

Summary

User experience—including usability and accessibility—starts with user research. This chapter is a way to combine user research from many sources into a single document, to help you remember to put user research at the center of the design process.

This chapter introduces eight personas, differentiated by ability (physical and cognitive), knowledge (their knowledge and skill), and attitude (their motivation, emotion, risk tolerance, and personality).

You will hear from these personas in the following chapters, as they help you to understand different aspects of design affect the user's experience of their experiences.

CHAPTER 3

Clear Purpose; Well-Defined Goals

How Clear Purpose Supports Accessibility	37
How to Design for a Clear Purpose	38
Start with purpose and goals	38
Design for clarity and simplicity	39
Think "accessibility first"	39
Make templates accessible, too	41
Choose an accessibility strategy	43
Who Is Responsible for Clear Purpose?	43
Summary	46
Profile: Simple and Usable with Gilles Colborne	47

OXO Products



The clarity of the design of the OXO products hides the attention to detail that makes them work so well.

Some of the best examples of purposeful design come from the consumer products company, OXO. Most of their Good Grips line of kitchen tools support a singular task: boil water, peel vegetables, spin-dry lettuce. OXO's products are also designed to be used by people with limited dexterity, such as people with arthritis, and to be comfortable and effective for people who are right- or left-handed.

As an example, consider the travel mug. There are more factors to designing one than you might expect. It helps when you start by thinking about the purpose: to provide a satisfying and safe drinking experience. To design the mug, OXO did research into the "optimal sipping volume" and determined the ideal size and shape to deliver a comfortable amount of hot beverage.

In taking into account the needs of a broad spectrum of users, OXO is able to distill down the critical features of their products to those that are the most necessary and create designs that focus on those features and make their use seem effortless.

It's a happy moment, happening upon a product that has a clear purpose. These products are recognizable by their straightforward effectiveness, dedication to users' goals, a direct path to the task at hand, and freedom from confusing clutter or extraneous elements.

Not many products are able to stick to a singularity of purpose—it takes restraint on the part of the designer and the consumer. It's easy to fall into the trap of creating multi-featured tools, like the Veg-O-Matic: "It slices, it dices! But wait, there's more!"

A clear purpose helps to create designs that avoid unnecessary complexity. Guided by the goal to deliver content and functionality to the broadest possible audience, teams have the means to stay true to the product purpose and make design decisions that favor the most universally usable approach.

How Clear Purpose Supports Accessibility

A clear purpose is a key to good user experience and accessibility.

Sprawling, cluttered websites and complex, multi-layered web applications are harder for everyone to use. By maintaining focus on essential features and functionality and favoring simple solutions, designs are better for everyone.

With a clear purpose, **people enjoy products that are designed for the audience and guided by a defined purpose and goals.**

- **Sites can be less complex and confusing.** Pages with many different "calls to action" and competing content can be especially difficult for people who have difficulty focusing or an attention deficit disorder.
- **Page layouts are clear.** If the purpose is not clear, it's hard to have a clean hierarchy of information in either the visual design or underlying structures. Clean layouts work better for people who use screen magnification software and can only see a portion of the screen at a time. Simpler pages are also easier for people who don't read well or are reading the language of the page as a second (or third) language.
- **Forms and other sequential interactions make sense.** Many types of assistive technology present web pages in a linear sequence. Layered interactions that are not coded clearly can be difficult for people who are not frequent web users (and may be less comfortable exploring) and can be impossible for people using assistive technology to navigate.

- **Accessibility can be built in.** Fixing problems in a design never works as well as avoiding them to begin with. And fixes made late in a process often require changes that compromise the design. When the purpose is clear, design, code, usability, and accessibility can work together from the beginning.



Maria

When a site is confusing, I just leave.

My clients, most don't speak English well, so I need sites that have health information in Spanish, too. I can read it with them and make sure that they understand it, and that they know the words to tell their doctor.

To tell you the truth, on my own, I don't stay on a site long if it's confusing. On many sites, there is so much crammed in that I can't find anything at all. It just makes my head hurt to even try. I like the sites that are simple and don't have so many decisions I have to make. When I find a site that works for me, I stick to it. I have a nice health site that I use most of the time. For anything else, I just search.

