICE

Given the limitations of static image prototypes, you may prefer more interactive prototyping techniques. Before choosing this route, make sure you've evaluated all of the lower-fidelity options. If some aspects of your app, such as flows and layout, can be worked out on paper, start with paper before committing to an interactive prototype. I'm deliberately using the word *committing* because higher-fidelity prototypes have a tendency to become final designs.

Issues to Explore

You can explore almost any aspect of the user experience; it basically depends on how much time you want to put into the prototype. In contrast to static image prototypes, you can provide forms, transitions, and scrolling content. More important, given the portability of these prototypes, you can get out in the field and walk through your scenarios in context. Although this can be done with paper, the process is much easier with an interactive prototype on the device.

Challenges

Although interactive prototypes are powerful, there are still some aspects that differentiate them from the "real" experience. In particular, you will still likely need to fake the current location information, live data feeds, and the handling of interruptions (what happens when the connection is lost or disrupted?).

HOW TO DO IT

Interactive prototypes can be created with tools like Keynote or PowerPoint¹¹ (FIGURE 7.13), but specialized readers are required to display these on the iPhone.¹² On the other end of the spectrum are custom CSS solutions that are essentially web applications made to look like native iPhone applications. These prototypes can take a significant amount of time, though there are some tools like ProtoShare (FIGURE 7.14) that aim to simplify the process.¹³ Another solution that holds promise is Briefs, developed by Rob Rhyne.¹⁴ Briefs prototypes run on the iPhone, like actual apps, but take much less time to code and produce. Each "brief" contains a text file that references a series of static images organized into "scenes."

native-iphone-prototypes-with-protoshare/.

14. Briefs, http://giveabrief.com/.

NOTE

Flash is a powerful tool for creating interactive prototypes but you can't view Flash files on the iPhone.

^{11. &}quot;How to Mockup Your iPhone App with MockApp," http://mockapp.com/2009/10/12/ new-video-demo-how-to-mockup-your-iphone-app-with-mockapp/.

^{12. &}quot;Viewing Your MockApp Mockup on Your iPhone," http://mockapp.com/?s=goodreader.

^{13. &}quot;Native iPhone Prototypes with Protoshare," http://blog.protoshare.com/2009/06/17/





FIGURE 7.13 MockApp example of Google Wave (Courtesy of MockApp)¹⁵

FIGURE 7.14 ProtoShare example showing cover flow (Courtesy of ProtoShare)

Word of Caution

As mentioned in this section, it is possible to create prototypes that mimic nearly all of your app's features and functionality. This isn't a bad thing as long as the work can be accomplished within a reasonable time frame.

If you're spending an inordinate amount of time prototyping, perhaps you've gone beyond the rapid iterative testing "tipping point." In this case, reconsider what aspects of the prototype can be faked or explained to your audience the effort required for some user experience elements may outweigh the benefits.

VIDEO PROTOTYPES

Video prototypes are a powerful way to show app usage in context—the actors, the environment, concurrent activities, the passage of time. These contextual elements are particularly important for apps that interact with the real world: location-aware apps, remote controls, cooking aids. Additionally, immersive apps such as musical instruments or games may use video to show their apps in action. Although video prototypes can be used to elicit feedback via usability testing, they are typically created to evaluate and communicate design ideas. **FIGURE 7.15** shows a screen capture from a video prototype created for a caregiver app; the full video is available online.¹⁶

 [&]quot;Google Wave iPhone App Demo," http://mockapp.com/2009/10/19/google-wave-iphone-app-demo/.
 Eldia video, http://vimeo.com/2420799.



FIGURE 7.15 Prototype of Eldia app for caregivers (*Courtesy of Ujjval Panchal, Marcin Ignac, and Yu-Min Chen*)

Issues to Explore

Video prototypes are an effective way to explore and document how an app works in the real world. Examples of interactions that may be captured include

- Handling of the device while performing other activities
- Other people who impact the experience
- Interruptions that may influence the user

Harder to Explore

Some issues are less suitable for a video prototype. For example, if you want to explore low-level interactions in great detail, consider creating an interactive prototype that users can walk through at their own pace.

HOW TO DO IT

Video prototypes may seem like a significant undertaking, but the process can be relatively simple:

Step 1. Develop your script.

First, you'll want to develop a script for your video. If you created scenarios as discussed in Chapter 4, it shouldn't take long to write the script. Focus on the scenarios that show how the app is used in a contextual and realistic way. Also, include an introduction to set the stage, for example, who the characters are, where are they located, what their goals are.

Step 2. Sketch storyboards.

If you have already created storyboards for your app, you'll want to adapt them based on your script. You may discover that additional screens are needed to provide a seamless user experience.

Step 3. Create your prototype.

Your prototype can be paper, electronic, or whichever medium you find most effective. Be sure your screens, overlays, and so on are ready before you start shooting video.

Step 4. Film your prototype.

You don't need to purchase an expensive high-end camera to film your prototype. At a minimum, be sure your camera has solid zoom capabilities and a good microphone. If the microphone picks up too much background noise, you may want to rent or purchase a lavalier microphone that can be clipped onto the actor's shirt. Here are some additional video tips:

- Choose realistic locations; seek permission to shoot video as needed.
- Ask the main actor to "think aloud" so viewers know the "whys" behind his or her actions.
- Use a combination of environmental views and close-up app screen views.

Step 5. Edit your video.

