

CREATING PLAYFUL, FUN, AND EFFECTIVE USER EXPERIENCES

Seductive

INTERACTION
DESIGN



Stephen P. Anderson

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Seductive Interaction Design: Creating Playful, Fun, and Effective User Experiences

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*For Erin, my love...
my half of the world belongs to you.*

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Contents

| | |
|--|----------|
| Prologue | xiii |
| 1 Why Seductive Interactions? | 1 |
| LinkedIn and Profile Completeness | 2 |
| Why seduction? | 3 |
| The iLike story | 5 |
| Beyond usability | 10 |
| It's all about experiences | 11 |

SECTION ONE

Aesthetics, Beauty, and Behavior

| | |
|--|-----------|
| 2 Why Aesthetics? | 17 |
| What's the connection? | 18 |
| Why aesthetics? | 18 |
| 3 Are You Easily Understood? | 19 |
| Gestalt Psychology and a drinking game | 20 |
| 4 Are You Attractive? | 25 |
| You remind me of... | 26 |
| Can you trust me on this? | 27 |
| Perceptions of time | 29 |
| Put it all together. | 30 |
| “Attractive things work better” | 30 |
| Stitching it all together | 32 |
| 5 Who Do You Remind People Of? | 35 |
| Aesthetics, associations, and Apple | 36 |
| Advertising and coded iconic messages | 37 |
| Positive and negative associations | 38 |
| Language and associations | 38 |
| Applications | 39 |

| | | |
|----------|--|-----------|
| 6 | When Aesthetics Aren't Attractive | 43 |
| | Curious implication 1: The good, the bad, and the ugly | 43 |
| | Curious implication 2: When utility is beautiful | 44 |
| | Curious implication 3: Context and character | 45 |
| | Curious implication 4: Is beauty subjective? | 45 |
| | Closing | 47 |
| 7 | The Power of Faces | 49 |
| | Leaving your friends | 50 |
| | Summary | 51 |

SECTION TWO

Playful Seduction

| | | |
|-----------|--|-----------|
| 8 | Are You Fun To Be Around? | 55 |
| | Use humor, when appropriate | 56 |
| | A Case for humor: MailChimp | 57 |
| | Why bother making someone smile? | 60 |
| 9 | Are You Unpredictable? | 63 |
| | Mixing surprise with rewards | 64 |
| | Delighters | 66 |
| | My personal annual travel report | 68 |
| 10 | Are You Stimulating? | 75 |
| | Will the real Dopplr logo please stand up? | 77 |
| 11 | Are You Mysterious? | 79 |
| | Curious marketing | 79 |
| | Venturing into the unknown | 80 |
| | The information gap theory | 81 |
| | Business application? | 82 |
| | Specific motivation | 84 |
| | Now what? | 85 |
| 12 | Can People Express Themselves Around You? | 87 |

SECTION THREE

The Subtle Art of Seduction

| | |
|---|------------|
| 13 Small First Steps | 93 |
| Shaping the path | 93 |
| Making a commitment | 94 |
| Sharing places | 94 |
| Picking up items placed on hold | 96 |
| Completing a travel booking | 97 |
| Endowed progress effect | 99 |
| Sequencing | 100 |
| Shaping | 102 |
| 14 Coming on Too Strong (and how not to!) | 105 |
| Fewer options | 105 |
| Less text | 107 |
| Fun distractions | 108 |
| Creating the illusion of less by hiding information | 110 |
| Hacking the visual system to make things simpler | 111 |
| Less to think about | 112 |
| 15 Attracting Attention | 115 |
| Contrast and characters | 116 |
| Shh! We're hoping no one notices | 117 |
| Did you see that? | 118 |
| 16 The Path of Least Resistance | 119 |
| Default options | 119 |
| The power of suggestion | 120 |
| Convenience and personalized recommendations | 122 |
| Afraid to let go | 126 |
| 17 The Influence of Words | 131 |
| Framing | 131 |
| Anchoring | 133 |
| Let's get personal | 134 |
| Clear language | 136 |

| | |
|--|----------------|
| 18 An Eye for Details | 137 |
| Step one: Role-play the interaction | 137 |
| Step two: Script the narrative experience | 140 |
| Step three: Break down compound requests into simple next steps | 140 |
| Step four: Minimize choices (at each moment in time) | 141 |
| Step five: Look for micromoments | 142 |
| Step six: Choose clicks over characters | 142 |
| Connecting Behavior Goals with Business Goals | 143 |

SECTION FOUR

The Game of Seduction

| | |
|---|----------------|
| 19 Real World Games | 149 |
| Games are first and foremost about fun | 149 |
| The elements of game design | 153 |
| 20 A Challenge Worth Pursuing | 155 |
| Back to the classroom | 155 |
| A real challenge | 161 |
| A quick note on status | 163 |
| Challenges vs. goals | 165 |
| Closing | 167 |
| 21 Making Things Difficult | 169 |
| Playing hard to get | 169 |
| Using scarcity in commerce | 170 |
| Using scarcity to increase quality | 170 |
| Using scarcity to encourage participation | 172 |
| Why scarcity works | 173 |
| Other forms of scarcity: Limited duration | 174 |
| Limited access | 175 |
| Choice and calculations | 176 |

| | |
|--|------------|
| 22 How Are We Doing? | 179 |
| Unintended side effects of hypermiling | 181 |
| A little perspective | 182 |
| Serious games | 183 |
| Making a game out of e-mail | 183 |
| Closing | 187 |
| 23 What's the Prize? | 189 |
| Why do game mechanics work? | 190 |
| Performance goals | 191 |
| Are you offering your users any performance goals? | 192 |
| The fun layer: Narrative, story, aesthetics | 196 |
| Closing | 197 |
| 24 Let's Get Serious | 199 |
| The Kano model | 200 |
| <hr/> | |
| 25 Only the Beginning | 205 |
| The Rider and the Elephant | 205 |
| The Behavior Grid | 206 |
| BJ Fogg on the Behavior Model | 208 |
| A sense of purpose | 211 |
| One thing everyone is doing | 211 |
| "Show me the money!" | 214 |
| Who's on your site? | 214 |
| Final thoughts | 215 |
| Index | 217 |

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Prologue

This book is primarily about principles of human behavior: why people do the things they do, feel the things they feel, and make particular choices.

But there's more to this book.

If trying to understand human behavior was the only goal, I'd have stopped by now and pointed you to dozens of other (much better) books on the subject.

I've spent the last decade trying to design the experiences people have online. I suspect that your own entry into user experience started with an established discipline such as library sciences, visual design, computer science, or education.

