chapter 2

First Principles

Some rules of thumb, and some thumbing of rules.

blueprint is just good thinking written down. You have to do the good thinking part first and the writing down second. One of the many secrets of good thinking is to learn from those who have suffered before you. Over time, design, architecture, software engineering, and usability have all developed many good rules of thumb to help us avoid making the same dumb mistakes our predecessors did. This chapter covers a few that I've found relevant to information architecture. As you design and read about design, you'll add your own to this list. But let's begin with these eight principles.

Principle #1: Design for Wayfinding

A few years back, I read an interesting study¹ that showed that women navigate through the world by landmarks (turn right at the Quickie Mart, turn left at the white house) and men navigate by their sense of direction and space (go five miles east, then two miles north).

^{1.} Georg Grön, Arthur P. Wunderlich, Manfred Spitzer, Reinhard Tomczak, and Matthias W. Riepe, "Brain Activation During Human Navigation: Gender-Different Neural Networks as Substrate of Performance," Nature Neuroscience 3, no. 4 (April 2000): 404–408.

Or in English rather than scientist-ese:

[&]quot;Study: Sex Affects Navigation. Men Find Their Way More Easily in Unfamiliar Settings." Available Online at http://www.abcnews.go.com/sections/science/DailyNews/brain000320.html.

On the web, everyone's a woman. You cannot use your sense of direction; it's a physical attribute, and physically you haven't moved an inch from your monitor, no matter how many web sites you've journeyed to.

To assure that people can return to items of interest, and also to assure that they can find new ones, Information Architects can borrow from an architecture discipline called *wayfinding*.



Wayfinding is typically employed in disorienting places such as malls, airports, and subways to help people get from one point to another. The goals of wayfinding are to let people know

- Where they are
- Where the things they're looking for are located
- How to get to those things they seek

Wayfinding does this using not only signs, but also architectural cues and interior design choices. Think of an airport: Main corridors are wide not only to let masses of people through, but also to let you know that's where you should go;

access to employee areas is provided by small corridors tucked into corners. The design is finished with an "Employees Only" sign; but if the design is good, you will never find yourself facing that sign. On Amazon, the main section of the page is devoted to the bulk of the customers. Down along the bottom is a small link, Associates, which is for those folks who sell items for Amazon. A normal book buyer would not accidentally trip over the sign in Figure 2.1.



FIGURE 2.1

www.amazon.com

Amazon provides the employee entrance at the bottom of the page, out of the way of the customers.

You want to let visitors to your site know the same things that the visitor to the airport needs to know...

Where They Are

Time to use the big "You are here" sign as well as subtle design clues to indicate location. Logos remind people whose site they are on; headers, breadcrumbs², a navigation bar that shows where you are, and color-coded sections are all proven ways to orient a user within the site (see Figure 2.2).

^{2.} Breadcrumb is the term for the navigation that lets you move up and down a hierarchically organized collection of stuff. You probably first saw it on Yahoo when you were researching Jane Fonda's breathtaking performance in Klute and followed this trail:

Home > Entertainment > Movies and Film > Titles > Drama > Suspense

And you found Klute just like Hansel and Gretel following breadcrumbs to their parents' home. It's a useful tool that allows users to widen their search.



FIGURE 2.2

www.pcworld.com

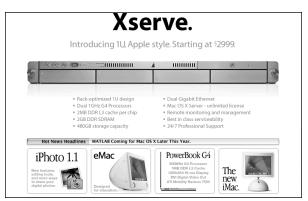
PC World uses a colored tab to let you know what section you are in, breadcrumbs so that you can move up the hierarchy, and colored numbers to show the page you're on.

Where the Things They're Looking For Are Located

As you prepare to design your navigation system, take a moment to consider, "What do the bulk of the visitors coming to my site want?" And ask yourself a follow-up question, "What do I want them to be able to find easily?" Once identified, you want to keep these items in front of your site's visitors as they travel throughout the site.

A software site, for example, usually needs to offer product information, down-loads, and support. It is useful to allow users to always be able to find their way easily to these key places. This can be done a number of ways, although global navigation is the most common.

Global navigation is a set of navigation tools that are consistent throughout a web site. Here you see three software companies' global navigation: Apple, CoffeeCup, and Adobe. CoffeeCup is a tiny software maker, Adobe is a major graphics software maker, and Apple is Microsoft's only known rival. All sport prominent links to Products—it's the one thing they all want you to find. It doesn't matter if you're a big company or a small one. If you've got something to sell, you had better get it in front of your potential customer or you are in trouble.