How to Design for a Clear Purpose

Design for universal usability is an excellent way to arrive at a clear purpose. You can focus on necessary features, avoiding elements that are not essential to the product purpose. With accessible design as a starting point, you end up with a better product—one that has a clear purpose and is easier for everyone to use.

Start with purpose and goals

All too often, teams dive into a project without a clear idea of its purpose and goals. They start knowing the site will have a shopping cart, video, or social media, and then dive into designing the site without first knowing its core mission.

When considering the purpose and goals, focus on audience goals rather than business goals. In most cases, using a product isn't a goal in itself, so dig deeper and see what needs it will meet. For example, "use social media," is not a user goal, but rather "connect with my friends," or "let the world know what I'm doing," or even "tell my family that I'm on my way home."

The design team should be able to answer the questions, "Why does this website exist?" and "What value does this site provide for the people who use it?" It's easy to get excited about technology ideas or get bogged down in lists of features. But teams that work from a shared understanding of the clear purpose for a product make better decisions about features and functionality.

Design for clarity and simplicity

The digital environment is incredibly flexible—seemingly without boundaries. However, each new feature adds complexity and can adversely impact usability. And bad general usability can mean no usability for people with disabilities. *

Try focusing design and developmental efforts on critical aspects of the product—the content and functionality required for the product to achieve its purpose. Even when working on a complex product, look for ways to make it *appear* simple. When you can explain the purpose of the site or app clearly, it's easier to choose among design options.

Four Strategies for Simplicity

In his book *Simple and Usable*, Giles Colborne identifies four strategies for simplicity:

- **Remove:** Get rid of unnecessary elements until the product has only the essentials.
- **Organize:** Arrange the elements on the screen so that they make sense.
- **Hide:** Move any elements not essential for mainstream use so that they do not clutter the screen.
- **Displace:** Consider whether any elements or features can be handled off-screen, either in a different part of the site, on a different device, or by users themselves.

www.simpleandusable.com

Think "accessibility first"

The best time to consider accessibility is at the start of a project when defining the product purpose. When accessibility is part of the purpose and built in from the beginning, the product works better for everyone.

This way of thinking may seem backward. Why start with the exceptions? Historically, websites and web apps have been designed for early adopters, then adapted for a more general audience, and only then made accessible, usually imperfectly.

When good designers shift this around, thinking about accessibility first, they end up with a product that is stronger and more usable for everyone. Considering a diverse audience is just the same as working in many languages or across many devices and platforms. When you include accessibility in your thinking from the beginning, it is just one more aspect of the flexibility needed for today's products.



Emily

Simpler screens are easier screens.

I love having a tablet computer. It's small enough to go everywhere with me. However, being small can also mean that the whole page gets small and crowded, and that makes it harder for me to use the site. I can't tell you how often I've gone zooming off to the wrong link or couldn't hit the right button. The ones I like seem to have everything in the right place. It's like they read my mind and put the things I need on the screen when I need them.

Designing for Mobile Helps Focus on What Matters

As the web moved to smaller mobile devices, designers like Luke Wroblewski saw an opportunity to shift the paradigm and make a move toward simplicity. Websites can be flexible. You can add menus, link in new pages, and add more widgets pretty easily, especially compared to older software engineering. As screens got bigger and the Internet got faster, optimizing a site was not as big a problem. That led to feature creep. Instead of being even more rigorous about what is important enough to get space at the top of the page, pages got bigger and the text got smaller, to cram more onto the screen. Something had to give.

Luke suggested that design start with "mobile first." Instead of trying to cut down a large website, you can use the constraints of a small screen to make the hard decisions about how to use the precious real estate on a mobile screen. The discipline required to build a good mobile experience also forces you into a simpler approach overall, without unnecessary complexity and with important information first.

You can see a video of Luke's talk about his approach from the LinkedIn Tech Talk series at www.lukew.com/ff/entry.asp?1137 or read his book, *Mobile First*.

Make templates accessible, too


Templates, widgets, and toolkits are the building blocks for many websites. Even experienced developers usually start from a template or sample code. The effort to make templates accessible pays off every time they are used, and sites built from accessible templates work better for everyone.

For example, WordPress is one of the largest content management systems out there. According to wordpress.org, it's built by a community of volunteers, and is used by over 25 million people to build a site or a blog. The default WordPress 3.0 theme was called Twenty Ten, and it looks like the screen in Figure 3.1.

Like all of the WordPress themes, it's a fully designed site that's ready for an author to customize with different headers, menus, and widgets.