I formally entered the design field as a Web and graphics designer for a technology start-up, during the dot-com boom (and subsequent bust). But prior to that, I taught high school English classes.

Like all teachers, my first year was a survival story: getting lesson plans done, photocopying assignments before the morning bell rang, wondering why anyone would put up with ninth graders for such a measly salary! My second year, things began looking up. I cracked the code, and figured out how to motivate students. I had lessons I could improve upon. And I started getting curious—what could the sciences teach

me about how we learn? Or how things stick in memory? Most of what I read at that time could be classified as pop psychology—secondhand accounts of “brain science” studies. But, there were interesting nuggets in there. For example, did you know that a steady diet of chocolate actually keeps the brain more engaged? (On that one, we may have violated a few policies on food in the classroom.) One study of particular interest involved our sense of smell and memory. I had been reading Robert Jütte's 2004 book *A History of the Senses* and I stumbled across this interesting remark:

“Our sense of smell is most directly linked to memory.”

Hmm—smell and memory are linked. I began thinking about how this could be applied to some of our creative writing assignments. What followed was a rather interesting experiment. I collected a bunch of film canisters (this was in the days before digital photography). Inside each small container, I placed a strong smell: spices from the kitchen, a cotton ball soaked in Kool-Aid or Sprite, a squirt of toothpaste. The instructions were simple. Each student was to grab a single canister, open it, smell, and write about the memories that came to mind. I was testing the science I had read about: Would

using smell as the trigger for a creative writing assignment result in more vivid writing?

Fast forward to the present.

I no longer teach in the formal sense. The last decade has been spent helping all manner of companies improve their online and offline presence. But this same inquisitiveness pervades everything I do. If I know x , how might I apply that to my current project? If, for example, I read a study about how an energy company added an emoticon to their customers' energy bills, and this influenced the amount of energy used, I want to know if this same psychology might work in other contexts. What effect would adding an emoticon have on online data? We're talking about behavior. While context does have some effect on how we behave, people are people. The things that occur internally when we make a decision should be roughly consistent with the things that frustrate or delight us. When people ask if some of the "playful" ideas I suggest would work for business software, I respond: "Is there a human involved?"

Regardless of context, there are some universal patterns of behavior that, once understood, can help us design better interactions. This book is about some of those ideas—principles of human behavior—and how they might be used to improve the design of interactions. In this book, I try to bridge academic theory with practical Web application. I look at some of the fascinating studies that have been done in behavioral economics or neuroscience and ask, "Can we apply this to an interactive context?" I see my role as connecting theory with practice.

The ideas presented here are precisely that:

ideas. Some of them are my own. Many more of them I've collected as online examples of the psychology I find so fascinating. Some of these have been tested, and proved to positively affect business goals such as conversion, sign-ups, or sharing. Many others are waiting to be tested and proven. The psychology has been demonstrated in other fields. Let's test out these ideas in an online context.

In my early days as a designer, I focused on how things looked. This led to a few years of thinking about larger brand and marketing issues. Then, I learned about making things more usable. My design skills only improved. And then I worked on a project with thousands of pages, forcing me to blueprint the page types and relationships; I began practicing information architecture before I knew that's what it was called.

This led to a "seat at the table" in discussions on product strategy and business goals. I began seeing the much bigger world of concerns: constraints of technology platforms and budgets, the ecosystem of partners and relationships, balancing the needs of current customers while moving ahead, dealing with corporate politics. All this led me back to that same place I arrived in my brief career as an educator: What motivates people? What makes people tick? If I could understand that, I'd be much better at my job, whatever my title or role became.

What I've tried to do in this book is to collect some curious insights into human behavior, and suggest how we might apply those insights to all kinds of interaction design. Understanding human behavior is really the only way to

make effective designs. Whether your priority is delighting customers or making a business financially successful, how else can you evaluate the effectiveness of design choices? Even simple things such as an appreciation of visual design (or “aesthetics”) have deepened

as my focus shifted from beautiful designs to the effect of those designs on people. In writing this book, my hope is that you can share in and experience this same shift in focus.

Enjoy the ride!

We do not write in order to be understood; we write in order to understand.

—C. S. LEWIS

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Are You Attractive?

WHEN WE TALK ABOUT *affect*, we're talking about feelings and emotions. In marketing, feelings are often reduced to "I feel positive about your brand." Here, however, we consider the ways in which feelings and emotions can influence perceived and actual usability. Let's revisit our button example, with a slight change:



Cognitively speaking, both of these are obviously buttons. Neither button is "wrong" as in our earlier example. However, research into attention, persuasion, choice, happiness, learning, and other similar topics suggests that the more attractive button is likely to be more usable by most people. To get an idea of where this perspective might come from, consider this comment on emotions from neurobiologist Antonio Damasio:

*"Emotion is not a luxury: it is an expression of basic mechanisms of life regulation developed in evolution, and is indispensable for survival. It plays a critical role in virtually all aspects of learning, reasoning, and creativity. Somewhat surprisingly, it may play a role in the construction of consciousness."**

That our emotions govern our thinking is a theme we'll develop throughout this book.

In many design conversations, there is a belief that applications are made enjoyable because we make them easy to use and efficient. (Whether it's stated or not, these conversations value the role of aesthetics in cognition.) However, when we talk about how emotions influence interactions, it's closer to the truth to say things that are enjoyable will be perceived as easy to use and efficient. Allow me to explain.

Since the effects of our emotions may be one step removed from actual use, let's consider the things emotion (or affect) influences directly.



Contrary to popular opinion, things that are enjoyable will be perceived as easy to use and efficient.

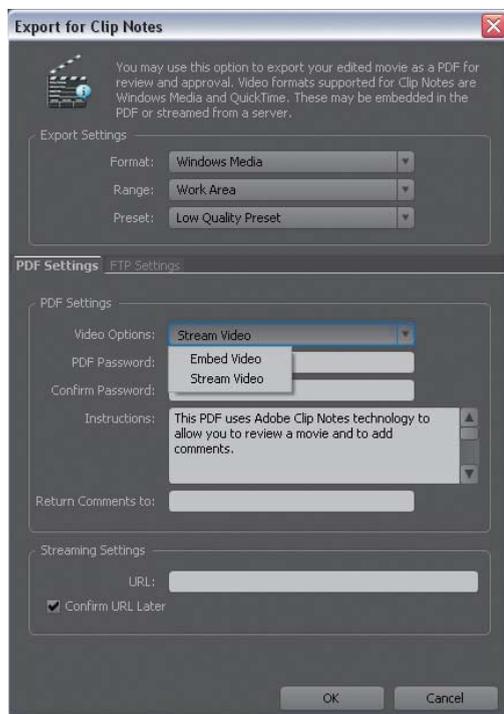
*Damasio, Antonio. "Emotions and Feelings: a Neurobiological Perspective." *Feelings and Emotions, The Amsterdam Symposium*. 2004.

