Designing Usable Mobile Websites

A Practical Guide

Dan Seward
January 2011

Level 2 North Tower
10 Browning Street
South Brisbane 4101
07 3129 7070

www.peakxd.com.au

Introduction

Ten or fifteen years ago, the business world saw a mad rush to get "online". Most of us remember the phenomenal expansion of the internet in the late '90s, the dot-com bubble and bust – but what we might not remember (or at least try to forget) are the growing pains the web industry went through as we struggled to make good websites. In the push to simply get online using a limited set of tools, ugly, unusable sites were produced by the thousands. We lacked standards, best practices, and guidelines to make user-friendly sites. Usability was uncommon knowledge.

Now, a decade later, things have improved for the web, and they continue to get better in many sectors. But a similar construction boom is taking place right now, and everybody's buzzing about it. It's the mobile web.

In this age of smartphones, on the cusp of 4th generation (really fast!) mobile networks, and increased emphasis on mobile intranets, there is a mad scramble to make sure websites are mobile-ready. Company managers have dreamy-eyed visions of legions of customers in cafes, on trains, on street corners, browsing away. But in some ways, designing for mobile is even more challenging than it was designing for the web ten years ago. In 2000, about 80% of web users favored Internet Explorer; most of the rest used Netscape. There were only a few different monitor resolutions and sizes to design for. In 2011, there are heaps of mobile browsers on a huge array of display resolutions and capabilities, and they all fit into the palm of your hand. It's critically important to be disciplined in your approach to designing your mobile site, or you run the risk of building an unusable site. So how should you approach this challenge??

It's a great question. All mobile web projects will need to find their own way, but this article is intended to provide a useful, practical, common-sense guide to getting your mobile-optimised, usable website up and running. We'll look at some of the development considerations implicit in creating mobile websites, outline the bare minimum research that needs to happen, and discuss some basic design and implementation considerations to help ensure a successful outcome. There will be plenty of follow-on links to read further.

Mobile usability – where do I start?

On some level, developing a mobile website is pretty familiar territory. A mobile website project might come with a new set of considerations, but it's still a website and uses the same code as most other sites.

If ubiquitous access is a goal, there are a lot of constraints to viable implementation – there are plenty of older model, capacity-limited devices being used and unless there's a good reason (more on this in a bit), you probably want to ensure that these older devices can render your website as well. This means avoiding rich media, Flash, plug-ins, and dynamic interactivity. But there are so many users with "good" phones, who expect a correspondingly "good" experience. It's really tempting to develop for them exclusively.

There is a fundamental choice web producers have to make to address this conundrum: progressive enhancement versus graceful degradation. Graceful degradation is an established web development philosophy – a site is built to perform at a peak level on whiz-bang computers and browsers, but developed to recognise underpowered users and strip functionality out when accessed by less capable technology. Progressive enhancement takes the inverse approach – a site is built to present the baseline user with the most important functionality needed to accomplish their goals, and developed such that it adds more capability as capacity increases. Progressive enhancement puts a laser focus on core content and functionality, which is tops in the mobile space. It's so important to get this right that some influential people are advocating an extension of this philosophy right out of the mobile space and into full site development.

"We're just now starting to think about mobile first and desktop second for a lot of our products."

- Kate Aronowitz, Design Director - Facebook (October 2010)

YOUR Users first

Progressive enhancement goes hand-in-hand with a "users first" mentality. Consider some of the possible contextual problems for mobile device users: slower download speeds, in a hurry and distracted, small screen with poor lighting conditions. To get your site's mobile experience right, you've got to be crystal clear about what your site can do, and how to do it – in effect, your site must be highly usable. Mobile sites are a great challenge for user-centered designers, because guaranteeing an effective mobile experience means delivering your site's core value in the most streamlined and accessible manner possible.

That said, we all know there's a lot more to any satisfying interactive experience than in-and-out, pure usability. And the best way to deliver an experience is inevitably more complicated than just building a text-based website. So how do you know what platforms to support?

If you have a website and collect browser stats, you'll at least get a breakdown of devices attempting to look at your current site. Start here. If you don't have this information, then it's time to do a bit of homework. The web is a goldmine of free data on distribution of devices and mobile OSes. Geography and site intent will play a big role in how you develop. For example, in Australia Apple's iOS variants gobble a huge portion of the smartphone market, but in Asia and Africa, it's pretty hard to find Apple devices – instead, expect Nokia and RIM devices with varying degrees of sophistication. Enterprise users in the USA skew heavily towards RIM (Blackberry) products, but iOS, Android, and Windows phones are making headway and dominate the consumer smartphone market. Take the time to understand the types of people most likely to use the site, figure out the low-end devices and browsers they use, and set a target. Each device will have its own quirks – successful mobile site designs will understand the platform of use and mirror the device's design language where appropriate for a more natural, intuitive experience.

