As digital media like the web and mobile become more pervasive in our everyday lives, the role of interaction design becomes crucial to the success of a mobile experience. Designing for two-way interactive media cannot be looked upon the same way as designing an inanimate object or product. As designers, we must create powerful experiences that fit into people's everyday lives. It is not just about how the experience visually looks, but how it behaves—every screen, every click, every bit of information displayed determines the quality of the user experience.

When designing for mobile, we must place serious consideration toward where the software will be used, what it will be used for, and what the target mobile operating system and mobile device will be. Will the mobile site or application be designed for an iPhone environment, a Google Android environment, or a Symbian environment?

In this chapter, we will first discuss the role that interaction design plays in creating useful mobile sites and applications. We'll also talk about the special implications to consider when designing for the small screen. Given the limited screen real estate and unique input techniques of mobile devices, an even greater emphasis should be placed upon the interaction design phase of a mobile project. Next, we'll review the proper interaction design process and the various methods used in creating interaction design deliverables. Some of those methods include target device analysis, user research, persona creation, sketching, and interaction design schematics. We'll close out the chapter by leaving you with enough information resources to go off and begin your own work.

Designing for the Small Screen

"Trying to type on mobile is like trying to remove a contact lens with a cotton ball — it's just not fun." [1]

—Aza Raski

1 www.smallsurfaces.com/2008/06/firefox-mobile-concept-video/ Aza Raski

Designing for small screens has always been one of the biggest challenges for the mobile medium. When compared with the PC, smaller screen sizes have always challenged designers to come up with innovative solutions to maximize screen real estate.

Mobile devices have evolved into powerful convergent devices with better processor capabilities, sharper screen resolution, better color display, and better overall features. The technology has evolved to a point where powerful mobile applications and mobile sites can now be used on the mobile phone. However, the devices still remain small when compared to PCs, and migrating full-size PC applications and/or web sites to the mobile device remains a bad idea. Not all design concepts that work in a PC environment can be successful on mobile devices.

Additionally, if we look out into the landscape of mobile devices, we see a landscape littered with thousands of mobile devices with different capabilities, and different screen size resolutions.

In Barbara Ballard's book *Designing the Mobile User Experience*, she talks of mobilizing, not miniaturizing, full-size, PC-based web sites and/or applications. Mobile sites or applications need to be optimized for the mobile experience. Expecting to completely transfer an existing web site or PC application to the mobile device is a recipe for a poor user experience. This section covers some reasons why designers need to mobilize, not miniaturize, PC-based experiences for mobile.

Varying Input Modalities

Most devices are standard clamshell or flip phones with access to a standard phone keypad, a left soft key, a right soft key, and a four-way directional keypad with a center select button. See **Figure 6.1**.

FIGURE 6.1 A standard slider device.

Other devices like the Apple iPhone are leading the next generation of multi-touch-screen mobile devices. These devices lack the standard input modalities that users have grown accustomed to. They also lack any form of soft keys or four-way directional keys. A good majority of a user's input is via a touch interface. See **FIGURE 6.2**.

FIGURE 6.2 An iPhone multi-touch.

Unless you optimize an existing web site or application for mobile, your designs will more than likely not support various input modalities via mobile devices. Imagine using a four-way directional keypad on your mobile phone to navigate a web site with over 100 live links. Users would have to click 100 times to get to the last link. Additionally, PC-based web sites often serve up standard hyperlinks that are difficult to click with a fingertip when using a touch-screen device. Mobile sites for Digg.com, Facebook, and ESPN optimize their interfaces to accommodate a touch-based input modality.

Varying Screen Sizes

Interaction design optimized to support varying screen sizes is mandatory these days. If you believe in the mantra that your user experience is your brand and your brand is your user experience, then perfect mobile page rendering is a must. Designs that are not optimized for varying screen sizes can create situations where some designs: **a.** don't utilize the full screen real estate, **b.** are off center, or **c.** bleed off the page and require an unnatural left-to-right scrolling.

The folks over at the Sender11 blog did a great study about mobile screen size trends, and their findings reveal that over the years screen size has definitely increased. Most of the larger screens have gone with a landscape orientation, while smaller devices typically stick to a portrait orientation. The study also noted that some of the newer devices on the market can change orientation so they work both in landscape and portrait. Overall, 240 x 320 (QVGA) is the dominant screen size in the market, and that particular size specification is rapidly being adopted by most handset manufacturers.