Twenty Ten

Just another WordPress theme




[Home](#) [A Parent Page](#) [HTML Elements](#) [Image Alignment and Styles](#) [Readability Test](#)

Twenty Ten now available with WordPress 3.0

Posted on [June 18, 2010](#)

Theme Name: *Twenty Ten*
Theme URI: <http://wordpress.org/>
Description: *The 2010 default theme for WordPress.*
Author: *the WordPress team*
Version: *1.0*

 Just in case you haven't already heard the news: this theme is now available with today's [arrival of WordPress 3.0](#). Twenty Ten is just one of many features in this major new version of WordPress. I'm both very proud of and very grateful for the efforts of the many developers who contributed their code and advice during the development of

Search

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M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

» Jun

Recent Posts

- [Twenty Ten now available with](#)

FIGURE 3.1

WordPress Twenty Ten theme: <http://2010dev.wordpress.com/>

Now, let's take a look at an accessible version of Twenty Ten in Figure 3.2.

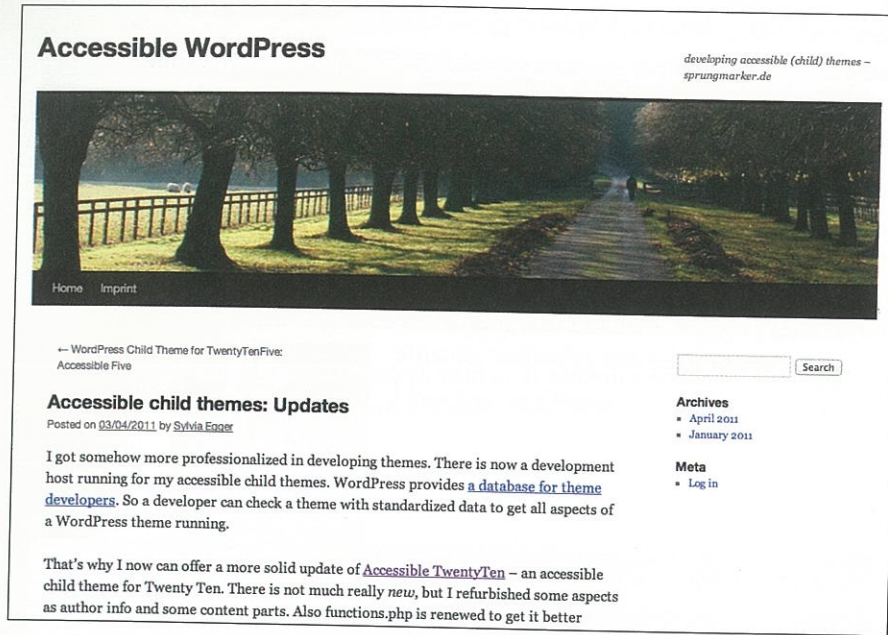


FIGURE 3.2

Accessible WordPress modified Twenty Ten theme: <http://accessible.sprungmarker.de/2011/01/accessible-1-0/>

For this variation (or child theme), the designer, Sylvia Egger, added a few features to make the site accessible:

- Accessible color contrast meeting WCAG AAA
- Better keyboard handling with visible focus
- Link hover and active states so it's easier to see
- Skip to content links at the top
- Headings for sidebars to help identify the content

That's it. And you can barely tell the difference in the overall look of the design.

Even better, volunteers are working to include features that support accessibility in the standard WordPress themes. With thousands of people using a theme, a few extra steps will make all the sites created with it work better for everyone. Because whether they need large text and high

contrast to read easily, use a keyboard to jump from link to link, or control their computer with voice input, everyone comes to those sites with the same goals: to read, explore, learn, or shop.

Choose an accessibility strategy

Accessibility is not black and white, on and off. You should aim for full accessibility, but when you hit roadblocks, it's helpful to think about a range of approaches, listed here from most to least desirable.

- **Universal (or inclusive) design—one site.** Everyone has the same means of use, with elements that work for everyone, no matter what interaction mode is chosen. The goal of this book is to help you create universal or inclusive websites and apps, so no one is left out of the experience. For example, a video with captions and video description and an accessible video player lets everyone watch the same video.
- **Equivalent use—includes alternatives.** Products contain similar ways to meet the same goals but present them in different ways. For example, a transcript for an audio file has the same information, but someone reading the information has a different experience than someone listening to the audio.
- **Accommodation—a separate “accessible” version.** Accommodation is disability-speak for working around a barrier without removing it—“separate but not equal.” Accommodations like a “text only” version are not acceptable. It's not okay to create a separate design—one that delivers a separate and degraded experience—for people with disabilities. ✗

Who Is Responsible for Clear Purpose?