There are dozens of video-editing tools on the market. For the purposes of your video prototype, something basic such as iMovie should be sufficient. Some additional editing tips are the following:

- If background information is necessary, remember to start with a voiceover to set the stage.
- Try to keep the final video under five minutes.
- Use fade in/out to indicate the passage of time.

Other Types of Video Prototypes

As mentioned in the previous section, video prototypes can also be an effective way to illustrate how immersive apps like games and musical instruments work. Gogogic, an online and iPhone game developer, uses animatics in its app development process. Animatics,¹⁷ a series of still images displayed in sequence, enable Gogogic to visualize the player experience before diving into coding. Additionally, animatics help prioritize the app requirements. According to Gogogic's CEO, Jónas Antonsson, "At Gogogic, the animatic is king" (FIGURE 7.16).

^{17. &}quot;Animatics," http://en.wikipedia.org/wiki/Animatic#Animatics.



FIGURE 7.16 Animatics Gogogic developed for the game Symbol6 (Courtesy of Gogogic)¹⁸

Word of Caution

As mentioned in this section, prototyping should be a relatively rapid process. Sure, you could spend weeks shooting and editing a production-quality video. However, for prototyping purposes, you'll want to "time-box" the effort put into the video.

If the video capture and editing take more than a week, consider an alternative strategy.

Another approach is to animate your scenario with cartoon-like characters as is done with the Xsights iPhone app (**FIGURE 7.17**). Services like GoAnimate provide tools and templates to help newbies create basic animations.



FIGURE 7.17 Animation developed for Xsights app (Courtesy of Xsights)¹⁹

^{18.} Gogogic, "Symbol6: How We Created an iPhone Game," http://gogogic.wordpress.com/2009/02/09/

symbol6-how-we-created-an-iphone-game/.

^{19.} Xsights video, www.xsights.com/index.php.

NOTE

Marcos Pianelli of Digital-Gourmet created a great app prototype with the iPhone SDK. You can view it on Vimeo: http://vimeo .com/5947546.

THE IPHONE SDK

Prototypes can be developed using the iPhone SDK within Interface Builder. While some design professionals may argue that "working code" is not prototyping, it really depends on the domain and the prototype complexity. For example, paper prototyping would be inadequate for exploring a musical instrument app. In this case, digging into Apple's Audio Library may be the most efficient way to experiment and figure out what's possible.

Almost any aspect of the user experience can be explored, but be careful how far you develop your prototype—if you become too invested in the design, you may be less likely to adapt it based on user feedback. Also, if your prototype isn't fully functioning, it will still be challenging to evaluate features such as location awareness and live data feeds.

HOW TO DO IT

Programming the iPhone user experience is too broad a topic to cover in this book. There are countless books and web sites on the topic. Some titles in the Addison-Wesley family that have been well received include

- Cocoa Programming for Mac OS X, Third Edition, by Aaron Hillegass (2008)
- The iPhone Developer's Cookbook: Building Applications with the iPhone 3.0 SDK, Second Edition, by Erica Sadun (2009)

Word of Caution

Once you dive into the iPhone SDK, it's typically harder to explore divergent design solutions. Prototyping within the SDK can be time-consuming, so your team may not want to "throw away" hours and hours of development work. As a result, they may be inclined to stick with the first approach and make smaller iterations. Moreover, keep in mind that the UI controls in the SDK may not be as comprehensive as you expect; many seemingly common controls are actually custom-coded.

If your coding skills are limited, you may choose a direction because it's easy, not because it's the best solution. Eventually you may have to make compromises, but this shouldn't happen on day one. In short, use the iPhone SDK for prototyping only if you've explored other options and determined that it is the most appropriate course.

Summary

Prototyping your iPhone app before coding will enable you to explore, evaluate, and communicate your design ideas. Through prototyping, you may uncover ways to improve the app concept, flows, terminology, and low-level interactions such as transitions.

This chapter discussed a variety of prototyping approaches, including paper, electronic, video, and even using Interface Builder and the iPhone SDK. The approach you choose will depend largely on the type of app, your design goals, and the project stage. Whatever you decide, keep these tips in mind:

- Try to explore divergent directions with your prototypes. It will be harder to change course once your app designs are coded.
- You don't have to prototype the *entire* user experience. Prototype only the areas that will help you explore the design issues under investigation.
- Prototypes don't have to be limited to the early design stages—use them to refine app issues that arise in the later stages.



CASE STUDY 6 Prototyping at Dan4, Inc.

DAN4 is a design practice dedicated to creating clear and engaging software applications, device interfaces, and multichannel services.



FIGURE CS6.1 Keynote prototype for a messaging platform. A video of the prototype and "how-to" information can be found at www.dan4.com/ prototyping.

How do you prototype at Dan4?

We use prototyping essentially three ways at Dan4. First, we see prototyping as a natural part of the design process, allowing us to capture, communicate, and manipulate our ideas—quickly and fluently. In a way, prototyping is designing. For us, creating prototypes is not a tangential task or a project luxury. It is simply good design practice.

Second, prototypes are useful props during user research and user testing. During the early days of a project when we are seeking insights and inspiration, prototypes can help stimulate responses from users that reveal opportunities or risks about a concept. After the research phase, we frequently user-test prototype designs, helping us identify design problems and validate our design decisions.

Last, we always look for opportunities to adapt and reuse our prototypes, for instance, to support formal design specification documents, where the prototypes are referenced during the development process. We've also used prototypes to help with marketing efforts, product demos, and investor presentations.

How do you choose your prototyping approach?

We factor in the usual constraints—time, budget, and scope—but also how the wider development team works and how the prototypes could be reused. For example, we will consider the tools being used, the development approach, workflows, and degree of project formality. From there, we choose the fidelity and the technology for the prototypes.