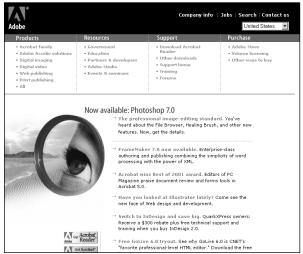


www.apple.com





www.coffeecup.com



www.adobe.com

FIGURE 2.4

Global navigation for CoffeeCup.

FIGURE 2.5

Global navigation for Adobe.

How to Get to Those Things They Seek

"How to get there" is achieved through intelligent navigation design. In good navigation design, links look clickable. They have clear labels that set expectations of what lies beneath, and they are grouped with similar options so that they gain meaning through context. Macintosh as a link means something very different when placed next to London Fog Trenchcoat or Jonathan Apples or IBM Think Pad. Navigation can be tricky. That's why this book has a big section on navigation in Chapter 8, "Eat Me, Drink Me, Push Me."

Principle #2: Set Expectations and Provide Feedback

On the web, you don't know what to expect when you click a link, submit a form, or push a button. It is the designer's job to set expectations for every action and clearly present results of those actions. There are many little ways you can keep people in the loop.

For instance, you can let folks know it hasn't happened until it's happened. The Snapfish web site allows user to store, edit, and print their personal photos. The tool for cropping keeps a small image of the original photo in the corner of the page while you edit, to assure you that your original photo is still intact, and you can start over at any time (see Figure 2.6). Photos are precious to people, and this can provide the level of comfort needed to allow people to edit unafraid.

You can also remind people where they are in a process. Drugstore.com's shopping bag is always on the left side of the page, letting you know how much you've spent and what you've selected to buy (see Figure 2.7).

Occasionally, the server has to run a long process that takes some time. To let people know it isn't *their* computer that is running along sluggishly, you can display a message letting folks know what's going on. Animation is key to this—movement gives a sense of activity. A still screen is worrisome...Has my computer died? Have I lost the connection? Is their server down?

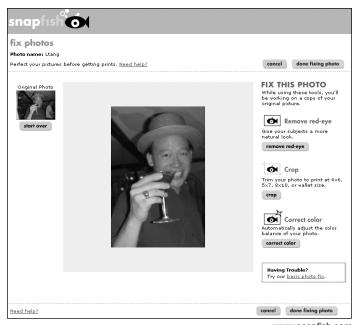


FIGURE 2.6

www.snapfish.com

On the left, you can see a small version of the original photo along with an invitation to start over.



FIGURE 2.7

www.drugstore.com

On the left, you can see the shopping bag with all your items.

Expedia animates a series of small dots to let you know they are searching for flights (see Figure 2.8). The users can't tell how long the search will take, but at least they know everything is working.

Flash movies often take a while to load. Egreetings handles potential user anxiety by displaying both a message that the card is coming and a status bar that slowly fills with red as the animation loads (see Figure 2.9).



www.expedia.com

FIGURE 2.8

If I could only animate paper, you'd see this line of dots are flickering, letting the user know the process hasn't stalled.



FIGURE 2.9

www.egreetings.com

As the Flash movie downloads, the status bar slowly fills with red.

Principle #3: Ergonomic Design

When you're designing in digital spaces, remember an often forgotten fact—human beings have bodies, and these bodies vary widely. In the real world, it's easier to remember; Herman Miller went to the bank when he tripped over this fact and his designers created a chair that could be adjusted endlessly—the Aeron.





www.hermanmiller.com

Herman Miller designers Bill Stumph and Don Chadwick took the humble chair to a new pinnacle of comfort by designing the Aeron chair—endlessly adjustable for the wide variety of human bodies.

But tall and short doesn't mean much on the web. On the web, the body parts engaged are hands, eyes, and ears.

Hands

When designing for hands, consider such things as scrolling distances and scrolling frequency. Think about designing shortcuts for people with repetitive stress injury (RSI). When Razorfish Germany redesigned the Audi site³, they did extensive testing of navigation on the right side of the screen with potential web site visitors (see Figure 2.10).

^{3. &}quot;Challenging the Status Quo: Audi Redesigned" James Kalbach tells the story of how a web design firm, Razorfish Germany, redesigned the Audi web site to be as innovative as the product they sell (see http://www.boxesandarrows.com/archives/002695.php).