YOU REMIND ME OF...

Product *personality* influences our perceptions. Think about how quickly we form expectations about someone simply based on how they dress or present themselves. This is something the automobile industry has known for years, as they spend money to create products that express a specific personality that customers might identify with. Why does a Dodge Ram seem more durable? What makes a Mini Cooper seem zippy and fun? While there are certainly performance features to support these mental claims, we can also see these attributes expressed in each car's form.

Similarly, the user interface design decisions we make affect the perceived personality of our applications. In the examples below, which window is friendlier? Which one looks more professional?

To be clear, it's not that either of them is necessarily right or wrong. Each user interface has a distinct personality appropriate for the content, the context, and the audience. The example on the left has the "pro" look and its sophistication may actually appeal to that intended audience. The example on the right was a simple widget designed to track points in a rewards program. So, in each case, the personality is tailored to the intended purpose.



Notice how each of these user interfaces has a unique personality.



Products have a personality. Why should we care? Consider this:

- People identify with (or avoid) certain personalities.
- Trust is related to personality.
- Perception and expectations are linked with personality.
- Consumers choose products that are an extension of themselves.
- We treat sufficiently advanced technology as though it were human.

By making intentional, conscious decisions about the personality of your product, you can shape positive or negative affect responses. Take a look at Sony and how they applied this knowledge in the Sony AIBO. Let's consider why they made this robot resemble a puppy (above).

Here, you have a robotic device that isn't perfect. It won't understand most of what you say. It may or may not follow the commands it does understand. And it doesn't really do all that much.

If this robot was an adult butler that responded to only half our requests and frequently did something other than what we asked, we'd consider it broken and useless. But as a puppy, we find its behaviors "cute." Puppies aren't known for following directions. And when the robot puppy does succeed, we are delighted. "Look, it rolled over!" What a great way to enter the robotics market.

Consider what kind of personality you're creating with your application, and what expectations that personality brings with it.

CAN YOU TRUST ME ON THIS?

Can you guess the most frequently cited factor for evaluating the credibility of a Web site?

According to a 2002 study out of Stanford University, it is the "appeal of the overall visual design of a site, including layout, typography, font size, and color schemes," (Fogg, et al., 2002). The look and feel of a site influenced judgments about credibility far more than other factors like structure, usefulness of the information, tone of the content, and name recognition!

| | Percent (of 2,440 comments) | Comment Topics (addressing specific credibility issue) |
|----|---------------------------------------|--|
| 1. | 46.1% | Design Look |
| 2. | 28.5% | Information Design/Structure |
| 3. | 25.1% | Information Focus |
| 4. | 15.5% | Company Motive |
| 5. | 14.8% | Information Usefulness |
| 6. | 14.3% | Information Accuracy |
| 7. | 14.1% | Name Recognition and Reputation |
| 8. | 13.8% | Advertising |
| 9. | 11.6% | Information Bias |

A different study found that “Web users form first impressions of Web pages in as little as 50 milliseconds (1/20th of a second).” What’s more, these initial attractiveness evaluations based on just a brief exposure “were very highly correlated with attractiveness evaluations of the same pages under unlimited exposure.*”

These findings make sense. Think of how quickly we form judgments about people in the first few moments after we meet them. Conversely, think about how our personal appearance (our personal aesthetic) affects the way people perceive us; or how product packaging influences our perception of the product inside. We may know better, but we continue to judge a book by its cover.

Below left is a gas pump near my house. Contrast that with the station shown on the right.

I’ve stopped filling up at the gas station on the left, even though it’s closer to where I live. Why? This kind of maintenance (or lack of maintenance) leaves me unwilling to trust them with my credit card information. Clearly, appearance does affect trust.



So, how do we create trust in our application interfaces, aside from providing the basics, such as reliable information and uptime? Be attentive to visual design, for one thing. Attention to design details implies that the same care and attention has been spent on the other (less visible) parts of the product, which implies that this is a trustworthy product.

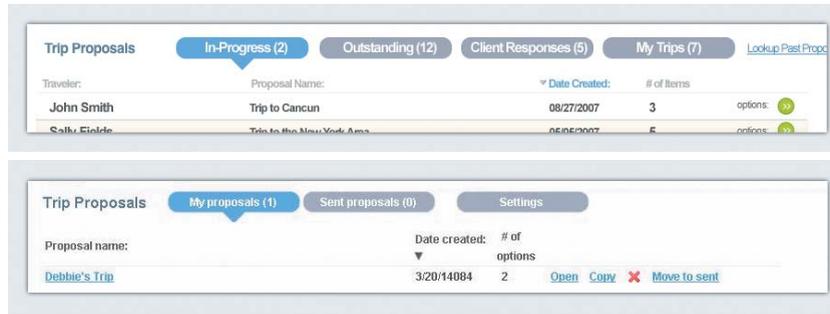
I’ve seen many great design comps get butchered during development. Things such as inconsistent fonts, odd padding, line heights, and over-compressed images plagued the final release. While this may never come out during functional testing, how might these sloppy UI details affect perceptions of your product?



Photo by Sean Munson

Which gas station would you trust to safely process your credit card information?

*Gitte Lindgaard, Gary Fernandes, Cathy Dudek and J. Brown, “Attention web designers” in *Behaviour & Information Technology*, 2006.



The sloppy lack of attention to UI details in the lower, implemented version will negatively affect user perceptions.

PERCEPTIONS OF TIME

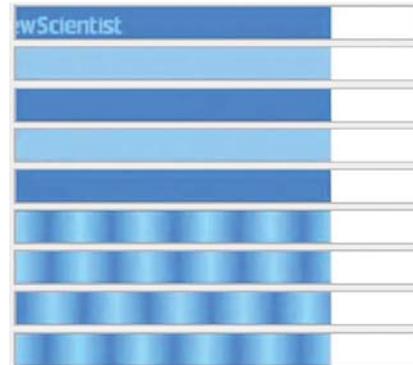
If you've ever been to a Disney theme park, then you've experienced firsthand the magic of Disney—not just in the shows and rides, but in how lines are handled. Disney's "imagineers" have perfected ways to make a long wait seem shorter, with some lines so elaborately designed that it's hard to tell where the line ends and the ride begins. Through distractions and illusions, the experience of waiting in long lines may not seem so bad.