Can you provide some examples?

While working on a location-based messaging platform for small retailers and franchisees, we wanted to help

shopkeepers envision the richness of an iPhone interface. We felt that static, low-fidelity prototypes and mock-ups would not describe the user experience clearly. We opted to create a more experiential prototype, using Keynote [FIGURE CS6.1]. One of the useful things about Keynote for prototyping is that it offers many of the animations and transitions you see on the iPhone through Build Effects. It enables you to mimic the default UIKit transitions and animations and create more sophisticated behaviors involving fades, flips, zooms, ease-ins, and ease-outs that can be developed using Core Animation.

But sometimes low fidelity is fine. During an innovation workshop with a network security systems provider, we spent a half-day creating a very "quick and dirty" prototype. We wanted to communicate the overall product concept but also examine a hunch we had about the practicality of the proposition.

Using photos of pencil sketches, stop-frame animation, an ambient soundtrack, and sounds sourced from the Internet, we created a demonstration that helped the attendees, mostly software developers and managers, quickly gain a common understanding of the concept and an appreciation of the relevance of context of use [FIGURE CS6.2].

Any other advice on iPhone prototyping?

In our experience, it's best to try and start prototyping app concepts as soon as possible. We have found that prototypes are most effective when used to probe the underlying ideas and assumptions around the concept and elicit user insights that help teams figure out where to apply their effort.

Getting early input from others, especially from intended users and customers of the product, provides you with



FIGURE CS6.2 Sketch and video prototype for a network security app. A video of the prototype and "how-to" information can be found at www.dan4.com/prototyping.

information to support the early strategic decisions that set the project trajectory and strongly influence the end product.

Often it's better to create several simple prototypes that probe separate aspects of the product. For instance, the essential functionality and overall architecture could be prototyped and tested using paper wireframes or a simple interactive prototype. But the branding, look and feel, and interface behaviors may be better tested using static visual mock-ups or an animated walk-through.

Prototyping at its best is about creating tools that probe the right questions and enlighten the design—as long as it doesn't distract from other project tasks. It's just as important to know what to exclude from the prototype as it is to know what to keep in, always striving toward "as simple as possible, but no simpler."

(Images courtesy of Dan4, Inc.)



CASE STUDY 7 What's Shakin'

MATT PAUL is a founding member of start-ups big and small, such as StreetPrices, SeenON!, and the veritable TiVo of the web, StumbleUpon. Nowadays, as founder of mopimp productions, Matt is focused on the intersections of real time meets rhythm, and locationbased services meet game mechanics, but he freely admits that by the time this book comes to print, he might well be working on something else entirely.

How did you get started doing iPhone development?

I first got my feet wet developing for the iPhone in the summer of 2008 at iPhone Dev Camp 2 in which my hacka-thon team's app, Fwerps, won best app by a group of new/first-time Cocoa and iPhone SDK developers.

What inspired you to build What's Shakin'?

My friend Hunter Peress, an Android developer, and I thought it would be fun to collaborate on a cross-platform mobile app together. We started brainstorming around what we might find fun and would conceivably want to use ourselves. I had been known to dabble in drumming on and off over the last decade, whereas Hunter regularly performs as a hand percussionist; hence percussion was a natural area for us to explore.

The question remained, Could we make a realistic musical instrument that was played via dance and motion? We asked ourselves what instrument would lend itself best to our collaboration. We surmised it would be one that you could hold in your hands like a clave, a wood block, or an *egg shaker*—perfect!

What kind of competitive research did you do?

Over the course of development, I must have tried at least ten competitors. Some had nice visuals, some came with a good selection of instruments to pick from, but none of the lot did justice to the experience of playing an acoustic musical instrument; they simply lacked the responsiveness required. There was definitely an opportunity here to improve the state of the art.

How did you start the design?

Our initial approach was to emulate the sound created when you play an acoustic egg shaker by modeling the individual beads inside and their interactions with the





FIGURE CS7.1 What's Shakin' app

FIGURE CS7.2 What's Shakin' app in context

eggshell and one another. We quickly discovered that this approach would prove challenging. Sure, we could make some simplifying assumptions and disregard bead-bead interactions, but it would likely take a lot of time to get things right and a lot of computation to pull off in a realistic manner.

What did you try next?

Soon enough I realized that a hybrid approach leveraging OpenAL in conjunction with the device's accelerometer would be sufficient for our purposes. OpenAL is a crossplatform 3D audio API that allows developers to easily position sounds in 3D space and create sound effects such as the Doppler effect.

OpenAL afforded us plenty of control over the shaker's sound and gave us the ability to modulate it according to the user's style of play. We were even able to expose a parameter on the Settings page that allows the users to vary the number of beads in their egg shaker and produce a more staccato or "slushy" sound accordingly.

Were you able to get user feedback before launching?

First we tested it with our own music—Hunter used it with his Brazilian drums and I tried it while practicing my DJ set. Then we had lots of our friends test the app. On several occasions I would shake along to rehearsals of my roommates' band, The New Up, who practice in the adjacent room to my home office.

All of the feedback we received in-house was great, but I wanted to know how the app would work in the real world—could people hear it in a noisy bar? So I brought an early beta version down to a bar in North Beach. The most concrete takeaway was that the app's parameters needed to be configured a certain way to enable users to show off the app in a loud environment.

How did you know the app was done?