A clearly defined purpose forms the basis for projects and serves as a touchstone throughout the project. Every member of the project team needs to be on board with that purpose and remain loyal to it. Design for clear purpose is a guiding principle through all phases of the design process.

In his book, *Brunelleschi's Dome*, Ross King describes how the Florence Cathedral got the largest masonry dome ever built. For 50 years, master builders were required to swear an oath that they would follow the model as they built the church, even though no one at the time had the slightest idea how to build a roof that large. Each master builder took up the challenge, solving one problem after another, until they were able to complete the project. That's faith in a project vision.

Equivalent or Accommodation: Easy Chirp and Twitter

As wonderful as Twitter is, it is clear that it was not built with universal design in mind. Compare the Twitter client (Figure 3.3) with an accessible version (Figure 3.4).

The Twitter website was designed for use on a large display. It puts a lot of functionality in a small space. But it's not designed or built for accessibility. Although the Twitter site has been redesigned several times, it's still hard for some people to use.

Easy Chirp takes advantage of the Twitter application programming interface (API) to create an accessible site. It's not pretty, but Dennis Lembrée designed it for access by anyone, regardless of ability and using any web interface. It has all of the functionality of the Twitter website, coded so that it works with screen readers.

The difference between these two ways of using Twitter is immediately clear. There are two ways to look at this from a universal design perspective.



FIGURE 3.3
Twitter website:
www.twitter.com.

First, you might ask why Twitter didn't think that it was important to work for screen readers. Twitter made sure that it was globalized, working in dozens of languages. Why not make sure that it worked for screen readers?

But you can also look at the fact that there is a robust API. There are many programs that help people work with Twitter in their own way. In this view, Easy Chirp is just another variation for people with particular needs.

The danger of taking advantage of this "equivalent use" approach and relying on other programs for accessibility is that they all have to be kept up-to-date as features and the API change. Over time, the accessible versions can fall behind or even stop working entirely. This happened to Easy Chirp when Twitter changed its API in early 2013. As this book went to press, Dennis Lembrée announced the launch of Easy Chirp 2 with help from Kickstarter funders.

What do you think?

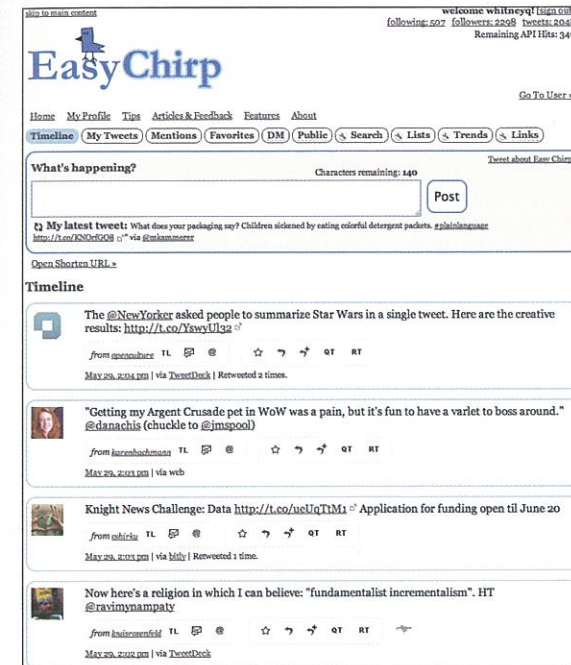


FIGURE 3.4
Easy Chirp website
in early 2013:
www.easychirp.com.

Summary

A clear purpose is the starting point for any successful design. Like any user experience design, a clear purpose starts with understanding the audience, including people with disabilities.

Thinking about accessibility from the beginning—"Accessibility First"—is similar to the approach of thinking "Mobile First" to ensure that the design works as well in a screen reader as it does on a small screen.