When optimizing design for varying screen size, the screen width is really the main thing to worry about. Page height can easily be accommodated by vertical scrolling. However, no one enjoys a horizontal scroll experience. Also keep in mind that 240 x 320 is the dominant screen size, but don't forget to design for the 176px-wide device. There are still enough 176px-wide devices in the market to design for, albeit most handset manufacturers seem to be decommissioning 176px-wide and 128px-wide devices.[2] See **Figure 6.3**.

www.usshortcodes.com/csc_best_practices.html

2 http://sender11.typepad.com/sender11/2008/04/mobile-screen-s.html

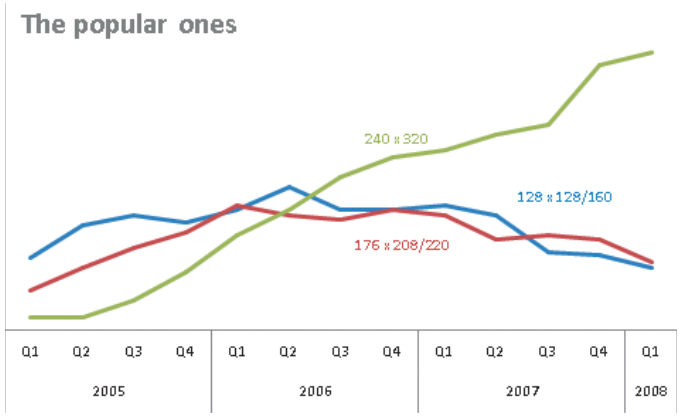


FIGURE 6.3 240px-wide (QVGA) devices are growing in popularity.[3]

A couple of key tidbits to keep in mind when designing for smaller mobile screen sizes:

- Create simple, organized page designs that limit any form of horizontal scrolling. Don't be afraid of using tabs, pull-downs, and multiple pages to keep your page designs clean and simple.
- Provide an easy way for users to return to the home page, access the main menu, and navigate back one level. Breadcrumbs allow users to track themselves within the mobile experience. "Tuck away" the main menu and allow users to utilize the soft keys to quickly access it.
- Make the screen size feel bigger than it actually is. If necessary, utilize techniques like zooming in and out, panning, and page leafing to create the illusion of larger screen sizes.

Varying Capabilities

Although mobile devices are evolving and becoming more powerful, a good majority of mobile browsers still cannot support Flash animations or stream QuickTime movies or podcasts directly in the browser environment. As a result, one critical step involved in mobilizing web content is to strip away content that

3 http://sender11.typepad.com/sender11/2008/04/mobile-screen-s.html

cannot be rendered on certain mobile devices. No one wants to see broken links or empty content blocks on a mobile site where a Flash movie was supposed to play.

On the flip side of stripping away content, designers and developers should create interactions that leverage the varying capabilities of mobile browsers. Some mobile browsers can even support special features like "page sliding." The current Digg.com iPhone site does a good job at using this "page sliding" feature. **Figure 6.4** shows a comparison of a mobile optimized site for Digg.com versus what the full Web site would look like rendered on the iPhone.

Figure 6.4
An Apple iPhone-optimized version of Digg.com compared to a full version of Digg.com rendered in the iPhone browser.

Varying User Expectations

We live in a world where there is so much content available but users have little time to navigate through the mounds and mounds of it. Users are increasingly consuming their content in small doses. As a result, the continuing trend for mobile content developers is to provide bite-size experiences to align with users' expectations of the medium. Most users don't want to watch a feature-length movie on their mobile devices, nor do they want every single possible article republished from NYTimes.com. The TV, PC, and print mediums will be the destination spots for long-form and richer content experiences.

Mobile users are typically on the go or just finding a few free minutes in the day to "snack" on content. Mobile is the perfect medium for "snackable" content. The content can be delivered in two or three lines of text, an abbreviated mobile site, or in a short 30-second video or audio clip. As a result, designers should create content experiences that leverage this expectation and behavior. Even with new devices that support bigger screens and faster network speeds, just moving all TV, PC, and print content over to mobile without restrategizing and/or redesigning is a recipe for bad user experience.