Along the same lines (no pun intended), consider preloaders and progress bars. Given that a download will take the same amount of time in all cases, are there different preloaders that would seem to take less time?

The magazine *New Scientist* ran an experiment in which at least nine variations on the progress bar used to monitor Web downloads were tested. It was found that:

- Pulses that become more frequent as the bar progresses create the illusion that it's moving faster.
- Bars filled with ripples heading left make a progress bar appear to move faster.

The magazine found that “by using an effective illusion, it can seem like a file is downloading 11 percent quicker than it really is.”



I've observed a similar illusion with different kinds of preloaders. Our brains tend to count cycles, not seconds. Consider two preloaders that involve a clear, cyclic routine. I believe that a slower cycle would make time appear to pass faster. Why? It might only make it through two complete cycles in a five-second period. Contrast that with a much faster spinner that we tire of much sooner because it's faster.

We know that speed is in the eye of the beholder. While engineers toil away shaving off two milliseconds from a load time, what might we gain by creating preloaders that buy us more time?

“...something that takes longer but that is perceived to be efficient is superior to something that is shorter but perceived differently.”

—DONALD NORMAN

PUT IT ALL TOGETHER

So perceived time, personality, trust—certainly these are important. But these are just perceptions, right? How much should we really care about shaping perceptions? Well, our experiences (and to some extent our reality) are based on perceptions. But our evaluation of a system’s performance is surely based on something more substantial, right?

Consider these findings from research presented at the human-interaction conference CHI 2007. Users were asked to “judge the relevancy of identical search results from different search engines.” The only difference in the studies was the branding attached to the results. The search results were identical in all cases. Were people rational? Did they focus on the relevancy of the results? Nope. “Participants in the study indicated that the results from Google and Yahoo were superior to identical results found through Windows Live or a generic search engine.”

What is a brand but perceptions? In this study, functionally identical results were perceived as better due to brand attributes such as trust, personality, and perception. I’d say that our own perceived experiences might be more important than a measurable reality.

We should be very concerned with how aesthetics shape perceptions, especially given the extent to which perceptions shape judgment, influence behavior, and shape our memories.

“ATTRACTIVE THINGS WORK BETTER”

Okay, so maybe perceptions are important to product design. But what about “real” usability concerns such as lower task completion times or fewer difficulties? Do attractive products actually work better?



One of the most widely cited studies associated with the “attractive things work better” argument is cited in the opening chapter of Donald Norman’s 2003 book *Emotional Design*.

Researchers in Japan set up two ATMs that were identical in function, the number of buttons, and how they worked. The only difference was that one machine’s buttons and screens

were arranged more attractively. In both Japan and Israel (where this study was repeated to test for cultural differences), researchers observed that subjects encountered fewer difficulties with the more attractive machine. A point of clarification: if you read the original studies, you'll see that people *perceived* that the attractive machine actually worked better. This is a slight difference, and a small detail that in no way diminishes Norman's argument that attractive things work better.*



The explanation Norman offers cites evolutionary biology and what we know about how our brains work. Basically, when we are relaxed, our brains are more flexible and more likely to find workarounds for difficult problems. In contrast, when we're frustrated and tense, our brains get a sort of tunnel vision where we only see the problem in front of us. Sound like the candle problem (see Chapter 2)? It should. How many times, in a fit of frustration, have you tried the same thing over and over again, hoping it would somehow work the seventeenth time around?

Norman offers another explanation: we want those things that we find pleasing to succeed.

We're more tolerant of problems in things that we find attractive. How many of us have tolerated faults in a person due to their attractiveness? You don't have to answer that question.

Following these ATM studies, a number of other researchers have explored connections between visual aesthetics and usability. While many of these have proven a correlation between attractiveness and perceived usability, a few recent studies are finding more direct correlations between visual aesthetics and actual performance.

In one study, described in the article "A Blessing, Not a Curse: Experimental Evidence for Beneficial Effects of Visual Aesthetics on Performance" (Moshagen, 2009), volunteers completed a series of search tasks on a site that provided health-related information. "Four versions of a website were created by manipulating visual aesthetics (high vs. low) and usability (good vs. poor)" The results? Good visual aesthetics *did* compensate for poor usability, improving task completion time, and reducing errors.

Another study, "The Influence of Design Aesthetics in Usability Testing: Effects on User Performance and Perceived Usability," (Sonderregger and Sauer, 2009), presented adolescents with one of two mobile phones, an attractive one, and one less so. The conclusion? "The visual appearance of the phone had a positive effect on performance, leading to reduced task completion times for the attractive model."

Not only do aesthetics affect *perceived* usability, they also influence *actual* performance. However, more studies under different circumstances are needed to clarify these findings.

*Kurosu and Kashimura, 1995; Noam Tractinsky, 1997.

STITCHING IT ALL TOGETHER

For simplicity, I've presented two separate arguments for the value of aesthetics: one focused on cognitive benefits, the other citing how aesthetics influence affect.

But there's another bit of information I saved for last.

Recent studies of emotions are finding that we can't actually separate cognition from affect. Separate studies in economics and in neuroscience are proving that:

*“affect, which is inexplicably linked to attitudes, expectations and motivations, plays a significant role in the cognition of product interaction...the perception that affect and cognition are independent, separate information processing systems is flawed.”**

In other words, how we think cannot be separated from how we feel. At all times, we are *evaluating* (affect) and *interpreting* (cognition) the world around us.

This raises some interesting questions—especially in the area of decision making. In short, our rational choices aren't so rational (something we'll talk about in Section Three). From studies on choice to first impressions, neuroscience is exploring how the brain works—and it's kind of scary. We're not as in charge of our decisions as we'd like to believe.

Consider what you're doing with your interfaces to speak to people's emotions. Industrial product design, automobile manufacturing, and other more mature industries get this—with tools such as Kano modeling that have been used for decades (see Chapter 24). But user interface development is still catching up on what these other disciplines already know: the most direct way to influence a decision or perception is through the emotions.

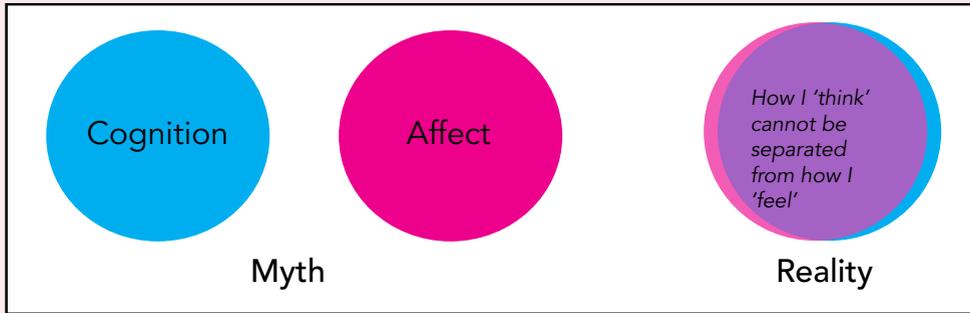
So, is “pretty design” important?