All summer long, my roommates were constantly subjected to hearing this comparison of plastic- versus silicon-based egg shaker technologies; I'm sure it drove them mad. One day, after numerous iterations, they could no longer tell if I was playing acoustic or using the app from the other room without running in to see for themselves—*that* was when I knew we had our emulation down pat and were ready to launch. [FIGURES CS7.1–CS7.2 show the final app.]

What's next for What's Shakin'?

We're very excited to continue building upon What's Shakin's launch and have made plans to add a greater selection of sounds for users to unlock, the ability for users to record and share their performances with an online community of fellow shakers, and leaderboard rankings and scoreboards so users can boast and brag about their past performances. The pie in the sky for us would be to create a Shaker Hero–esque franchise of games and levels for users to play. This page intentionally left blank

Index

Footnotes are indicated by an *n* and footnote number.

A

accelerators in Productivity applications, 8 accessibility, 265, 266-269 action sheets, 210 activating VoiceOver, 22 Ad Hoc Distribution, 183 Adobe Fireworks, 117 Adobe Illustrator, 149 Adobe Photoshop, 32, 149 advertising, 253 integration tips, 263 mobile formats, 261-262 affinity diagrams, 74-75 agendas for brainstorming sessions, 114 AirCoaster, 30 alerts, 147, 211 text, 204 alignment, visual design, 229-230 ambient light sensors, 27 ambiguity, sketching, 118 analysis data, presenting, 105 notes, 71-73 tools, 104 usability testing, 179-180 user experience (UX), 93. See also user experience (UX) user research, 69. See also research animations, 155, 201. See also video annotations, user interfaces, 193 applications (apps), 1 Convertbot, 15 defining, 37 Genius, 25 iConcertCal, 231 iHandy, 225 Immersive, 12-15 to include in user experience (UX) analysis, 95 Maps, 10, 199

More Cowbell, 15 native, 151 NYTimes, 201 overview of, 3 paper prototypes, 143-145 Postman, 31 Productivity, 7-12 prototyping, 137. See also prototyping refining, 189 scientific calculators, 72 SnapTell, 33 styles, selecting, 16–17 USA Today, 246–247 Utility, 4-6 Voice Memos, 15 Voices, 225 approaches to prototyping, 142-156 App Store, feedback, 165 artifacts, from user research relevant, capturing, 65-66 sharing, 70 artistic capabilities, 119 assertiveness, 58 audio capturing, 104 for interview documentation, 48 iPhone model specifications, 35 Audio Library, 156 augmented reality, 30

B

back-end checklists for user interfaces, 215–216 backgrounds colors, 147, 232 interviews, 175 paper prototypes, 145 user profiles, 57 Utility applications, 6 Balsamiq, 118 n7 baselining before development begins, 170 for future studies, 165 benchmarking competitive usability, 102 - 105benefits of benchmark findings, 103 of paper prototypes, 144 of sketching, 118-119 of user experience (UX) analysis, 94-95 best practices, 94 feedback, 201 user interfaces, 192-207 beta testing, 163n1, 183-184 Bluetooth, 30–31 Bookmarks, 195-196 bouncing animations, 202 brainstorming sessions, 113–117 supplies for, 112–113 Brand Gap, The, 254 Brand Handbook, The, 256 branding, 253 expressions, 257-263 overview of, 254-256 via the user experience, 259–261 Brown, Dan, 96 n2 built-in accessibility features, 266 Buley, Leah, 113 n1 Bump, 30 buttons Delete, 22 tap, 197 Buxton, Bill, 118n6, 119

C

caching strategies, 216 CameraBag, 32 cameras, 112 for interview documentation, 48 iPhone model specifications, 31 capturing audio, 104 data, 103–104 findings, 101 ideas, 116

images, 31-32 video, 104 case studies Aardvark Mobile, 90-91 Convertbot, 250–251 FlightTrack, 220–221 Foodspotting, 130–131 MUSE, 134-135 Not For Tourists, 132-133 Prototyping at Dan4, Inc., 158-159 REALTOR.com, 186-187 Sonos, 218-219 USA Today, 246–247 Voices, 248–249 What's Shakin', 160-161 Windspire, 88–89 cash payments, accepting, 277 characteristics of sketches, 118 charts flowcharts, 128 needs alignment, 95-96 tools, 104 Cheng, Kevin, 126 clarifications, field interviews, 51 classification, visual design, 233 code, working, 156 coffee shop testing, 181 cohesiveness of icons, 237 collaboration, 119 paper prototypes, 144 colors backgrounds, 6, 147, 232 internationalization, 271 visual design, 230-233 ColorSpash, 32 comics, 126 comments, permission to use, 44 common ground testing, 182 communicability of icons, 238 Communicating Design, 96n2 communication, design ideas, 138 compasses, 29-30 games, 30 turn-by-turn navigation, 29 compensation for research, 63 competition evaluating, 93 user experience (UX) analysis, 95-105

competitive usability benchmarking, 102 - 105concept development, 109, 111 brainstorming sessions, 113–117 design-friendly environments, 112-113 sketching, 117-127 concepts diagrams, 121–122 paper prototypes, 144 posters, 122-123 screens, 123-126 visual design, 224-225 concurrent activities, 101 connections, troubleshooting, 205 contact information, internationalization, 272 content Immersive applications, 13 loading, 216 reports, 60 support, 140 viewing, 196-197 context field interviews, 45 icons, 243 shadowing sessions, 43 of use, 40 users, keeping within, 142 controls paper prototypes, 145-148 segmented, 212, 232 selecting, 22, 210 video, 13 Convertbot application, 15, 194, 254 costs of paper prototypes, 144 of research, 42 Craigslist, recruiting from, 60 criticism in brainstorming sessions, 115 cropping images, 32 cultures, 271 curl transitions, 202 cursors, positioning, 22 customizing accessibility, 269 gestures, 22-23, 24 images, 32

keyboards, 23–27 screens, 149 segmented controls, 232 tab icons, 240 user experiences, 14