Varying User Behavior

The true differentiator of mobile is dynamic content based on time, location, and social awareness. This does not apply to other mediums like TV, web, or print. Mobile designers should focus on this difference and its implications because users' behavior while mobile is different than users' behavior when tethered to their PCs. When users shift from place to place, their content should change based on time, location, and social awareness.

Leveraging Built-In Hardware and Features on a Mobile Phone

Mobile applications can leverage built-in hardware on a mobile phone like integrated GPS chips, built-in cameras, and video recorders. Mobile applications can also access users' contact lists and scan through their media files to add further depth and personalization to the user experience.

One great example of a mobile application that taps into a mobile device's built-in hardware is the Nokia Sports Tracker. See **Figure 6.5**. The Nokia Sports Tracker mobile application utilizes the built-in GPS hardware on a mobile device to track the speed, distance, and time for users during sporting activities.

This is a good example of how leveraging built-in hardware essentially makes the application worthwhile and possible. If designers

simply "miniaturized" existing web applications, then they would miss out on fully leveraging these new mobile capabilities.

FIGURE 6.5 The Nokia SportsTracker application leverages a built-in GPS chip.

What Is the Mobile Interaction Design Process?

Interaction design helps create a user experience based on user requirements. It lays down a framework for how a mobile site or application is organized, how it's presented to users, and how those users navigate or interact with the site or application. It also deals with different "states" of the experience and system feedback to the user.

Interaction design schematics will serve as a specification document for visual designers and programmers. It will also allow them to further work on bringing your mobile site or application to life.

In a perfect world, the interaction design process will involve user research to better understand the needs of the users first-hand. User research will then provide enough insights to inform a team of interaction designers to begin developing designs that can be prototyped and tested (multiple times if necessary) to determine whether or not the overall user experience is usable and optimally designed.

Much of what we will cover in the next few sections will mirror the interaction design process for web-based applications or sites, with some special considerations made for designing for the mobile medium. Essentially, it will be a quick overview of the interaction design process for mobile. If you want to dive

deeper into interaction design for mobile, we suggest that you pick up the following two books: *Mobile Interaction Design* by Matt Jones and Gary Marsden and *Designing the Mobile User Experience* by Barbara Ballard. Both books drill down to a level of thinking around interaction design that we will only skim over in this book.

The Three Stages of the Mobile Interaction Design Process

We've broken down the mobile interaction design process into the following three stages:

1. User research: understanding the users.
2. Developing designs: bringing ideas to life.
3. Test, learn, and refine: perfecting your ideas.

Figure 6.6 shows the three stages and what is involved with each stage.

Figure 6.6 The three-stage mobile interaction design process.

Ideally, every interaction designer would have enough time, resources, and budget to step through all three stages of the interaction design process in their entirety. Each stage has a different end goal, and interaction designers will employ various methods to reach these end goals. As we all know, not every project is managed in these "perfect world" conditions, so some stages may be "skimped" on.

STAGE 1: USER RESEARCH

Understand your users and define who they are. Watch what they do in their day-to-day lives. Ask them what they use their mobile devices for. Gain a sense of what mobile devices your

target audience is using. As interaction designers, we want to provide users with useful and usable mobile experiences that are grounded in sound user research and strategic design thinking. Once user research is performed, target personas are created based on the user research, and then user goals are identified for each persona.

By the end of this stage, an interaction designer should have completed these three main deliverables:

1. Target device analysis and recommendations.
2. User personas and user goals.
3. User requirements document.

The following section includes a description of each of these deliverables and the associated methods used to create them.

Target Device Analysis and Recommendation

This deliverable is unique to mobile. With the tremendous proliferation of devices in the marketplace, it is almost impossible to create a mobile experience that works on every device. As a result, it is important to identify what target devices your users will have. Once the target devices are identified, a thorough analysis of each device's capabilities should be performed, as well as a recommendation for how design and development should move forward when building out the mobile site or application.

Device fragmentation is a reality of the mobile industry, where multiple standards exist for multiple devices with different browsers, features, and carrier restrictions. My general rule of thumb is to "never" promise a client that a mobile site or application will work on every device in the marketplace.

