

# All You Could Want at Your Fingertips



**Universal Principles of Design:  
100 Ways to Enhance Usability,  
Influence Perception, Increase Appeal,  
Make Better Design Decisions, and  
Teach Through Design**

By William Lidwell, Kritina Holden,  
and Jill Butler

Rockport Publishers, 2003

Reviewed by Chauncey Wilson

**Did you ever need an encyclopedia of design principles?** What about a quick reference to such usability and design principles as:

- the 80/20 rule
- Fitts' law
- the flexibility-usability trade-off
- Golden ratio
- Hick's law
- performance versus preference
- wayfinding
- the figure-ground relationship
- progressive disclosure
- the baby-face bias (see illustration)
- affordance
- alignment

*Universal Principles of Design* describes these and eighty-eight additional principles. The principles span social psychology, mathematics, human factors, visual design, software engineering, cognitive psychology, and art. Each of the 100 principles is described in a page with an accompanying page of visual or textual examples of the principle. Most of the examples are clear instantiations of a principle, though on some pages it took some mental effort to figure out how the example clearly represented the principle. The authors try to provide seminal articles and several other important or well-known references (at this they sometimes succeed and sometimes fail; I would have liked to see a few more references for many principles). A list of related principles is found at the bottom of the description of each principle. For example, the principle "mental model" had "see also" references to affordance, expectation effects, mapping, and mimicry.

There are two tables of content, one in typical page-number order and the other with the principles grouped under the following questions:

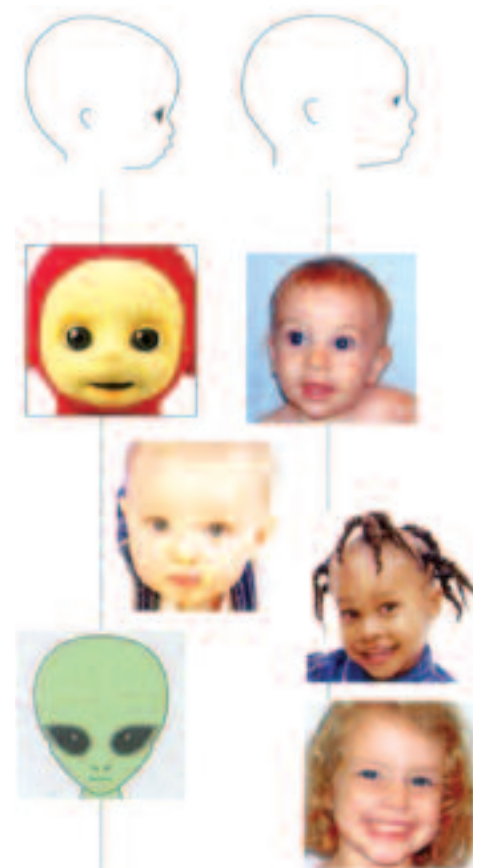
- How can I influence the way a design is perceived?
- How can I help people learn from a design?
- How can I enhance the usability of a design?
- How can I increase the appeal of a design?
- How can I make better design decisions?

Overall, *Universal Principles of Design* is a good compilation of diverse principles that are often mentioned in HCI presentations, articles, and books, but hard to find in a single reference.

I enjoyed this book and would recommend it as a good general reference to many principles that we apply in HCI (though I have to admit that I have never applied the baby-face bias; however, I could see how it

could be useful for advertising and branding). While this book has breadth, it lacks depth—if you really want to apply any of these principles—say, mental models—you will need to dig into the literature.

So what is the baby-face bias? Well, it is a tendency to see people or objects with round features, big eyes, small noses, high foreheads, and other features of babies as being helpless, honest, and innocent. This principle can be seen in the features of some



cartoon characters (Teletubbies come to mind). If you were designing characters or people for your Web site or advertising campaign, you could apply the baby-face bias to portray innocence and honesty. If you want an authority figure, you would use mature facial features in your design.