If your website does several things, perform some basic user research (surveys, interviews, or if you've got the bandwidth, ethnography) to understand which would be the most important to your users in a mobile context. If research simply can't be done, you'll have to make a judgment call. Then – and here's the important part – build your mobile site to support only these activities. Remember progressive enhancement. More can be added soon after if needed, but this is about establishing a foundation for your mobile site, an important interface between your organisation and your audience. This foundation needs to be rock solid.

Designing for a goal

It's time to execute. The goals for the site have been established, and the next step is to design. There are a few guidelines you can follow in order to create a usable mobile website that supports your fundamental use case(s).

Guideline 1: Remove unnecessary material
Across the board, this guideline is pure common sense. It's really good practice when designing any interface, but the challenges of mobile design just bring this to the fore. Your worst-case users have a small screen, a lousy connection to the internet, and they're in a hurry. There's no faster way to lose these visitors than by putting a bunch of extraneous stuff in their way.

To accomplish this for your mobile site:

- Use basic, small file size images… or none at all.

  Images can add feeling to a site or convey information, and as such they can sometimes be appropriate for mobile-optimised sites. But be aware that even small images can be a burden to shaky cellular connections. They may also introduce visual noise to a screen that's cramped simply by virtue of size. Large images in particular monopolise valuable real estate and can obscure the purpose and content of a page.

- Simplify instructions and site text.

  Text fills up mobile screens quickly. Cut to the chase, and KISS. Well-designed web forms rarely need instructions, so resist the temptation to tell users that they need to fill out the fields. Nix any "Hi there!" style welcoming paragraphs. Ginny Redish's advice – let go of the words – is more important than ever.

- Streamline markup.

  For developers: Sloppy code is never great, but with broadband connections and high-powered PCs, we can sometimes get away with it. With mobile devices, ugly code can dramatically increase load times and browsers are more apt

Guideline 1
The images on this gadget blog's site are too small to be legible. They add no value, only confusion.

Guideline 1
This mobile site has a more appropriate banner image and article thumnail - the top story is higlighted, but it's clear there are more stories below. The thumnail is easily readible as an image of the Blackberry Torch 2.

to display broken sites. A List Apart has a good, basic guide to mobile-friendly front end code.

- Don't use popup windows

  While some mobile browsers can handle multiple browser windows, others can't, or don't do it well. At the worst, the site will break for users. At best, they'll be annoyed at having to flip back and forth between pages.

Guideline 2: Stress the primary use path

Hand in hand with the first guideline, this general guideline is an exhortation to build your site with the primary pathway in mind. By removing extraneous material, we've already chosen the most important elements on the screen. But we can go a step further – keep the most common users actions towards the top of the page as a default, and place action elements strategically at decision points in the layout. When designing page layout, consider the instant in flow that the user would want to DO something – and then put that something right there.

It's crucial to keep your users in the flow of the task at hand, so resist the compulsion to hit site visitors with marketing messages or large amounts of support information.

Guideline 3: Provide clear indications of progress

You've got to let people know where they are, and you have to do it very efficiently. Sites that are simply exploratory or informative should let users know where they are. Intelligent, terse page titles are a good start. Use your company name or logo to remind users of where they are if they put down their device for a bit. Simple breadcrumbs (for deeper hierarchies) and prominently located forward / back buttons can provide a low-impact, manageable way to guide users through your site. Some mobile browsers supply forward and back buttons, but sometimes they are hard to access, which can be frustrating.

Guidelines 1 & 2
This NeimanMarcus mobile home page commits too much real estate to this marketing message and image - if you just want to browse the site, how can you do that?

Guideline 3
Back to top - of what? Whose site is this, anyway? This UK hotel's website is like trying to find your way to the bathroom in the middle of the night.

Guideline 4: Quick access to the full site - and back

Chances are good that your original, PC-friendly website was built before your mobile website. Some users are going to want to access that site for familiarity's sake, or to find some function that's not included in the mobile version. Let smartphone users skip back to the original website if they desire by providing a link to the full site on every page.

Here's an interesting thought for you - we believe you should let people access the mobile site from the actual web site as well. Why? Two reasons:

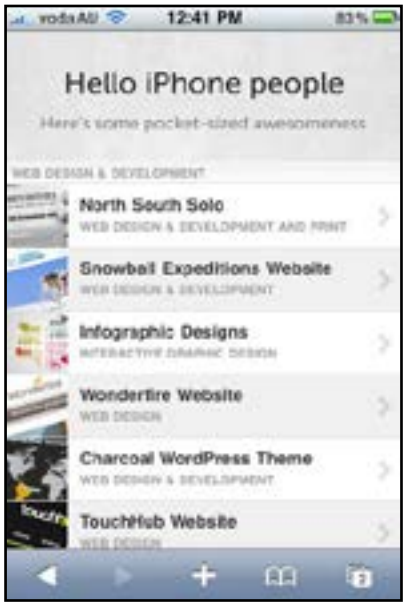
1) If your redirect for mobile users doesn't work, they'll have to get to the mobile site themselves. But they don't know whether you're at mobile.site.com, m.site.com, site.mobi, etc.