When you consider application design and development, how do you think of visual design? Is it a skin that adds some value—a layer on top of the core functionality? Or is this beauty something more?

In the early 1900s, “form follows function” became the mantra of modern architecture. Frank Lloyd Wright changed this phrase to “form and function should be one, joined in a spiritual union,” using nature as the best example of this integration.

The more we learn about people, and how our brains process information, the more we see the truth of that phrase: form and function aren't separate. If form exists independently of function, and we can treat aesthetics and function as two separate elements, then we ignore the evidence that beauty is much more than decoration. Our brains can't help but agree.

*Frank Spillers. “Emotion as a Cognitive Artifact and the Design Implications for Products That Are Perceived As Pleasurable.” *Design and Emotion*. 2004.



“Do users want applications that work, or applications that can wrap themselves into funny shapes? I’m sure it looks really whizzy in demos, but come on, we’re just trying to give users applications that help them do their jobs.”

“The beauty of the Web lies in its function, not its form, and I would rather that my sites attract attention because they are widely useful and usable than because they are pretty.”

“It doesn’t matter how pretty your site is or how many bells and whistles you have. While a high-quality site is important, the majority of people today value usability more than good looks or fanciness.”

“The site doesn’t need to look good, it just needs to be easy to use.”

While sentiments like these may be accurate, they’re inconsistent with the way humans respond to visual stimuli. The distinction between how something looks and how it works is somewhat artificial.

REALITY CHECK!

This chapter was largely an argument for visual aesthetics in interactive environments. However, none of this should be taken as an argument against basic usability and usefulness. The most attractive site in the world will fail if it doesn't deliver on basic promises or is too difficult to use.

If adding more images adds significantly to the load time, this will detract from the overall experience. If a fancy-looking title bar confuses people into thinking it's clickable, that's a problem. If a really nice layout means your content will be difficult to read on a mobile device, that's a serious consideration.

As interaction designers, we make things people use. We have to consider the people, the activities, and the context of these interactions. And while there are certainly plenty of patterns and conventions we can fall back on, every project presents new and unique challenges. There is rarely a clear-cut way of doing things (and I'd be wary of anyone saying otherwise). What works in one situation may fail miserably in another, and we often have to prioritize one thing at the expense of another. Agencies tend to value branding and identity over all else. IT departments often see visual design as an afterthought. Usability tests focus on functionality, efficiency, and task completion, but rarely measure whether or not the experience was actually enjoyable.

Design, in a general sense, is largely about making difficult decisions. "If we do x, will it detract from y?" Sometimes it's about finding the delicate

balance. Sometimes it's about a trade-off. Other times it's a prioritization. The key is to be clear about the end goals of the project, and then make decisions accordingly.

My aim with this section is to elevate the role of aesthetics in our functional conversations, to provide an objective way to balance aesthetic considerations and traditional (functional) considerations. In doing so, I'm hoping people can make more informed and less-biased judgments. Aesthetics are but one aspect of the overall user experience. But they should be taken as seriously as reliability, uptime, or speed. By shifting the conversation to perceptions, judgments, and behavior, we can make informed design decisions, whether for or against a particular choice.

Since entering the field of user experience design (UX) more than a decade ago, I've witnessed the constant tension between usability engineers, development teams, designers (with different levels of experience), business folks, marketing groups, and others. Each has something quite valuable to add to the equation. But, it's frustrating when we don't value one another's contributions or understand how to orchestrate these different interests to work together to create value for both business *and* customers.

Aesthetics are only one consideration. However, much is lost by isolating them as an afterthought or a separate consideration. I think it's more accurate to think of aesthetics as a key ingredient in a recipe, as opposed to the icing on the cake.

Index

3D depth effect, 22
37signals, 110, 117, 195–196
50 Cent music video, 87
750words.com, 150

A

ability, 208
access limits, 144, 175–176
account creation, 97–99
achievements, 3, 190
action vs. inaction, 119
Adams, Ernest, 178
Adamson, Robert, 17
Adaptive Path, 69
aesthetics, 16
 associations and, 35–39
 attractiveness vs., 43–47
 books on design and, 24
 cognition and, 19–24
 context related to, 45
 dos and don'ts about, 51
 emotions/feelings and, 25–32
 faces or avatars and, 49–50
 “fun layer” related to, 196
 importance of considering, 18, 34
 MAYA theory of beauty and, 47
 modes of beauty and, 46–47
 perceived usability and, 30–31
 subjective nature of, 45–46
 utility related to, 44
affect
 aesthetics and, 25–32
 positive vs. negative, 60–61
 success influenced by, 18, 60–61
 See also emotions/feelings
airline industry, 202
analytics, 214

anchoring, 133–134
animation, 118
anxiety, 61, 86
Apple products, 36–37
“apply yourself” attitude, 156
appointment dynamic, 174
Ariely, Dan, 72, 114, 128, 130, 133
Art of Game Design: A Book of Lenses, The (Schell), 178
Art of Seduction, The (Greene), 211
assignments in games, 190
associations
 aesthetics and, 35–39
 language and, 38–39
 positive and negative, 38
ATM studies, 30–31
attracting attention, 115–118
attractiveness
 aesthetics vs., 43–47
 perceived usability and, 30–31
 subjective nature of, 45–47
authorities, 144
automatic processes, 205
avatars, 49–50, 88

B

baby steps, 192
Back of the Napkin, The (Roam), 51
badges, 190
bait-and-switch technique, 130
banking information, 112
Barthes, Roland, 37
Basecamp, 117–118
basic needs, 200
beauty
 subjective nature of, 45–47
 three modes of, 46–47
 utility related to, 44
 See also aesthetics

behavior
 playful, 53, 197
 shaping, 102–103
 triggering, 208–210
Behavior Grid, 206–207, 210
Behavior Model, 208–210
behavioral economics, 114
behavioral goals, 143–144
Berlyne, D. E., 84, 85
biases
 decision making based on, 114
 ownership bias, 126, 128, 130
 status-quo bias, 119, 126
Biddulph, Matt, 77
black belt example, 2–3
Blinksale homepage, 115
blog posts, 172
book resources
 on game design, 178
 on visual design, 24
Bouba-Kiki Effect, 38–39
bounded rationality, 114
Bowles, Cennydd., 46
brain function, 61, 64
Brave, Scott, 61
breadth-first states, 61
Brehm, Jack, 173
Brighter Planet, 127
“Bringing the Browser to Life!”
 exercise, 138–139
BubbleTimer application, 160
bug trackers, 23
Building Web Reputation Systems
 (Farmer & Glass), 213
Bunchball, 190–191
business goals, 143–144
BuySellAds.com, 126