A better approach is to make one of the following recommendations:

- **Target specific devices.** Identify a limited range of devices that are currently being used heavily by your target audience and design, optimize, and test only for that range of devices. Blackberry applications like the E*Trade Mobile Pro and the Digg.com Apple iPhone Web app are good examples

of mobile applications or sites that were created to satisfy a limited range of devices. This approach sets the expectations from a consumer standpoint as to what devices will be supported and allows the design and development teams to focus their time and attention on just a few devices.

- **Dynamic mobile content formatting.** Utilize handset detection that cross-references the WURFL device database, an open source XML configuration file that contains information about device capabilities and features. Once a device's capabilities and features are discovered, you can determine the optimal design specs (CSS) to apply to a core set of XML data. The optimal CSS will then be applied to the XML to present content formatted per the device accessing the content. **Figure 6.7** shows dynamic content formatting.

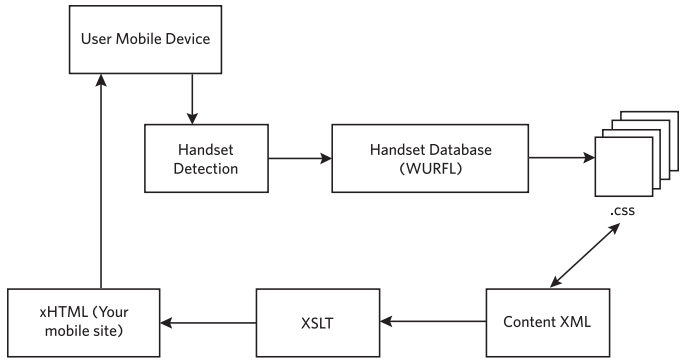


Figure 6.7 Dynamic mobile content formatting.

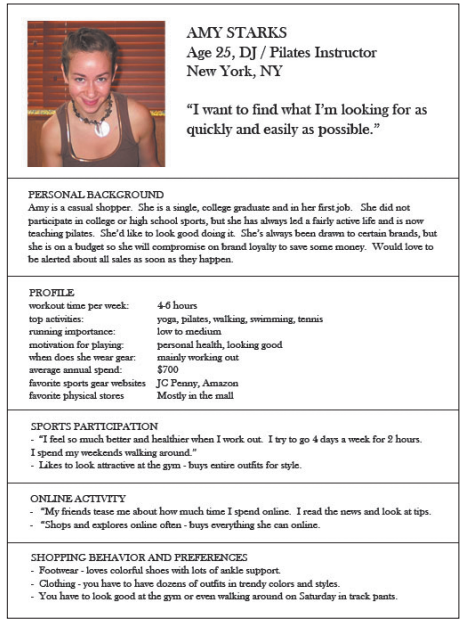
Since the WURFL device database is open source and constantly in flux as new devices come to market, you should design and develop your mobile site or application to degrade gracefully to account for missing or erroneous device information in WURFL.

User Personas and User Goals

User personas are representations of the different user types within your target audience. User personas are the foundation of any user-centered design process for designing any digital experience. The intention of creating user personae is

for designers to better uncover users' goals and needs when designing a mobile site or application. User personas will serve as the foundation for guiding decisions when it comes to determining features and design decisions around your mobile site or application. Ideally, personas are created based on information garnered during ethnographic studies and user interviews. Ethnographic studies and user interviews are the two main methods for creating user personae and user goals.

Personas are typically descriptions that highlight user behaviors, user goals, and attitudes toward technology and media. **Figure 6.8** shows a sample persona. Personas help interaction designers work toward designing for real users and avoid the common pitfall of designing for oneself. Essentially, personas should always be used by designers and developers as a reality check to keep the focus of the work on the common goals of real users.



AMY STARKS
Age 25, DJ / Pilates Instructor
New York, NY

"I want to find what I'm looking for as quickly and easily as possible."

PERSONAL BACKGROUND
Amy is a casual shopper. She is a single, college graduate and in her first job. She did not participate in college or high school sports, but she has always led a fairly active life and is now teaching pilates. She'd like to look good doing it. She's always been drawn to certain brands, but she is on a budget so she will compromise on brand loyalty to save some money. Would love to be alerted about all sales as soon as they happen.