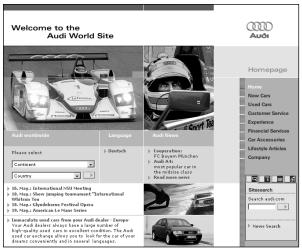


FIGURE 2.10
The redesigned Audi site, sporting a racy right-side navigation toolbar!

www.audi.com

This was an innovation. Almost all web sites have gone to navigation on the top and/or left side of the screen. In user testing, Razorfish discovered that not only did the users not mind the change, but it provided easier access to the scrollbar for faster navigation and made it easier to concentrate on the content.

Eyes

When designing for eyes, consider blindness, color blindness, nearsightedness, and farsightedness.⁴ PeopleSoft designed its site with very small, elegant type—so small and elegant, it's too small to read if you don't see very well, which often happens as one grows older.

PeopleSoft might want to ask itself who tends to have a need for financial software? Teenagers with perfect eyesight? Or people in their forties and fifties those lovely years when reading glasses and bifocals go on the shopping list?

A tool that comes built in to the browser enables you to resize the text size. Many with poor eyesight eventually discover it.

^{4.} To learn more about attending to the needs of the blind, the color-blind, and the girls who wear glasses, please check out the wonderful Americans with Disabilities Act web site at http://www.ada.gov (though, no, they can't help with the "seldom make passes" part).

Address Address http://www.bm.com

Google •

However, the person who writes the code for the site can disable it. This means no matter what your users do, they can't read about your wonderful products.

Larger Medium



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Tool used to resize text.

FIGURE 2.11

This is PeopleSoft at a default text size setting of Medium.

▼ 🕞 Go



FIGURE 2.12

This is PeopleSoft with the text setting changed to Largest. Notice that only the space between the text has grown larger.

www.peoplesoft.com

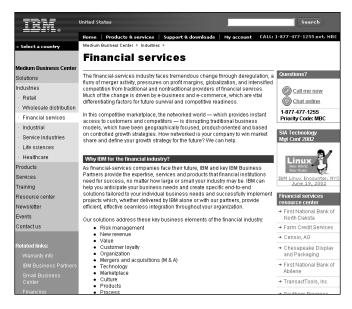
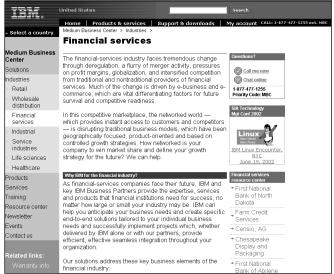


FIGURE 2.13

IBM also uses an annoyingly small font size.



www.ibm.com

FIGURE 2.14

However, because they have coded the site to resize, those folks who set their browser to "Larger" get larger text. Just as God and Bill Gates intended.

Ears

When designing for ears, remember not only deafness, but also people who may be listening in public spaces. Who hasn't been in a quiet office when suddenly loud music floods the room from a nearby cubicle? Background music on your site sounds like a good idea in a design brainstorm, but it will annoy people surfing at workplaces that use cubicles rather than offices.

The body, and the world the body inhabits, matters even in the digital realm.

Principle #4: Be Consistent and Consider Standards

Your web site is probably not the first web site your visitors have ever been to. This means that the moment someone types your URL into their browser window, they've got some expectations of what you will give them.

For example, it's a common web convention that a link to the jobs available area is in the navigation on the bottom of the site. This is where job hunters will look first. You can see that these three companies follow that convention on their web sites.

Before designing a site, take a tour of competitors' sites and related web sites. Look for best practices patterns you can adopt.

Do be thoughtful, though. You don't have to slavishly copy what sites are doing; rather, try to see why they have done what they've done. Is it a best practice? A common practice? An idle whim?

Your repeat visitors also have expectations. Did you call the help section "Information Support" on the home page? It had better not be called "Help" in the interior pages, or confusion ensues. Consistent labeling and design also gives an air of professionalism; it doesn't look like you've got 30 interns running around building web pages without talking to anyone.

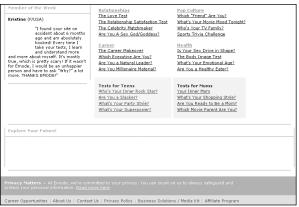


FIGURE 2.15

Career Opportunities is on the bottom navigation bar.

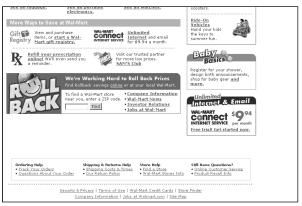
www.emode.com



FIGURE 2.16

Jobs is located at the bottom of this site, too.

www.looksmart.com



www.walmart.com

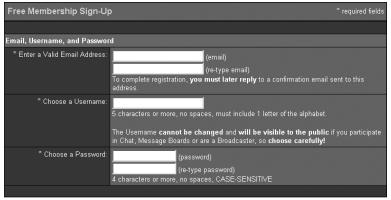
FIGURE 2.17
Notice where Jobs at
Walmart.com is located.