### Berkshire Encyclopedia of Human-Computer Interaction

Edited by William Sims Bainbridge  
Berkshire Publishing Group  
Reviewed by Alice Preston

A new effort by the Berkshire Publishing Group ([www.berkshirepublishing.com](http://www.berkshirepublishing.com)) brings together 186 articles on human-computer interaction. Featuring many of academia's "names" (from Ted Selker on "Attentive User Interfaces" to Gary Olson on "Collaboratories" to John M. Carroll and Mary Beth Rosson on "Computer-Supported Cooperative Work"—and many others who would be familiar to user experience practitioners), the compendium is edited by William Sims Bainbridge of the National Science Foundation.

A tough job to take on—not only did the Berkshire Publishing Group need to define a field that continues to expand, they were creating a paper publication on subjects that change at Internet speed. On the whole, it seems they did well. As editor Bainbridge observes in his introduction:

"Because the field of HCI is new, the *Berkshire Encyclopedia of Human-Computer Interaction* breaks new ground. It offers readers up-to-date information about several key aspects of the technology and its human dimensions..."

and then proceeds to list nine aspects, from applications and approaches through

methods and social implications.

Some of the articles, such as "Website Design" (Barbara S. Chaparro and Michael L. Bernard) and "Mobile Computing" (Dharma P. Agrawal) must have been daunting to write, on the grounds of constant change alone. However, these articles are basic, informative, and very accurate. Just the thing if you're taking an overview course or brushing up on topics outside your subject area.

However, that's where this almost one thousand-page, two-volume set gets a little heavy—and a little light. At somewhere around \$300 per set, it's too expensive for most undergraduates to buy as a textbook, but since the articles are pitched at a general level, it's not appropriate for HCI graduate-level courses. Information like this needs to be taught to business majors, computer scientists, and economists, along with even more user-centric topics such as how sales and maintenance revenues are related to usable products. It would be terrific if there was a way to ensure that the articles in this book are used for those audiences.

If you're lucky enough to live near a library with a copy, spend a little time with either volume. It will be worth it. **UX**

## Matters of Life & Death

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With this extract from Maryland:  
*"If you decide to make an advance directive, be sure to talk about it with your family and your doctor. The conversation is just as important as the document."*  
(*Maryland Advance Directives*,  
<http://www.oag.state.md.us/Healthpol/advance.pdf>)

I hope you will agree with me that the Maryland one is far better. But now think about the next step. Imagine opening that conversation with someone in your family. Does that seem hard to do? It certainly does to me.

None of the state forms that I investigated offered any help at this point. Some people may decide that they would prefer to give up on a living will rather than tackle the discussion with the family.

**Usability Lesson:** Sorting out a usability problem at a detailed level may not be enough. We may have to stand back and consider the context to see if there are wider problems.

## Revision—Keeping it Up to Date

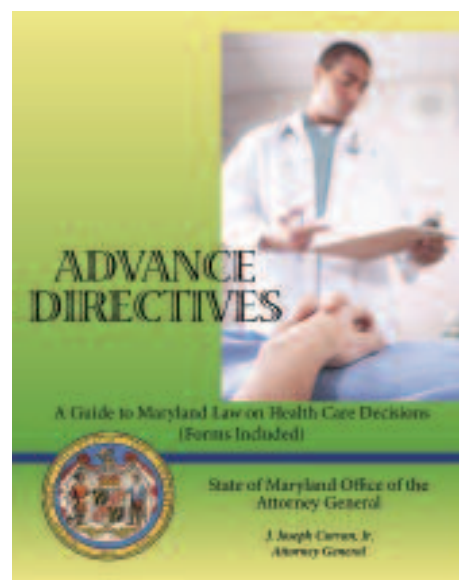
Consider Jenny, a 20-year-old who has no impairments and has rarely suffered a day's illness. Jenny has an active social life, loves to dance, and works out regularly. She thinks about Alice, her 80-year-old grandmother who can barely walk, is going blind, and has hearing problems. Alice rarely leaves the house, is losing her short-term

memory, and the highlight of her week is the phone call from her daughter. Jenny looks at Alice and thinks, "I'd rather die than live like that." Alice does not agree. She has her comfortable home and a dutiful daughter, and her long-term memories are a great companion for her.