PROFILE

workout time per week:	4-6 hours
top activities:	yoga, pilates, walking, swimming, tennis
running importance:	low to medium
motivation for playing:	personal health, looking good
when does she wear gear:	mainly working out
average annual spend:	$700
favorite sports gear websites	JC Penny, Amazon
favorite physical stores	Mostly in the mall

SPORTS PARTICIPATION
- "I feel so much better and healthier when I work out. I try to go 4 days a week for 2 hours. I spend my weekends walking around."
- Likes to look attractive at the gym - buys entire outfits for style.

ONLINE ACTIVITY
- "My friends tease me about how much time I spend online. I read the news and look at tips.
- "Shops and explores online often - buys everything she can online.

SHOPPING BEHAVIOR AND PREFERENCES
- Footwear - loves colorful shoes with lots of ankle support.
- Clothing - you have to have dozens of outfits in trendy colors and styles.
- You have to look good at the gym or even walking around on Saturday in track pants.

Figure 6.8 Sample user persona from chopsticker.com.

User Requirements Document

The last deliverable of this stage involves requirements gathering that will lead to the production of a user requirements document. The user requirements document specifies what the users will expect from the mobile site or application. The biggest difficulty is determining what the user actually wants; most users can't clearly communicate their needs and wants. Additionally, most users often provide inaccurate information, so the role of the interaction designer in determining accurate user requirements is a tough task. Interaction designers have to juggle conflicting requirements from various users and stakeholders and ultimately produce a user requirements document.

STAGE 2: DEVELOPING DESIGNS

Based on insights and requirements acquired during the user research stage, this stage is about creating concepts and interaction design schematics that represent the mobile site or application taxonomy, navigation, and functionality. Once these designs are completed, designers should create prototypes that allow for functional demos. These demos will then be used to promote discussions amongst the design team. Improvements to the prototypes can be iterative during this stage. Functional prototypes will then be utilized for formal testing during the next stage: Test, learn, and refine.

By the end of this stage, an interaction designer should have completed these five main deliverables:

1. Concept
2. Sitemap and navigation
3. Rapid paper prototyping or sketching
4. Interaction design schematics
5. Functional prototype

The following section includes a description of each deliverable and the associated methods used to create them.

Concept

This is the first deliverable of stage 2 and before any formal design work can begin, a concept (for example, "The Big Idea" or "The Elevator Pitch") needs to be defined. The concept is an overview description for the mobile site or application. The concept should be succinct: capable of being communicated in one short paragraph or in less than 30 seconds. TechCrunch.com has a great site with a compilation of elevator pitches (in video format) from aspiring startups. Check out the site for examples: http://pitches.techcrunch.com/.

Sitemap and Navigation

Typically when a mobile site or application is more than two levels deep, with many subsections on each level, a sitemap is necessary to define the architecture of the experience. The sitemap provides a general view of the overall contents within your mobile site or application. Creating a sitemap also forces you to create a taxonomy for your content that will essentially lead into how your mobile site or application's navigation structures and menus are organized.

Some interaction designers will utilize the popular card-sorting technique to help drive the creation of a sitemap and logical taxonomy for the content. The simple process of card-sorting (see **Figure 6.9**) involves sorting a set of cards (that are labeled with a piece of content or functionality) into groups. These user-generated groups then become the logical mental groupings of content and features that users have. Potentially, each grouping could be a different section within your mobile site or application.

Figure 6.9 Card sorting in action.

Rapid Paper Prototyping or Sketching

"Prototype early and often, making each iterative step a little more realistic. At some point you are likely to experience that wonderful "Aha" feeling that comes with a creative leap, but that is only an indication that you have moved forward in the detail of the aspect of the design that you are focusing on right then. You will only know that the design is good when you have tried it out with the people who will use it and found they they are pleased, excited, motivated, and satisfied with the result."

—Bill Moggridge, *Designing Interactions*

One technique used to bring designs to life is rapid paper prototyping. Rapid paper prototyping as a design technique has gained in popularity for developing web applications and could be used equally as a design technique for designing mobile sites or applications. The benefits that rapid paper prototyping provides to the design process are increased collaboration with users, stakeholders, and technologists to create more effective solutions. Paper prototypes allow designers to "work through" design decisions before they move down the long, arduous path of creating interaction design schematics. It is also a technique that allows designers to focus on a design solution and not the documentation before important design choices are made.