As you design, you need to keep track of conventions that have arisen over the previous few years and break them with caution. You also need to keep a running style guide of your own decisions to ensure that your own design is consistent.

Principle #5: Provide Error Support— Prevent, Protect, and Inform

Life is hard. People make mistakes. People then feel stupid. To avoid contributing to this sad state of the world, try to keep errors to a minimum by

 Preventing. Use clear, brief, conventional language in your instructions and dialog. Figure 2.18 shows a good example of this.



www.live365.com

FIGURE 2.18

Live 365 lets people joining their service know what rules they have for choosing a password.

Protecting. Save user-entered information. Nothing is more frustrating than writing a long e-mail and then losing it. Right now, because of limited web technology, there are very few ways to protect information entered into forms. However, you can still offer features such as Yahoo! Mail's "Save Draft" to let savvy users protect themselves (see Figure 2.19).

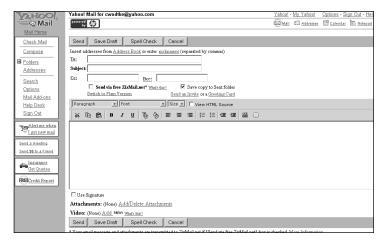


FIGURE 2.19

Notice that there is a Save Draft button on the Yahoo! Mail compose page.

Informing. If an error occurs, tell users exactly what's happened, use a nonjudgmental tone, and try to help them recover. For example, Expedia.com explains why the search was not successful and helps users avoid further error by providing a drop-down list of potential choices (see Figure 2.20).

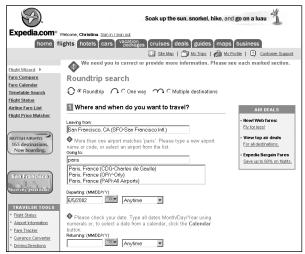


FIGURE 2.20

There is a lot right with Expedia's error messaging: it is polite, the errors are shown in red next to the area that needs correction making them easy to spot, and advice is given on how to correct the problem.

www.expedia.com

Principle #6: Rely on Recognition Rather than on Recall

Most humans have dicey memories. Not only do we forget to pick up bread from the store on the way home, we have trouble remembering long phone numbers, the address of our dentist, or that word for when you think you've seen something before but you haven't. Research has told us even more about human memory abilities. Familiar items are easier to remember than unfamiliar, short words easier than long, and it's easier to remember in no particular order than in a particular order.⁵

Unlike humans, computers are pretty terrific at remembering long strings of characters. So why make people remember something if the computer can do so instead?

Mapquest takes advantage of this by storing addresses you've typed into their search box and then displaying them in the driving directions tool (see Figure 2.21). Not only does that save lazybones from having to type, and reduces errors caused by typos, it saves users from having to drag out their address books to look up the information.

Recognition also means that you should be always seeking ways to keep information before the visitors' eyes. Figure 2.22 shows the control panel for DreamHost, a company that provides hosting for web sites. It's the place where web site owners should be able to manage their web sites.

Let's say you want to see, by checking the log files, how many people are coming to your site. So where is that link? You look at the log's previous month...ls it under Domains? Goodies? Users? Nope, it's under Status (see Figure 2.23).

^{5.} A. D. Baddeley, "The Magical Number Seven: Still Magic After All These Years?" Psychological Review 101 (1994): 353–356.

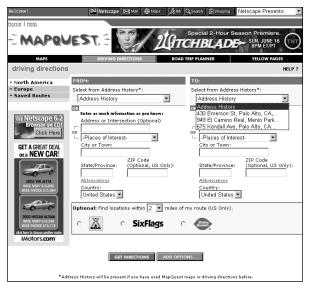
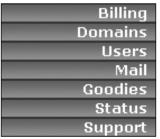


FIGURE 2.21

Notice the stored addresses.

www.mapquest.com



www.dreamhost.com

FIGURE 2.22

DreamHost's control panel.

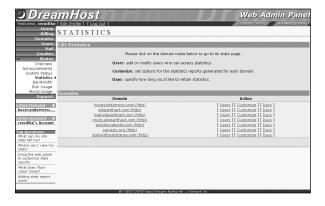


FIGURE 2.23

Statistics is under Status on the control panel.