If Jenny suffered some devastating disease or accident that parachuted her overnight into the problems of advanced age, then Jenny's "I'd rather die" might still have force. But what if the impairments sneak up on her? Will she still want to die or will she gradually find zest in her life within whatever limits start to apply?

These dilemmas illustrate the importance of keeping an advance directive up-to-date—another aspect that is barely supported by the documents that I reviewed. They mention that you can revoke the document—but give no hint as to why you might want to. Only Maryland offered this sensible advice:

*"Once you make an advance directive, it remains in effect unless you revoke it. It does not expire. You should review what you've done once in a while. Things might change in your life, or your attitudes might change. You are free to amend or revoke an advance directive at any time. Tell your*



doctor and anyone else who has a copy of your advance directive if you amend it or revoke it.” (Maryland Advance Directives, <http://www.oag.state.md.us/Healthpol/a-directive.pdf>)

**Usability Lesson:** Users’ goals change over time. Think about supporting that process of change.

### Creating Your Own Advance Directive

And a last thought. If the Terri Schiavo case, or anything in this article, has persuaded you to consider making your own advance directive, then you will need to tackle whatever forms are legally required wherever you happen to live. But I also suggest that you investigate:



- The American Bar Association’s free Toolkits for process help: <http://www.abanet.org/aging/toolkit/tool6.pdf>
- Five Wishes®, available for a modest charge from Aging with Dignity <http://www.agingwithdignity.org/5wishes.pdf> UX

### ABOUT CAROLINE JARRETT



Caroline Jarrett is an independent usability consultant specializing in forms. After thirteen years as a project manager of computer systems integration projects, she founded Effortmark Limited in order to concentrate on “what systems are for” instead of “how the system is put together.”

### THE VIEW FROM HERE

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But I question the need to advance along a management track to accomplish this objective.

Having been in management consulting (along the way), I have found the hierarchy often inhospitable to the UX value proposition. It is not enough to just pitch usability or good design higher up the chain. Management consultants are hired to achieve business goals, within which user experience seems a troublesome fit. It is not operational excellence and is not necessarily a growth strategy, and it’s certainly not cost management. We are not even marketing, but if we push too hard for a seat at the table, we may find ourselves sharing marketing’s fate, which is serving the business and not the user.

We sound good in theory, but it’s not just a matter of showing return on investment, which managers know how to manipulate better than we do. It’s a problem of cultural fit in the decision-making process. At some level in the hierarchy, and it may be even be in the middle, we find our glass ceiling. Is it really worth breaking through? Do we really know what a “CXO” does? Most large firms do not even have chief marketing officers.

I find the “push” approach the reverse of what really works in most organizations. User experience must get “pulled in” to its best workable level within each organization. It is not hard to locate enthusiastic sponsors in most organizations anymore—UX is not a risky value proposition. The question is, at what level does it make sense to lobby sponsorship?

### Institutionalizing Usability

Jakob Nielsen addressed the institutionalization of usability in a recent *Alertbox*. He identified two phases of internal support as “Early Evangelism: From User Advocate to Usability Group,” and “Late Evangelism: From Usability Group to Usability Culture.” If our goal is to move from one UX practitioner

and no group to a usability culture, it will not be achieved through promotions. But I consider the power of the usability culture is in making the practice so desirable that every product and every process will want what we have. We will create a more sustainable practice, and more quickly, by cultivating an internal demand than by acquiring formal organizational status.

Yes, in some small companies, we may have CXOs or the like. Start-ups live and die by one product which they have to get right, and tying one product to a user experience strategy may be the most workable approach. But after that one good design hits the streets, much of the game is marketing (see iPod). After all, start-ups also live and die by their sales and investors.