Sketching (see **Figure 6.10**) is another technique that shares benefits similar to rapid paper prototyping, such as enhanced collaboration with project team members and the ability to help designers "work through" design decisions.

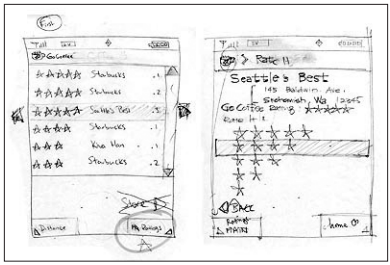


Figure 6.10 A sample mobile sketch.

Interaction Design Schematics

This deliverable involves wire-framing the overall mobile site or application experience. As opposed to rapid paper prototyping and sketching, interaction design schematics essentially are deeper dives into how the exact interaction and user flows of a mobile site or application are laid out. Schematics are used to take complex user flows and interactions and make them easy for visual designers and programmers to understand.

Detailed interaction design schematics often serve as documentation for developers and designers to work from. In some cases, schematics can be used to explain to stakeholders how the various pages of a mobile site or application will look and function.

However, in much the same way that interaction design schematics are "evolving" for designing web applications, mobile site or application designers may need to supplement interaction design schematics with functioning prototypes.

As mobile sites or applications begin to support technologies like AJAX, Flash Lite, Silverlight, and Cocoa, we begin to leave the world of page-based interactions. Interaction design schematics begin to fall short in showcasing different possible states of a page. As a result, we will begin to see more importance placed on the functional prototype.

Functional Prototypes

This deliverable typically comes after a design team has spent enough time putting together and thinking through interaction design schematics. Functional prototypes help convey the power of a mobile site or application. Instead of presenting static interaction design schematics or visual designs to a client, a functional prototype can help showcase branded interfaces that show motion and leverage iconic interactions. It also helps the sell-through process with key decision makers. Static interaction design schematics often don't provide the same level of emotional impact as a functional prototype.

Functional prototypes are also great tools to use for focus group testing or usability testing. Compared to static interaction design schematics or visual design boards, putting "live" functional prototypes in front of users is a more effective way of testing usability or validating concepts.

STAGE 3: TEST, LEARN, AND REFINE

This stage is all about putting your designs and prototypes to the test. Testing your designs is important so that you don't waste money executing ideas that don't make sense or are unusable. Whether it's focus-group testing or usability testing, this stage is used to identify strengths and weaknesses of a concept or enable an interaction design team to improve upon its designs. In some cases, it can force a team to start over from scratch.

By the end of this stage, an interaction designer should have completed these two main deliverables:

1. Focus group testing
2. Usability testing

The following sections describe each deliverable and the associated methods used to create them.

Focus Group Testing

Focus group testing typically validates your ideas, concepts, and prototypes by asking a group of qualified and screened people about their attitudes toward your mobile site or application concept and designs. Participants are screened to verify they are part of your target audience. The groups typically consist of 8 to 10 participants; a third-party moderator will often lead the conversation to help probe users' attitudes toward your mobile site or application. A professionally trained moderator can lead the conversation without influencing too much of what the users will say. Moderators will often follow a moderator guide created in conjunction with the design agency that sets the goals for the testing sessions.

Feedback from the group-testing sessions is often collected in a qualitative manner. The strength of focus group testing lies in its ability to allow companies to discuss freely with participants potential concept ideas, design ideas, and design layouts.

Clients, interaction designers, and researchers will often observe the testing sessions behind a one-way mirror. The sessions are often video recorded and transcripts created based on the video recordings. The feedback captured is an invaluable future indicator of whether or not the market will like or dislike the mobile site or application.

Usability Testing

Usability testing evaluates whether your mobile site or application meets its intended purpose. Testing your designs and prototype on real users allows designers to better understand from a usability standpoint what is working, what isn't working, and what can be improved.

Usability testing sessions often take place in one-on-one sessions, where users are observed using your mobile site or application. Prior to the testing session, the research team will identify 10 to 15 key tasks for the users to perform.