D

data capturing, 103-104 presenting, 105 dates, 171 study, 56 debriefing research sessions, 66 defaults, smart, 199 defining applications, 37 Delete button, 22 demographics, user profiles, 57 demos, optional, 194 depth, branding, 256 design best practices, 192–207 interfaces, 191 issues, resolution of, 164–165 issues, uncovering unknown, 165 prototyping, 138 tools, creating, 79-86 visual. See visual design design-friendly environments, creating, 112-113 Designing Interactions, 137 detail views, 244 Productivity applications, 7–8 development baselining, 170 concept, 109. See also concept development scripts, 153 SDK (software development kit), 156 Device Capabilities Framework, 20 devices, 1 Bluetooth, 30-31 cameras, 31-35. See also cameras compasses, 29-30 features, 20-21 interactive prototyping techniques, 151-152

location information, 29 multi-touch displays, 21-27 overview, 19 sensors, 27-28 static images on, 148-149 diagrams affinity, 74-75 concept, 121-122 two-by-two, 97 diary studies, 49-53 differentiation, colors used for, 230 discussion guides, drafting, 174-177 displays, multi-touch, 21–27 distance parameters, 216 distinctiveness, branding, 254 documentation, 98 diary studies, 50 implications and ideas, 74-75 interviews, 47-49 supporting, 183 double taps, 22 downloading animations, 201 drafting discussion guides, 174-177 Dragon Dictation, 50n4 drag, 22 drawing, 120. See also sketching duration of diary studies, 50 of research, 42–43 of shadowing sessions, 43 dynamic content, internationalization, 270-271

E

early-stage research, 170 easel Post-its, 113 edge case users, 57 editing images, 32 paper prototypes, 144 product definition statements, 86 video, 154 email, 9 *Emotional Design: Why We Love (or Hate) Everyday Things*, 95 n1 empathy, 58 emphasis, colors used for, 232 encouragement in brainstorming sessions, 115 enhancing images, 32 entering information, 199 text, 26. See also keyboards entities, 101 entries, text, 147 environments, 100 design-friendly, creating, 112-113 monitoring, 278 equipment usability testing, 172 user research, 59–60 error-free selections, 199 ethics, 183 eTrade stock screens, 226 evaluating competition, 93 design ideas, 138 methods, selecting, 105-106 user experience (UX) analysis, 95 - 105Evernote, 243 existing app concept, 54 expressions, branding, 257-263 extensibility, branding, 255

F

Facebook, 8, 9, 208 navigation bars, 230 trademarks, 258-259 facilitating interviews, 63-66 usability testing, 178-179 fade transitions, 202 fast selections, 199 Favorites, 195-196 features of devices, 20-21 of paper prototypes, 144 feature-specific research, 170 FedEx, 12 feedback, 109, 164 App Store, 165 best practices, 201 beta testing, 184 fidelity, levels of, 140

field-based studies, 166 field evaluations, 98, 100-101 field interviews, 45 analysis, 72 clarifications, 51 fields, Start, 199 filming prototypes, 154. See also video findings benchmarking, 103 capturing, 101 documentation, 101-102 reports, 75-79 Fireworks, 117, 149 flexibility, 59 Flickr, 230 flicks, 22 flip transitions, 202 Flixster, 243 flowcharts, 128 prototyping, 141 flows, Utility applications, 5 flow-specific research, 170 foam core, 113 focus groups, 47 follow-up questions, 175 fonts, 234 foreign languages, 25 forms, handheld form evolution, 276 Forms in Google Docs, 61 Forrest, Dr. Edward, 52 n6 Foursquare, 29 future environmental monitoring, 278 handheld form evolution, 276 health care monitoring and delivery, 277-278 mobile payments, 277 privacy, 278-279

G

games, 12 compasses, 30 playing, 14 generality of icons, 237 Genius application, 25 gestures customizing, 22–23, 24 supported, 22 getting started information, 192 Ginsburg Design, 51 global positioning system. See GPS Glyphish, 240 goals for brainstorming sessions, 114 of report findings, 75 of scenarios, 100 GoAnimate, 155 Google, 8 Maps, 64 Search, 34 Gowalla, 29, 260 GPS (global positioning system), 10 GPUs (graphical processing units), 20 graphics, OpenGL, 20 greeking, 140 grids, menus, 208 ground rules for brainstorming sessions, 115 groups focus, 47 visual design, 226-227 Guerrilla Marketing, 181 guerrilla usability testing, 181-183