C

calculations, 177–178
California Pizza Kitchen, 79–80
candle problem, 17–18
carbon footprint score, 127
CareLogger, 116
Carnegie, Dale, 5
CDKitchen, 89
Cenedella, Marc, 135
challenges, 3, 155–167
 curiosity leading to, 155
 as element of games, 153, 157, 163
 everyday life examples of, 154
 finding in apps/services, 167
 flow related to, 162
 goals distinguished from, 165, 167
 performance goals as, 191
 setting in e-mail game, 186
 status related to, 163–165
 teaching attitudes and, 156–157, 161, 163
channel factors, 94
characters
 choosing clicks over, 142
 creating contrast with, 116, 117
 Twitter limits on, 172
 See also text
Chatroulette, 63–64
checkout process, 97–99
choices
 calculations and, 177–178
 as element in game design, 153
 everyday life examples of, 154
 framing options and, 131–133
 limiting options and, 105–107, 141–142, 177
 loss aversion related to, 130
 See also options
Cialdini, Robert, 70, 173
Cirillo, Francesco, 174
classical conditioning, 103
clear language, 136
Coates, Del, 24
coded iconic messages, 37
CoffeeCup, 160, 192

cognition
 aesthetics and, 19–24
 emotions related to, 32, 33
Colborne, Giles, 86, 107
collections, 192–194
colors
 cognition of, 19
 contrast and, 116
 Dopplr's use of, 77–78
commands vs. statements, 134
commerce, scarcity used in, 170
commitment and consistency, 94, 95, 100
conceptual metaphors, 36
conflicts, 153, 154
constraints
 choices based on, 177–178
 scarcity as granddaddy of, 169–176
content
 fun distractions as, 108–109
 visual elements as, 40, 41
context
 aesthetics related to, 45
 of unknown information, 111
contrast, 21, 115–118
 characters and, 116, 117
 color schemes and, 116
 examples of using, 115–116
 temporal, 118
controlled processes, 205
convenience
 personalized recommendations for, 122–126
 of user experience, 11, 13
conversational interfaces, 137
Craigslist, 43, 116
creative thinking, 61
credibility, 27–29
credit card information, 112–113
Crumlish, Christian, 213
Csíkszentmihályi, Mihaly, 162, 163
cubeless Web site, 175–176
cues, subtle, 123–124
curiosity, 6, 79–85
 dimensions of, 84–85
 examples of using, 82–84

information gaps and, 81–82
leading to challenges, 155
marketing based on, 79–80
psychology of, 82
tips on arousing, 85
unknown information and, 80–81

Curtis, Dustin, 134

D

data-informed decisions, 214
Debow, Daniel, 172
Deci, Edward, 155
decision making
 behavioral economics and, 114
 data used for, 214
 emotions related to, 32
 interaction design and, 34
 loss aversion and, 130
decorative elements, 40, 41
default options, 119–120
 intelligent defaults, 123
 suggested defaults, 121
delight
 anxiety and, 86
 described in Kano model, 201–202
 unpredictability and, 66–67
delighters, 66–67, 201–202
deprivation, 81
depth-first states, 61
design
 basic elements of, 40–41
 books on aesthetics and, 24
 value-centered, 6
 Designing for the Social Web (Porter), 143, 214
 Designing Social Interfaces (Crumlish & Malone), 213
 Designing with the Mind in Mind (Johnson), 24
Digg service, 213
Dimon, Garrett, 23
Disney theme parks, 29
distractions, 108–109
dopamine, 61, 64
Dopplr, 67, 68–69, 73, 77, 182

Drèze, Xavier, 99
Dribble site, 171
Drive: The Surprising Truth About What Motivates Us (Pink), 18, 157, 188
Duke University study, 128, 130
Duncker, Karl, 17
duration limits, 174–175

E

Easter eggs, 57, 58, 160
economics, behavioral, 114
effective writing, 123–124
Elements of Game Design model, 152, 153–154
elephant and rider metaphor, 205–206
Elman, Josh, 122
e-mail
 effective headlines for, 135
 Facebook triggers via, 208
 making a game out of, 183–187
 set completion related to, 194–196
emoticons, 56, 212–213
Emotional Design (Norman), 30, 61
emotions/feelings
 aesthetics and, 25–32
 cognition related to, 32, 33
 humor and, 57, 58–59
 See also affect
empty text box, 6
endowed progress effect, 99–100, 192
energy usage study, 212–213
estimation process, 164–165
exciters, 202
experience-first perspective, 100–101
extrinsic motivation, 154, 157, 189–190

F

Facebook
 deactivation page on, 50
 educating users of, 136
 e-mail triggers sent by, 208
 self-expression on, 88

faces, power of, 49–51
Farmer, Randy, 213
FarmVille, 72, 88, 148, 158, 159
fear of loss. *See* loss aversion
feedback loops, 6, 179–180
 examples of, 154
 games and, 153, 180, 181, 183–187
 metrics related to, 180–182
 performance influenced by, 183–184
 prevalence of, 182–183
 real-time, 125
 subtle cues and, 124
feelings. *See* emotions/feelings
first teaching attitude, 156
fixoutlook.org campaign, 213
flow, idea of, 162
Flow: The Psychology of Optimal Experience (Csikszentmihályi), 162
focused states, 61
Fogg, BJ, 102, 192, 205, 206
 Behavior Grid, 206–207, 210
 Behavior Model, 208–210
Folds, Ben, 63
Foodspotting, 170–171
form and function, 32
forms
 hiding information on, 110, 117–118
 limiting number of fields on, 111
 simplifying design of, 111–112
Foursquare service, 128, 129, 148
framing, 131–133
Fraser, Scott, 95
Freedman, Jonathan, 95
freedom, scarcity and, 173–174
fun
 aesthetics related to, 196
 content used for, 108–109
 purpose of games as, 149–150
functional fixedness, 17
functionality, 11
Fundamentals of Game Design (Adams), 178