The testing sessions are often measured in very quantitative terms, where the researchers try to measure the following:

- **Task Completion Rate and Average Completion Time:** How long does it take for users to complete tasks?
- **Task Efficiency Rate:** How many steps did it take for users to complete tasks? This data is compared or contrasted with the minimal number of steps required to complete that task.
- **UI Learnability Factor:** Does the learnability of a mobile site or application improve with repetition?

Don't confuse usability testing with focus group testing. Usability testing is quantitatively measured in a controlled environment to scientifically prove how well users can or cannot use a certain product.

Best Practices and Resources

The three main areas of mobile that are instrumental to any mobile project or marketing campaign are SMS text messaging, mobile site creation, and native application development. Each of these key areas continues to constantly evolve. As a result, keeping up to date on the latest changes in mobile is a challenge for designers and technologists. The following list of resources is a great starting point to keep designers and technologists abreast of all the latest developments in the world of mobile.

SMS Resources

For those that need further background on best practices for executing SMS-based mobile marketing campaigns, the Mobile Marketing Association web site is a good place to start. The site is chock-full of industry case studies, white papers, and best practices. Also, learn about SMS best practices from the organization (CSCA) that administers short codes for all U.S. wireless carriers.

MOBILE MARKETING ASSOCIATION

On July 9, 2008, the Mobile Marketing Association (MMA) published the *Consumer Best Practices for Cross-Carrier Mobile Content Programs.* The PDF file can be downloaded from www.mmaglobal.com/bestpractices.pdf.

In the document, you will find guidelines for implementing short code programs, Interactive Voice Response (IVR), and off-deck mobile sites in the United States. The guidelines document is a compilation of accepted industry practices, wireless carrier policies, and regulatory guidance for the off-deck ecosystem. The guidelines document strives to implement policies that encourage the industry's growth via consumer protection and privacy.

COMMON SHORT CODE ADMINISTRATION (CSCA)

The CSCA administers for U.S. wireless carriers the common short codes that are used to address wireless messages. In addition, the CSCA oversees the technical and operational aspects of CSC functions and maintains a single database of available, reserved, and registered CSCs. The CSCA web site includes helpful insight into industry best practices.

www.usshortcodes.com/csc_best_practices.html

Mobile Web

The mobile web is taking off and the venerable World Wide Web Consortium (W3C) is setting the pace for mobile site-construction guidelines. In addition, dev.mobi, dubbed the most exciting mobile development community, also provides great insight into mobile web development.

W3.ORG — MOBILE WEB BEST PRACTICES

The w3.org Mobile Web Best Practices document specifies best practices for delivering web content to mobile devices. The principal goal of the document is to improve the user experience when accessing the web from mobile devices.

www.w3.org/TR/2006/WD-mobile-bp-20060412/

DEV.MOBI

Touted as the world's most exciting mobile development community, dev.mobi features a robust Mobile Web Developer's Guide. The guide includes content tutorials about creating a mobile web strategy and mobile information architecture.

http://dev.mobi/content/mobile-web-developer%E2%80%99s-guide-part-i

IPHONE

Check out the iPhone Web Development guidelines and learn the latest techniques on mobile browser–based design to ensure that you are designing the best user experience for your iPhone web applications.

http://developer.apple.com/webapps/

Native Application Development

iPhone, Google Android, Blackberry, Flash Lite, Symbian, J2ME, and widgets are all native application environments with different technical development environments and interface design guidelines. Trying to navigate each unique application environment is enough to drive designers and technologists mad. This section provides some great resources to learn how to kick-start content creation for different native application environments.

IPHONE NATIVE APPLICATION

Start from the horse's mouth. To design a compelling experience for your iPhone OS application, check out the Apple resource listed here.

http://developer.apple.com/iphone/library/navigation/Topics/UserExperience/index.html

GOOGLE ANDROID

Begin developing Android applications with the same high-quality tools you would use to develop Java applications. The Android development tools make running, debugging, and testing your applications a snap.

http://code.google.com/android/devel/implementing-ui.html

LITTLE SPRINGS DESIGN—MOBILE DESIGN PATTERNS

Little Springs Design, a mobile-user-experience consulting group, provides free mobile UI design resources and patterns for the mobile design community via a wiki. The wiki's goal is to be the authoritative resource for all things related to the art and science of mobile-user-interface design.

http://patterns.littlespringsdesign.com/index.php/Main_Page