Н

Handbook of Usability Testing, Second Edition, 166, 169n6 handheld form evolution, 276 handwritten notes for interview documentation, 47 research analysis, 71 Happy Path, 141 n6 header lists, 231 health care monitoring and delivery, 277-278 Helvetica fonts, 234 heuristics, 97n3, 98-99 capturing findings, 101-102 hierarchies Productivity applications, 7-8 visual design, 227-229 high-fidelity prototypes, 140 highlights, 147 Human Interface Guidelines (HIG), 1, 3

iBird Explorer Backyard, 34 iConcertCal applications, 231 icons internationalization, 271 navigation bars, 241 tab bar, 239-241 visual design, 237–245 ideas in brainstorming sessions, 115. See also brainstorming sessions capturing, 116 design, evaluating, 138 selecting, 117 **IDEO**, 140 iHandy application, 225 Illustrator, 149 images. See also cameras backgrounds, 6 capturing, 31–32 enhancement, 32 recognition, 33-35, 201 visual design, 237–245 immediacy of icons, 237 Immersive applications, 12–15 incentives, beta testing, 184 information applications, 11–12. See also productivity applications gathering for releases, 165 organization, paper prototypes, 144 in-line advertising, displaying, 261-262 alerts, 204 tasks, 209 inspiration, 95 for brainstorming sessions, 115 integration tips, advertising, 263 interactive prototyping techniques, 151 - 152Interface Builder, 232 typefaces, 234 interfaces annotations, 193 back-end checklists, 215-216 best practices, 192-207

design, 191

questions, 207-214 Utility applications, 5 visual design, creating, 225 internationalization, 270-273 international keyboards, 25 interstitial ads, 262 interviews analysis, 72 background, 175 clarifications, 51 documentation, 47–49 facilitating, 63–66 field, 45 open-ended questions, asking, 64 street, 46 with subject matter experts, 45 user research, 43-49 introductions, 174 iPhone Developer's Cookbook, The, Second Edition, 20 iPhone Stencil Kit, 119n9 iPod touch features, 20-21 iterations of paper prototypes, 144

I

journeys, users, 85

Κ

keyboards, 146 international, 25 messaging updates, 25 navigating, 23–27 search, 23 usability issues, 26-27 Keynote, 151 kickoff meetings, 169

L

laboratory evaluations, 98, 100-101 languages, 25, 41 internationalization, 270 launch screens, 243 laws, local, 273 layouts, Utility applications, 5 levels of fidelity, 140 Levinson, Jay Conrad, 181

libraries, Audio Library, 156 light sensors, 27–28 limited refinement, sketching, 118 LinkedIn, 30 lists headers, 231 items, number of, 216 predefined, 199 views, 243 views, Productivity applications, 7 - 8Little Springs Design web site, 172 LiveView, 149, 150 loading content, 216 localization, 265, 270-273 local laws, 273 locations of evaluation, 98 GPS-related information, 29 usability testing, 172 logging metrics, 102 software, 104 logos, 258 Lorem Ipsum web site, 140 low-tech method of capturing data, 103

Μ

Maps application, 10, 199 Marker Felt, 234 matches, suggesting, 199-200 McCloud, Scott, 126 media, viewing, 12, 14-15 meetings, kickoff, 169 memorability, branding, 255 memory, 20 menus, grids, 208 messaging updates, 25 methods evaluation, selecting, 105-106 prototyping, 142-156 report findings, 75 research, 57 research, selecting, 53-54 RITE (Rapid Iterative Testing and Evaluation), 167

usability testing, 167–168 user experience (UX) analysis, 95 - 105metrics, logging, 102 microphone applications, 33 minimal detail, sketching, 118 Mint, 12 mobile advertising formats, 261-262 mobile payments, 277 MockApp, 151 n11 models. See also prototyping paper, 143-145 scroll up, 198 Moggridge, Bill, 137 Mono Audio feature, 266 Monocle, 30 monograms, 259 More Cowbell application, 15 motion sensors, 27-28 moving animations, 202 multiple methods of access, app flows, 142 multi-touch displays, 21–27 custom gestures, 22-23 keyboards, 23–27 specifications, 21 supported gestures, 22

N

names, 194 naming branding, 257-258 internationalization, 272 native applications, 151 navigating GPS, 10 Immersive applications, 14–15 keyboards, 23-27 multi-touch displays, 21-27 Productivity applications, 8, 9-12 turn-by-turn navigation, 29 Utility applications, 5–6 navigation bars colors, 230 icons, 241 needs alignment charts, 95-96 networks, 101

Neumeier, Marty, 254 Nielson, Jakob, 98 no clear app concept, 53 nomenclature, 41 Norman, Donald, 95 n1 norms (typical social behaviors), 41 notes analysis, 71–73 for interview documentation, 47 null results, 217 number of participants in research, 62–63 NYTimes application, 201

0

objectives of research, 55–56 of usability testing, 170 Ocarina, 261 Olins, Wally, 256 OmniGraffle, 117, 149 open-ended questions, 64, 178 OpenGL graphics, 20 optional demos, 194 outcome of user research, 40–43 overlay alerts, 205

P

pain points, workflows, 40-41 Pandora, 34 panning, 22 paper prototypes, 143-145 testing, 168 Parachute Panic, 26 parameters, distance, 216 participants, recruiting, 173-174 Pastebot, 254 patience, 58 payments, mobile, 277 perception-related issues, 40 permissions, using comments or photographs, 44 personas, 80-82 photographs permission to use, 44 Photoshop, 32, 149 pickers, 147, 212

pilot sessions, 177–178 pinch close gesture, 22 pinch open gesture, 22 planning prototyping, 141 usability testing, 169–173 user research, 40-43, 54-60 points of interest (POI), 142 positioning, 29. See also GPS cursors, 22 hierarchies, 227–228 posters, concepts, 122-123 Postman application, 31, 193 post-roll ads, 262 PowerPoint, 151 predefined lists, 199 presentations, findings, 79 presenting data, 105 usability testing findings, 180-181 printing paper prototypes, 145 privacy, 278-279 shadowing, 43 probing questions, 65 processing animations, 201 product definition statements editing, 86 impact of competitive analysis on, 106 Productivity applications, 7–12 keyboards, 26 productivity styles, 207 product stages, 55 profiles report findings, 76 users, 56-57, 171 protocols, usability studies, 103 ProtoShare, 151 prototyping, 109 applications, 137 interactive techniques, 151–152 methods, 142–156 paper, 143-145 planning, 141 questions about, 139-142 reasons for, 138-139 supplies, 172 video, 152–155

