

User-Centered Website Development

A Human-Computer Interaction Approach



DANIEL D. McCracken • ROSALEE J. WOLFE

With a Foreword by
Jared M. Spool, Founding Principal, User Interface Engineering

Contents

Foreword	xi	
Preface	xv	
CHAPTER 1	Human-Computer Interaction: An Overview	1
1.1	Introduction	1
1.2	Benefits of Usable Websites	1
1.2.1	<i>Gaining a Competitive Edge</i>	1
1.2.2	<i>Reduced Development and Maintenance Costs</i>	2
1.2.3	<i>Improved Productivity</i>	2
1.2.4	<i>Lower Support Costs</i>	2
1.3	What Is HCI?	3
1.4	Goals of HCI	4
1.5	User-Centered Development Methodology	5
1.5.1	<i>Needs Analysis</i>	5
1.5.2	<i>User and Task Analysis</i>	6
1.5.3	<i>Functional Analysis</i>	7
1.5.4	<i>Requirements Analysis</i>	7
1.5.5	<i>Setting Usability Specifications</i>	7
1.5.6	<i>Design</i>	7
1.5.7	<i>Prototyping</i>	8
1.5.8	<i>Evaluation</i>	8
1.6	Characteristics of User-Centered Development	9
1.6.1	<i>Implementation Techniques, Accessibility, and Trust</i>	10
1.7	Summary	10
1.8	Other Resources	11
1.8.1	<i>Association for Computing Machinery, Special Interest Group on Computer-Human Interaction (ACM SIGCHI)</i>	11

6.3	Effective Navigation at the Page Level	118
6.4	Summary	119
	Review Questions and Exercises	121
	Project Activities	122
	References	122
CHAPTER 7	Prototyping	124
7.1	Introduction	124
7.2	Why Prototype?	124
7.3	Basic Terminology	125
7.4	Benefits of Prototyping	127
7.5	Disadvantages	127
7.6	Low-fidelity and Other Prototyping	128
7.6.1	<i>Paper-Prototype Advantages</i>	128
7.6.2	<i>Problems with High-Fidelity Prototypes</i>	128
7.6.3	<i>Disadvantages of Low-Fidelity Prototypes</i>	129
7.7	Building a Paper Prototype	129
7.8	What's Next?	131
	Review Questions and Exercises	132
	Project Activities	132
	References	132
CHAPTER 8	Evaluation	134
8.1	Introduction	134
8.2	Why Test?	134
8.3	When to Test?	136
8.4	Expert-based Evaluation	136
8.5	User Testing with a Paper Prototype	137
8.5.1	<i>Preparing Test Scenarios</i>	137
8.5.2	<i>Creating a Prototype</i>	138
8.5.3	<i>Practicing</i>	138
8.5.4	<i>Recruiting Users</i>	138
8.6	Conducting a Test	138
8.6.1	<i>Format</i>	138
8.6.2	<i>Roles</i>	141
8.6.3	<i>Team Demeanor during Test</i>	144
8.6.4	<i>Debriefing the User</i>	144
8.7	Evaluating Results	145
8.7.1	<i>Sort the Note Cards</i>	145

8.7.2	<i>Associate Cards with Prototype and Prioritize</i>	145
8.7.3	<i>Review Usability Specifications</i>	145
8.8	Refining the Design	146
8.9	Writing the Report	146
8.10	Summary	147
	Review Questions and Exercises	148
	Project Activities	148
	References	149

CHAPTER 9 Color 150

9.1	Introduction	150
9.2	The Physics of Color	150
9.3	Color Models	152
9.3.1	<i>A Time-Tested Model: RYB</i>	153
9.3.2	<i>Additive Color: RGB</i>	153
9.3.3	<i>Subtractive Color: CMYK</i>	154
9.3.4	<i>The HSB System</i>	155
9.3.5	<i>Comparing the Four Models</i>	157
9.4	Color-Harmony Schemes	157
9.4.1	<i>Monochromatic</i>	158
9.4.2	<i>Complementary</i>	158
9.4.3	<i>Analogous</i>	161
9.4.4	<i>Triadic</i>	161
9.5	Color in Text and Background	165
9.6	Color as Organizer and Attention Getter	166
9.7	Summary	166
	Review Questions	166
	Exercises	167
	References	169

CHAPTER 10 Typography 171

10.1	Introduction	171
10.2	Concepts and Terminology	171
10.3	A Dozen Font Families	174
10.3.1	<i>Serif Typefaces</i>	174
10.3.2	<i>Sans-Serif Typefaces</i>	177
10.3.3	<i>Monospaced Typefaces</i>	179
10.3.4	<i>Script Typefaces</i>	180
10.3.5	<i>Miscellaneous and Decorative Typefaces</i>	181

10.4	A Web Page Is Not a Printed Page	182
10.5	Text in Graphics	182
10.6	Guidelines: Body Type on the Web	183
10.7	Guidelines: Display Type on the Web	184
	Review Questions	185
	Exercises	187
	References	188
CHAPTER 11	Multimedia	189
11.1	Introduction	189
11.2	Audio	189
11.3	Video	191
11.4	<i>Animation</i>	194
11.5	Future Developments: 3D Animation	202
11.6	Conclusions	206
	Review Questions	206
	Exercises	206
	References	207
CHAPTER 12	Accessibility	210
12.1	Introduction	210
12.2	The Scope of the Challenge	210
12.3	Issues Involving Vision	211
12.3.1	<i>Blindness</i>	211
12.3.2	<i>Low Vision</i>	217
12.3.3	<i>Color Blindness</i>	218
12.3.4	<i>Photosensitive Epilepsy</i>	219
12.4	Issues Involving Mobility Impairments	220
12.5	Issues Involving Hearing Impairments	222
12.6	The Web Accessibility Initiative	224
12.6.1	<i>Guidelines</i>	224
12.6.2	<i>Checkpoints</i>	225
12.6.3	<i>Evaluating for Accessibility</i>	225
12.7	The Human Side	227
	Review Questions	227
	Exercises	228
	References	231

CHAPTER 13	Globalization	235
13.1	Benefits	235
13.2	Internationalization and Localization	235
13.3	Text Considerations	236
13.4	Color, Icons, and Images	238
13.5	Formatting and Page-Layout Considerations	241
13.6	User Testing	242
13.7	Conclusions	244
	Review Questions	244
	Exercises	245
	References	248
 CHAPTER 14	 Personalization and Trust	 251
14.1	Introduction	251
14.2	Benefits of Personalization	251
14.3	Privacy Concerns	253
14.4	Factors Affecting Trust	257
14.5	Fostering Trust in Websites	258
14.6	New Developments in Controlling Privacy	260
14.7	Conclusion	261
	Review Questions	261
	Exercises	261
	References	262
 Appendix: Introduction to XHTML and Cascading Style Sheets		 264
 Index		 296