There are three approaches to accessibility:

- Universal design aims for a website or app in which the same design and content elements work for everyone, no matter how they interact with the web.
- Equivalent use focuses on ensuring that each mode of interaction—visual or auditory, tactile or keyboard, for example—has an equally good experience.
- Accommodation is the least desirable, because it creates a separate—and usually unequal—experience.

Profile: Simple and Usable with Giles Colborne



Giles Colborne is co-founder of cxpartners, a design consultancy specializing in strategy- and research-driven approaches for designing websites and web applications. With a rigorous practice of user research and usability testing, cxpartners creates simple, easy-to-use designs, paying particular attention to global accessibility.

In his book Simple and Usable: Web, Mobile, and Interaction Design, Giles teaches the art and science of achieving simplicity in interface design. We wanted to learn from Giles how accessibility can impact a simple, purposeful design approach, and vice versa.

Simplicity is good science and good interface design.

Giles comes to interface design from science. As a physics student, simplicity was impressed on him as the mark of good science. "The whole purpose of the scientific endeavor is to pack reality back down into a handful of equations." He credits his background for his enthusiasm for approaching a seemingly complex interface challenge and seeking the path to the simplest solution. "It doesn't strike me as paradoxical, it strikes me as rather beautiful."

In practice, most interfaces we encounter don't reflect Giles' enthusiasm for simplicity. "People make software very difficult to use by loading on features." The result is software that requires practice to become proficient.

Simple designs put complexity in its place.

In one project, Giles worked on improving the interface for a travel planner. The software tapped into a vast store of data, of places to see and things to do, with supporting details about location, time to get there, time needed to visit, and hours of operation. "When we put the interface together, it totally bombed. The app was constantly saying, 'You can't do this, you can't do that, you haven't done enough of this.' It was so hard to use, and so unforgiving."

Giles went back to the drawing board. Rather than have the software identify possible options, he had users create lists of locations and places that were of interest to them. The computer didn't try to work out whether or not the itinerary was practical—it gave people enough data to figure it out themselves.

People are good at imagining the future. Computers are good at remembering stuff. By handing off the task of imagining to the user and the task of remembering to the computer, it all worked out. The process taught me a powerful lesson about where complexity belongs, who should own it.

profile continues on next page

Observe real people to learn what's needed.

Giles' practice is informed by user research. "You can't make safe predictions about how things are going to work until you engage with the audience." And that means engaging with real people, not through imagined personas or user stories.

People fall in love with pen portraits of their users. Not their real users—the users they'd like to have: young, attractive, happy, active, outdoorsy, not distracted, completely able-bodied. When you bring real users to the testing and design process, the reality is that there's much more variability.

Giles finds that some of the greatest insights come from studying how people work in extreme circumstances. For one project, Giles researched how people with ADHD manage their condition as a way of understanding more broadly how to design for distracted users.

Everyone operates under some kind of duress that degrades their performance, and yet we design stuff in nice quiet offices and reflect on the design and interface and take a long time discussing something that a user needs to do in a fraction of a second.

Giles does international testing, which also yields insights that resonate with accessibility. A design that can adapt from English to Chinese must handle enlarged text, so small details in the characters are legible. "That flexibility in presentation is at the core of what you're thinking about when you're thinking about designing for accessibility."

Designing for multiple devices supports accessibility.

Giles has seen significant change in how design is done, due to the diversity of devices. Instead of detailed wireframes and mock-ups, now he starts with information hierarchies. Instead of creating Photoshop mock-ups, prototypes are done in code, with designs and layouts that respond to different viewports. This change in practice may move us closer to designs that are simple and usable, for everyone.

As soon as you start to think about how navigation appears on a small screen, you start to focus on information hierarchies that also work well for accessibility. On a small screen, you don't want navigation, and then you scroll down and there's content. You want content, and then scroll down and there's navigation. And, of course, that's what you want for a screen reader as well. This discipline of designing for multiple platforms and environments makes you start to think in useful ways about accessibility.

CHAPTER 4

Solid Structure: Built to Standards

How Solid Structure Supports Accessibility	51
How to Create a Solid Structure	53
Code content to be machine-readable	53
Code to standards	53
Use standard web technologies	55
Organize code for clarity and flow	56
Use stylesheets to separate content and presentation	58
Use semantic markup for content	58
Who Is Responsible for a Solid Structure?	61
WCAG 2.0 and Solid Structure	61
Summary	62
Profile: Accessibility Standards with Mike Paciello	63