G

games
 aesthetics related to, 196
 applying to applications, 158–161, 164–165, 167, 196, 197
 books on designing, 178
 challenges related to, 157, 163
 common elements of, 151–152
 definition of, 153
 e-mail game example, 183–187
 everyday life examples of, 154
 exercise on dynamics of, 157–158
 feedback loops in, 153, 180, 181, 183–187
 fun as essence of, 149–150
 limits in role-playing, 177
 measures related to, 180, 181–182
 mechanics used in, 189–191
 model for designing, 152, 153–154
 seductive power of, 148
 serious use of, 183
 spreadsheets as, 166
 gamification, 150, 156, 163
 “The Garden” plug-in, 196, 197
 “genie effect” animation, 22
 Gestalt psychology, 20–21
 Get Satisfaction app, 124–125
 gifting, 67, 68–73
 Dopplr example of, 68–69
 elements of successful, 70–71
 reciprocity and, 69, 72–73
 Glass, Bryce, 213
 Glucksberg, Sam, 18
 Gmail’s Priority Inbox, 195
goals
 challenges distinguished from, 165, 167
 connecting behavioral with business, 143–144
 as element in game design, 153
 everyday life examples of, 154
 performance-related, 191–196

Google
AdWords, 116, 117
Maps, 13
search surprises, 67
sponsored ads, 208
Gowalla, 45, 46, 65, 164, 194
Greene, Robert, 211
Groupon, 38
Guy, Matthew, 150

H

Haidt, Jonathan, 205
Harvest application, 159
Heath, Dan and Chip, 72, 94, 161, 206
Hekkert, Paul, 47
heuristics, 114
hiding form fields, 110, 117–118
Highrise tool, 110
Hold Request form, 96
Hot Wheels mystery car, 79
Hotels.com, 97–99
How to Win Friends and Influence People (Carnegie), 5
Huffington Post, 149
humor, 55–60
 appropriate use of, 56
 debate about using, 56
 MailChimp's use of, 57, 58–59
 reasons for using, 60–61
hypermilng, 181–182

I

iconic elements, 40, 41
identity, 211
iLike, 5–10
 artists page, 6, 7
 Challenge game, 8–10
 registration process, 5–6
imaginary worlds, 143
inaction, 119
incentives, 188
inertia, 119
Influence: The Psychology of Persuasion (Cialdini), 173

information
 anchoring on, 133–134
 hiding on forms, 110, 117–118
 known vs. unknown, 80–81
 noticing gaps in, 81–82
information gap theory, 81–82, 193
inline contextual actions, 102
intelligent defaults, 123
intrinsic motivation, 154, 157, 188
iPod shuffle, 36–37
Ives, Jonathan, 36

J

Jango home page, 170
jazz musicians, 61
Jenkins, Ryan, 116, 117
Jetsetter, 118
Johnson, Jeff, 24
Jones, Matt, 67, 77

K

Kahneman, Daniel, 126
Kano, Noriaki, 200
Kano model, 200–202
Kapital Investor DNA quiz, 108–109
Kayak, 191
Ketchup tool, 123
known vs. unknown information, 80–81
Kohn, Alfie, 157
Koster, Raph, 166, 178, 199

L

laddering technique, 167
language
 anchoring and, 133–134
 associations and, 38–39
 clear and direct, 136
 effects of forceful, 134–135
 e-mail headlines and, 135
 framing choices with, 131–133
 interface design and, 136
latent needs, 202
Launchpad page, 195–196
leaderboards, 190

levels in games, 189
Leventhal, Howard, 93
limited access, 144, 175–176
limited availability, 173
limited duration, 174–175
LinkedIn
 curiosity created by, 82–83
 Profile Completeness feature, 2, 101
list making, 94, 96
Loewenstein, George, 81, 193
Loewy, Raymond, 47
“long wow” moments, 69
loss aversion
 abuse of, 130
 decision making and, 130
 mayorship and, 128, 129
 ownership bias and, 126, 128, 130
loyalty programs, 188

M

Made to Stick (Heath & Heath), 161
MailChimp, 57–59
 humor used on, 57
 interview about, 58–59
Malone, Erin, 213
MapQuest, 13
marketing
 curiosity applied to, 79–80
 reduction of feelings in, 25
martial arts black belt, 2–3
MAYA theory of aesthetics, 47
mayorship, 128, 129
McCloud, Scott, 24
meaningfulness
 of gifts, 71
 of user experience, 13
measures/metrics, 180, 181–182
micromoments, 142
Microsoft Office, 103, 191
Mindbloom, 88–89
mobile phones, 11
monetary exchanges, 72
Monroe, Marilyn, 46
MOO.com stickers, 66

mood
 success influenced by, 18, 60–61
 See also emotions/feelings

Most Advanced, Yet Acceptable
 (MAYA) aesthetic, 47

motivation
 ability and, 208
 extrinsic, 154, 157, 189–190
 intrinsic, 154, 157, 188
 personality types and, 215
 rewards related to, 157, 188
 usability outweighed by, 10–11