But does it make sense for IBM, or even Apple, to have a CXO? How do we effectively champion every user at that scale? Upper management turns experts into business generalists (see Microsoft). Management wants an integrated approach to organizational problem-solving and not a “new fix” from an underappreciated discipline that may already be successful right in their midst. User experience design and research advocates such an integrated approach. The key may be to integrate it as a competitive advantage within each of our organizations, uniquely. Then we may find our success in integrating UX, and with it our human and user-oriented values, within the business processes that affect the user experience. Such an integration of practice and values into process will necessarily raise UX to decision-making levels.

User experience becomes infused into projects, processes, and practices through people: winning over the people in one project, and then one significant product, at a time; building formal processes only to the extent projects and practices can handle, and then capturing the gains and promoting the successes. Then we will find our project and product managers championing the successes of user-centered design. UX

—Peter H. Jones, Ph.D.

### ABOUT PETER H. JONES, PH.D.



Peter H. Jones, Ph.D., is managing principal of Redesign Research, Inc., a consulting practice for interactive product design, customer research, and innovation strategy. Redesign Research provides in-depth user research and interaction design and organizational consulting in user experience practices and in design and innovation processes. Dr. Jones wrote *Team Design: A Practitioner’s Guide to Collaborative Product Development* in 2002. He continues to rant and rave at the blog <http://redesignresearch.com/blog/reblog.htm>.

# Better Business with User Experience: Another Consultant's Perspective



Peter H. Jones, Ph.D.

In venues ranging from online discussions to conferences and online communities like UXNet.org, consultants and employees are advocating for a strategic role in their organizations. The *UX* Summer issue even elevated this focus to its cover story.

It sounds simple—if we acquire more responsibility and advance organizationally, user experience (UX) will inexorably drive through the company's DNA and infuse projects and processes with the customer's voice.

Perhaps, but real management practice has a way of uncomfortably adapting to business change. I think we have a good debate started, but wonder if we are proposing the solution ("move up the ladder") without understanding management as a problem domain.

## How do we design a user-centered organization?

As UX professionals, we continue to explore ways to improve our services. In fulfilling our mission of ensuring delightful customer experiences, we find ourselves working with people within and across the organization who are unfamiliar with our mis-

sion. In some cases, we find ourselves dealing with business processes and management practices adversely affecting our ability to champion the user. We often find inflexible project management practices, date-driven projects, and tight budgets. These frustrations would disappear if we were in charge, we may think. Do we then, as Don Norman has famously suggested, "change the company" to get better usability? Well, as we say in our customary response, *it depends*.

Organizations are usually not user-centered, and we admit surprise that the user experience value proposition is not self-evident. But executives are not centered around users, or even customers. They are business-centered. They are largely rewarded for

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accelerating progress toward financial goals and extend rewards to those who capitalize on markets and turn products into market share. Usability becomes another trade-off, as much as safety, reliability, supportability, accessibility, and other product factors are traded-off and even compromised, unfortunately. As champions of user needs, we often play devil's advocate to business needs. So to what extent do we champion (however we define it) business success?

## What do we really want?

We should step back and reflect on what we really envision for the organization. Do we want superior products with world-class ease of use? Do we want to create innovative products with a higher market risk and

bigger long-term possibilities? Do we want organizations that listen to the user and adapt products to meet their explicit needs? Do we want organizations that drive innovation down deeply into processes, and evolve products with user participation? Do we want to help our good company become "great"? These are very different objectives, and each one assumes a different context of management. None of these visions are met in the same way. Furthermore, we all must start from where we are located in the organization now.

Now reflect on what we want as individuals. What do our values, commitments, and careers call us to do? Different professionals have different personal missions. Some of us

are designers and delight in creating bold and moving products. Some of us are researchers, driven to understand human behavior and interaction, producing powerful data for business and product decisions. Others are entrepreneurial, finding better ways to do business focused on the user. How many of us are currently managers as a professional practice?

So why do we think we must become managers? To have sufficient influence? To develop and institutionalize better design practices? To oversee product development? It may be fair to say we want to have more influence, more say over products, and better organizational practices for achieving user-centered design.

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