Prototyping: A Practitioner's Guide, 142 proximity sensors, 27–28 purpose of research, 55–56 of usability testing, 170

Q

questions. *See also* interviews follow-up, 175 for online screeners, 62 open-ended, 64, 178 probing, 65 about prototyping, 139–142 for research, 57, 171 about sketching, 128–129 user interfaces, 207–214 Quicken, 12 QuickVoice, 34

R

RAM (random access memory), 20 random access memory. See RAM rapid iterative testing, 152 Rapid Iterative Testing and Evaluation (RITE) method, 167 Reamy, Michelle, 61, 76 Reamy Research and Design, 51 reasons for prototyping, 138-139 Recents section, 217 Recents tab, 200 recognition of images, 33-35, 201 recruiting for beta testing, 183 participants, 173-174 user research, 60–63 refining applications, 189 registration, Utility applications, 4 releases, information gathering for, 165 relevance, branding, 255 reports content, 60 research findings, 75-79 usability testing, 173 representative users, 182 research artifacts, sharing, 70 compensation for, 63

design tools, creating, 79-86 diary studies, 49-53 document implications and ideas, 74-75 early-stage, 170 equipment, 59-60 methods, 57 methods, selecting, 53-54 personas, 80-82 planning, 40-43, 54-60 product definition statements, 86 questions for, 57, 171 recruiting, 60-63 related activities, 67 reports, 75-79 roles, 58-59 scenarios, 82-84 usability, 42 results, null, 217 Rhyne, Rob, 151 RITE (Rapid Iterative Testing and Evaluation) method, 167 Roam, Dan, 119 n8 Rohrer, Christian, 59 roles studies, 171-172 user research, 58-59 rough app concept, 54 Rubin, Jeffrey, 166, 169n6

S

Sadun, Erica, 20 Safari, 149 satellite location information, 29 saving works in progress, 206-207 scale, 228-229 scenarios, 82-84, 98, 100 schedules for study dates, 56 scientific calculators, 72 screeners, 61-62 screens concept, 123-126 launch, 243 paper prototypes, 145 tap to show content, 197 templates, 149 welcome, 192

script development, 153 scrolling, 22 scroll up models, 198 SDK (software development kit), 156 searching Recents tab, 200 search keyboards, 23 segmented controls, 147, 212, 232 selecting application styles, 16–17 controls, 22, 210 evaluation methods, 105-106 ideas, 117 research methods, 53–54 trademarks, 258-259 sensors, 27-28 ambient light, 27 sessions brainstorming, 113–117. See also brainstorming sessions pilot, 177–178 settings, 194 setup competitive usability benchmarking, 104 Utility applications, 4 shadowing users, 43 sharing artifacts, 70 Shazam, 34, 206 shortcuts, Productivity applications, 8 Short Message Service. See SMS Sims 3, The, 14 simulation approach to evaluation, 100 n8 sizing type, 236 sketchbooks, 113 sketching, 109 benefits of, 118-119 characteristics of, 118 concept development, 117-127 examples, 126-127 questions about, 128-129 types of, 121 Sketching User Experiences, 119 Skype, 9 sliders, 146, 213

slideshows, 149 viewing, 149 slide transitions, 202 smart defaults, 199 Smart.fm application, 124 SMS (Short Message Service), 50 SnapTell application, 33 social networking, 9-10. See also productivity applications Society for Technical Communication web site, 49n2, 174 software. See also applications logging, 104 static images on devices, 149 software development kit. See SDK sound, 205 Speak Auto-text feature, 266 speaker applications, 33 specialized tasks, performing, 15 specifications audio, 35 cameras, 31 multi-touch displays, 21 spell check, 27 Spencer, Robert, 22, 24 Spool, Jared, 140, 143 **SPSS**, 53 Square application, 277 stakeholders, buy-in, 165-166 standard tab icons, 239 standard user interface elements, 5 Starmap, 30 Start field, 199 starting visual design, 224-225 statements, editing product definition, 86 static images on devices, 148-149 status quo, maintaining, 206 status updates, 25 Stickies Dashboard widget, 74 still cameras, 31–35. See also cameras for interview documentation, 48 storyboards, 126 sketching, 154 strategies, caching, 216 streamlining application flows, 141 street interviews, 46

string length, 216 structures hierarchical, Productivity applications, 7-8 of visual design, 225-230 studies dates, 56 dates and times, 171 styles applications, 3 applications, selecting, 16-17 productivity, 207 subject matter experts, interviews with, 45 suggesting matches, 199-200 supplies for brainstorming sessions, 112–113 prototyping, 172 support, content, 140 supported gestures, multi-touch displays, 22 Suri, Jane Fulton, 140 SurveyMonkey, 61 surveys, 52 downsides of, 53 Sutton, Robert, 115 n3 swipe, 22 switches, 213 symbols, 258-259