music videos, 87

Myers-Briggs Type Indicator, 215

Myspace, 87, 88

mysteriousness, 79–86

N

narrative scripts, 140

Nass, Clifford, 61, 186

Natron Baxter, 196

Netflix, 75, 84, 125

New Scientist, 29

Nintendo Wii, 67

norepinephrine, 61

Norman, Donald, 11, 30, 61

Nudge (Thaler & Sunstein), 114, 212

Nunes, Joseph, 99

O

Ocado service, 121

OKCupid site, 182

Old Navy, 177, 192

online identity, 88

opt-in vs. opt-out options, 119–120

options

 default, 119–120

 framing, 131–133

 hiding, 110, 117–118

 limiting, 105–107, 141–142, 177

See also choices

organ donation, 119–120

ownership bias, 126, 128, 130

P

packaging design, 71

path of least resistance, 119–130

path shaping, 94

pattern recognition, 8, 75–78

payment information, 112–113

perceived affordances, 19

perception

 of brand, 30

 of progress, 100

 of time, 29–30

 of usability, 30–31

perceptual-specific curiosity, 84

Performable, 214

performance

 aesthetics and, 31

 feedback loops and, 183

 goals related to, 191–196

performance payoffs, 200–201

periodic events, 175

personal gifts, 70

personal informatics, 180, 183

personality of products, 26–27

personality types, 215

personalization

 of communications, 134–135

 of recommendations, 122–126

personas, 215

persuasive technology, 206

photo-sharing service, 94, 96

piano key stairs experiment, 1

Pictionary game, 158

Pink, Daniel, 18, 157, 188

Pishevar, Shervin, 64

pixel-based farms, 197

playful behaviors, 53, 197

pleasant packaging, 71

pleasurable experiences, 13

points in games, 189

politics, framing used in, 132

Pomodoro Technique, 174

Porter, Joshua, 49, 120, 143, 214

positive affect, 60–61

positive associations, 38

Posterous site, 132–133

power of suggestion, 120–122

 suggested defaults and, 121

 Twitter's use of, 121–122

Predictably Irrational (Ariely), 72, 114

prefrontal cortex, 61

preloaders, 29–30

priming, 59

problem solving

 factors influencing, 17–18

 “high” resulting from, 75

 positive affect and, 18, 60, 61

product maturity continuum, 11–13

product personality, 26–27

progress, perception of, 100

progress bars, 29

progress dynamic, 2–3

proximity, law of, 21

psychology

 of curiosity, 82

 Gestalt, 20–21

 usability vs., 10–11

“Psychology of Curiosity, The”
 (Loewenstein), 82

purpose, sense of, 211

Q

qualitative behaviors, 184

Quantcast site, 83

quilting, 78

Quora, 45, 46

R

rating systems, 125–126

real-time feedback loop, 125

reciprocity, 69, 72–73

recognition over recall, 8, 123

recommendations

 personalized, 122–126

See also suggestions

Red Sky Interactive, 71

Reeves, Byron, 186

reflections, 21

reliability, 11

rewards

 as element in game design, 153

 everyday life examples of, 154

 mixing surprise with, 64–65

 motivation related to, 157, 188

“Rhetoric of the Image” (Barthes), 37

Ribbon Hero, 103, 191

Roam, Dan, 51

robot puppy, 27

role-playing games (RPGs), 177
role-playing interactions, 137–139
 browser-window exercise,
 138–139
 reasons for using, 137
Rubik's Cube, 75
Rypple, 172, 173, 182

S

Salen, Katie, 153
Samuelson, William, 119
scarcity, 144, 169–178
 choices based on, 177–178
 commerce related to, 170
 encouraging participation with,
 172–173
 limited access as form of,
 175–176
 limited duration as form of,
 174–175
 quality increased through,
 170–171
 value implied by, 169
 why it works, 173–174
Schauer, Brandon, 69
Schell, Jesse, 178
scoreboards, 190
Scribd, 73
scripts, narrative, 140
second teaching attitude, 156–157
seduction
 definition of, 3
 game of, 147–148
 identity and, 211
 overview of, 3–4, 215–216
 playful behavior and, 53–54
 subtle art of, 91–92
self-expression, 87–89
semiotics, 40
sequencing, 3, 100–102, 140
seriosity.com, 187
service blueprint, 140
set completion, 100, 192–196
 collections and, 192–194
 e-mail related to, 194–196
shadows, cognition of, 19–20
shaping behavior, 102–103, 144

shaping the path, 94
sharing places, 94, 96
Shelfari, 101
Sierra, Kathy, 134
Sifter bug tracker, 23
*Simple and Usable Web, Mobile, and
Interaction Design* (Colborne),
107
Sinha, Rashmi, 43
sleep-light indicator, 36
SlideShare, 43
small first steps, 93–103
social capital, 188
social cues, 186–187
social exchanges, 72
social norms, 212–213
social proof, 49, 213
sociocultural beauty, 46
Sony AIBO robot, 27
Southwest Airlines, 55
sponsored ads, 208
Spool, Jared, 40
spreadsheets, 23, 166
Stack Overflow community, 148,
176
staircase message, 66
statistical data, 214
status/standing, 3, 163–165
status-quo bias, 119, 126
Steepster, 125–126
stimulation, 75–78
strength meter, 125
subjective beauty, 46
subtle cues, 123–124
“sugarcoating” attitude, 156, 161
suggestions, 120–122
 example of default, 121
 Twitter's use of, 121–122
 See also recommendations
“sunk cost” effect, 126
Sunstein, Cass, 114, 212
surprises, 63–73
 brain arousal by, 64
 delighters as, 66–67
 extreme examples of, 63–64
 gifts as, 67, 68–73
 rewards mixed with, 64–65

Sutherland, Rory, 121
Switch (Heath & Heath), 94, 206
Sy, Sharleen, 215

T

Target stores, 181–182
task flow diagram, 140
tax compliance study, 211–212
teaching attitudes, 156–157, 161,
163
temporal contrast, 118
testimonials, 213
testing, 214
text
 choosing clicks over entering,
 142
 creating contrast with, 116, 117
 minimizing use of, 107–108
 Twitter limits on, 172
textures, 40, 41
Thaler, Richard, 114, 212
TheLadders.com, 135
Theory of Fun for Game Design, A
(Koster), 178, 199
thesixtyone.com, 150, 160
third teaching attitude, 161, 163
time
 perception of, 29–30
 scarcity of, 174–175
time-tracking application
 finding the challenge in, 167
 game dynamics applied to,
 159–160, 164–165
touchscreen interactions, 13
Trammell, Marc, 122
trial subscriptions, 119
triggers, 94, 208–210
trust, 27–29
Tversky, Amos, 126
Twitter
 character limit on, 172
 inviting followers on, 134–135
 power of suggestion on, 121–122
 variable rewards on, 65

U

Understanding Comics (McCloud), 24
unexpected gifts, 70
uniform connectedness, 21
universal beauty, 46
unknown information, 80–81
unpredictability, 63–73
 See also surprises
Urbanspoon, 63, 64
URL contrast, 116, 117
usability
 attractiveness and, 30–31
 convenience and, 11, 13
 psychology vs., 10–11
user experience design (UX), 34
User Experience Hierarchy of Needs
 model, 11–13
user interface
 personality of, 26
 role-playing with, 137–139
utility, beauty of, 44

V

value-centered design, 6
variable rewards, 65
Verify application, 106
video chats, 63–64
video games, 162
Virgin America, 202
virtual gifts, 197
visual design
 basic elements of, 40–41
 forms simplified through,
 111–112
 recommended books on, 24
visual imagery, 8
Visual Thinking: for Design (Ware), 24

W

Walter, Aaron, 57, 58–59
Ware, Colin, 24
Watches Tell More Than Time (Coates),
 24
Weave account, 107–108
Web 2.0 aesthetic, 45

Web sites

credibility of, 27–29
visual elements on, 40–41
 See also specific sites
Wells Fargo, 122–123
Wii Help Cat, 67
Williams, Luke, 36
Wired magazine, 162
words
 associations with, 38–39
 influence of, 131–136
 See also language
Wright, Frank Lloyd, 32
writing, effective, 123–124
Wroblewski, Luke, 102

Y

Yale University study, 93
Yelp review site, 89

Z

Zeckhauser, Richard, 119
Zhuo, Julie, 50, 136
Zimmerman, Eric, 153
zone of curiosity, 83