Admittedly, the labels are a big part of the problem. The label Status does not connote Statistics, and it fails as a memory trigger. But rather than struggling to find a label that will work, why not simply display the links? Showing all the links avoids forcing users into this game of hide and seek. Although listing all the links will cause the page to scroll, scrolling is still much faster for users to do than clicking each option, then the Back button, and then another option as they try to find where the log files are hidden.

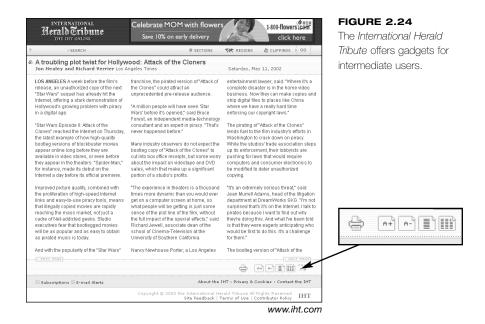
Anytime that you can take the burden off the user's poor overtaxed memory and place it on the computer, you are making your site just a bit more valuable to your customers.

Principle #7: Provide for People of Varying Skill Levels

A web site user is a beginner only for a short time. By approximately their third visit to a site, they've become an intermediate. They stay this way for a very long time, perhaps never advancing to expert; they don't need to. Intermediate use means they can accomplish nearly everything they want and have no desire to learn anything beyond that. Experts are much less common. Experts continue to learn how a web site or piece of software works until they use the power features. Yet we design simple sites for beginners and then build shortcuts and special features for experts. We are spending all our time designing for the least common users.

It's time to consider "the user" as a person in motion, in time, changing and learning all the time. Your design should assist users in moving to a level of accomplishment that is satisfactory. You don't need them to become experts—just design the interface to help move people to a place where they are happier with their results.

The *International Herald Tribune* is a great example of a site that caters to intermediate users (see Figure 2.24).



The site looks like a typical newspaper site. It is simple to use; you learn the interface as quickly as you learn to read a paper. After reading a few articles, you start to notice the gadgets. You play. Intermediates quickly learn how to adjust font size or column layout. It's located conveniently next to the Next Page link. Experts eventually find the clipping service. But those experts are few; and the special features never get in the way of the daily reader, which is the role most of us will stay in.

Principle #8: Provide Meaningful and Contextual Help and Documentation

Help is consistently poorly offered around the world. Your VCR manual has been translated from Swedish into English by someone who speaks neither well. Your software manual was written by an engineer who wanted to knock it out so he could get back to coding. When you need help while writing, you find yourself stalked by a menacing paper clip in MS Word. The Help section on a web site... well, you've probably never looked at it because how could it possibly help? Every other time you looked at a manual, it just confused matters.

Meanwhile the kind of "help" people do think might actually help, such as phone assistance, is expensive for the company and often annoying to the caller. "Press 1 for Spanish, press 2 for Chinese, press 3 for French, press 4 for Laplander…"

People doing any kind of vaguely complex task will inevitably require help—and resist asking for it. What you can do as a designer is offer the right help at the right moment in the most unobtrusive way possible. Place information in clearly labeled locations, rather than grouping it all under the generic and menacing "Help."

Figure 2.25 shows a page from the Schwab stock analyzer, with which I'm trying to evaluate IBM. I'm financially clueless, and this page offers me explanations of the mysterious language of the stock market. Schwab teaches how to evaluate stocks while you analyze the stock. Thus learning is far more relevant because it is tied to an important task. Schwab's Help is relevant and meaningful.

Perhaps in the future, the Help section will again seem helpful; for now, don't just say Help—be helpful.

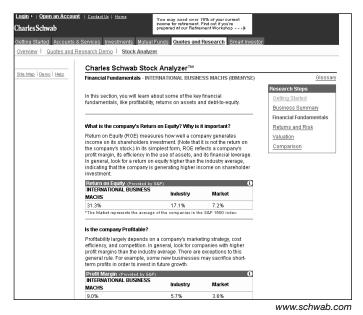


FIGURE 2.25

Charles Schwab Stock Analyzer provides a Financial Fundamentals section.

"This Chapter Will Self-Destruct in Five Seconds"

Remember what I said about memory? About it being dicey? You do remember, right? Yep. That's what I thought.

These principles are best used if you can manage to get them off the paper and into your head. Because when you're in a project, you're going to be hit with so much information that your brain is going to want to make some room. And what I've explained in this chapter could go up in a puff of smoke.

I guess it would be easier to remember if I said, "Just put seven links on a page and all will be fine." But it wouldn't be fine. Humans are just too complicated.

Beware of easy-to-get, easy-to-remember answers.