T

table views, 213 tabs bar icons, 239–241 bars, 146 Recents, 200 tiered, 207–208 top, 209 taps, 22 buttons/zones, 197 screens, 197 tasks, 175, 178 action sheets, 210 adequate time for, 183 in-line, 209 productivity styles, 209 team members included in brainstorming sessions, 114 paper prototypes, 168 report findings, 76 technology experience, user profiles, 57 templates animation, 155 screens, 149 terminology, paper prototypes, 144 testing beta, 163n1, 183-184 paper prototypes, 168 tipping point, 152 usability, 163 usability, analysis, 179-180 usability, drafting discussion guides, 174-177 usability, facilitating, 178-179 usability, guerrilla, 181-183 usability, methods, 167-168 usability, overview of, 164 usability, pilot sessions, 177-178 usability, planning, 169-173 usability, presenting findings, 180-181 usability, reasons for, 164-166 usability, recruiting participants, 173 - 174usability, role of context, 166 usability, selecting approaches for, 184 usability, timelines, 169 text alerts, 204 content support, 140 entering, 26. See also keyboards entries, 147 messaging, 9 thinking big, 118 three dimensional (3D) games, 14 tiered tabs, 207-208 time, 101 adequate time for tasks, 183 for brainstorming sessions, 114 studies, 171

time-boxing effort, 155 timelines for usability testing, 169 Times New Roman fonts, 234 tipping point testing, 152 Tischler, Linda, 115 n4 titles, internationalization, 272 Tognazzini, Bruce, 98 TomTom, 29 toolbars, 209-210, 241 tools animation, 155 design, creating, 79-86 surveys, 52 Top Findings or Executive Summary section, reports, 76 top tabs, 209 touch and hold gesture, 22 touch features, 20-21 multi-touch displays, 21–27 tracking, 11-12 trademarks, 258–259 traditional usability testing, 167 transactions, 11-12 transcripts, research analysis, 71 transitions, 202-203 translating languages, 270 troubleshooting connections, 205 paper prototypes, 144 usability testing, 182 truncation, 216 turn-by-turn navigation, 29 TweetDeck, 259–260 Tweetie, 9 Twitter, 192, 259 two-by-two diagrams, 97 typefaces, 234 sizing, 236 visual design, 234-237 weight, 236–237 types of prototyping, 142–156 of sketching, 121 of video prototypes, 154–155 typical social behaviors (norms), 41

U

UITextInputTraits Protocol Reference, 26 n5 Understanding Comics, 126 units of measurement, 271 updates messaging, 25 status, 25 up-front research product stage, 55 up-front user research, 42 UrbanSpoon (1.07), 96 USAA application, 33 USA Today application, 246-247 usability competitive benchmarking, 102–105 heuristics, 98 issues, keyboards, 26-27 research, 42 testing, 163 testing, analysis, 179–180 testing, drafting discussion guides, 174-177 testing, facilitating, 178-179 testing, guerrilla, 181–183 testing, methods, 167-168 testing, overview of, 164 testing, pilot sessions, 177–178 testing, planning, 169-173 testing, presenting findings, 180-181 testing, reasons for, 164-166 testing, recruiting participants, 173-174 testing, role of context, 166 testing, selecting approaches for, 184 testing, timelines, 169 visual design, 224 Usability Professionals' Association (UPA), 166 User Experience at Move Inc., 59 user experience (UX) analysis, 93 applications to include, 95 benefits of, 94-95 methods, 95-105

User Interface Engineering, 143 user interfaces annotations, 193 back-end checklists, 215-216 best practices, 192-207 design, 191 questions, 207-214 user research. See also research analysis, 69 artifacts, sharing, 70 design tools, creating, 79-86 diary studies, 49-53 document implications and ideas, 74-75 equipment, 59-60 interviews, 43-49 methods, 57 methods, selecting, 53-54 overview of, 39 personas, 80-82 planning, 40-43, 54-60 product definition statements, 86 recruiting, 60-63 related activities, 67 reports, 75-79 roles, 58-59 scenarios, 82-84 shadowing, 43 users competitive data analysis, 101 experiences, customizing, 14 journeys, 85 profiles, 56-57, 171 representative, 182 Utility applications, 4–6 keyboards, 26

V

variations, prototyping, 139 verbatim notes for interview documentation, 48 research analysis, 72–73 video capturing, 104 controls, 13 for interview documentation, 48–49 prototyping, 152–155 video cameras, 31–35. *See also* cameras viewing artifacts, 70 content, 196-197 getting started information, 192 LiveView, 150 media, 12, 14–15 MockApp, 151 n12 Safari, 149 slideshows, 149 views detail, 244 lists, 243 tables, 213 visual design, 223 alignment, 229-230 classification, 233 colors, 230-233 groups, 226-227 hierarchies, 227-229 icons, 237-245 reasons for, 224 starting, 224-225 structure of, 225-230 type, 234-237 Voice Control feature, 266 Voice Memos application, 15 VoiceOver, 266-269 activating, 22 voice recognition, 201 Voices application, 225

W

walk-up testing, 182 Warfel, Todd Zaki, 142 Weightbot, 254 weight of typefaces, 236-237 welcome screens, 192 whiteboards, 112 White on Black feature, 266 wireframes, 225 Wizard of Oz techniques, 139 workflows pain points, 40-41 paper prototypes, 144 working code, 156 works in progress, saving, 206-207 wrapping up research sessions, 66 wrap-up, discussion guides, 175 Wufoo, 61

X

Xachi iPhone application, 14 Xsights, 155

Y

Yahoo! Finance stock screens, 226 Yelp (1.10), 8, 192, 193 cameras, 32 YouTube, 13

Z

zones, tap, 197 Zoom feature, 266 zooming, 22 transitions, 202