2) Users can toggle to the full site from the mobile site and have no easy way to get back.

Guideline 4
Wikipedia smartly allows users to see the full site. They also allow users to permanently choose the full site. Unfortunately they group these two options into one graphical element - it looks like one big button at the bottom.

Guideline 5: Provide a phone & email for easy contact

Your visitors have a phone in their hand. Let them call you with a press/tap/click. While the goal of many sites is to funnel customers away from the telephone channel via the less-expensive web channel, if the site they're using doesn't meet their needs it is vastly better to accept the call than to lose a customer to lousy service design. And hey, since your mobile site will be well-designed, nobody will use this option anyway. Right?



Guideline 5
This web design studio lets you view their "awesomeness", but if you're impressed there's no way to use the mobile site to get in touch.

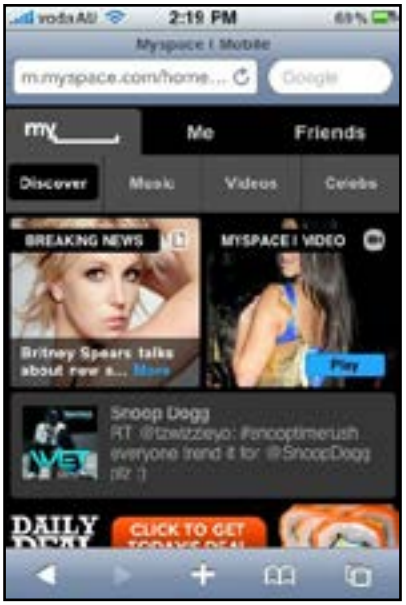
Page layout

By necessity, mobile-optimised sites require a simpler layout. We've already suggested culling extraneous material and placing action elements at decision points in the page flow. There are a few more considerations to look for when styling a usable mobile web page layout.

Guideline 6: Single-column layout for everything, including data entry

One of the current cardinal rules of usable mobile design is to keep all page elements stacked vertically in a single column (or as close to this as possible). There are a few good reasons to stick to this guideline. First, unless you're designing for only one or two specific platforms, you simply don't know what screen real estate your users are going to have. A single column of dynamically sized page elements significantly reduces the chances of your layout breaking. Second, horizontal stacking is a minimal, logical way to progress through a workflow. People intuitively understand the hierarchy of stacked elements. The third reason is convention – because of the first two reasons, most mobile sites are built this way, and people expect this presentation.

**If you've got code wizards on your team, they probably can figure out a way to build flexible layouts that collapse elegantly when confronted with narrow screen widths. This is a significant amount of wizardry to ask for, and while some can pull it off, designing simplified one-column layouts is a heck of a lot easier.*



Guidelines 6 & 7
myspace's mobile site has a fluid dynamic layout to adjust to changes in width. The four-tabbed menu structure and side-by-side video links would not render well on older phones, but this version of their site is developed for the hi-res smartphone market.

Guideline 7: Fluid horizontal layouts, not scrollable

As with usable websites for PCs, horizontal scrolling is a general no-no. It's widely accepted that screen-wide horizontal scrolling messes with a site's usability mojo. Basically, the only designed-for-PC web pages that opt for horizontal scroll are avant-garde, artsy sites that are more about showcasing design or coding talent than useful / usable content. But because mobile sites have to be displayed on such a small screen, it might seem reasonable to let a bit of horizontal scroll slip in, especially when touch users zoom in on blocks of text.

Don't give in. While touch-based devices make multi-dimensional scrolling a lot easier, not all devices are touch-based and not all of them facilitate happy scrolling experiences. Further, you either run the risk of users scrolling important information off screen, or hiding important information from them. Horizontal scroll basically adds another dimension to potential lostness. People know to scroll web pages up and down, but they don't expect to look side-to-side, so don't ask them to do it.

Guideline 8: Some vertical scroll is acceptable, but must be reasonable

Going way back in time, usability testing has demonstrated that people are not huge fans of vertical scrolling from a reflective perspective, but ultimately are perfectly happy to scroll so long as they're getting something good for the effort. The same basically holds true in mobile web site design, with the caveat that it just takes more effort to actually scroll long distances. And because we've got our information stacked vertically, the scroll-to-reward ratio is somewhat skewed. Short-range scrolling can be as simple as the flick of a finger, which is neat and tidy, but when users start flicking four or five times to get where they're headed, we quickly approach tedium. If they have to flick back and forth, up and down, well… say good bye, because they'll be gone. Ensure that relevant action elements are available at the bottom of the page as well as the top.

The exception to this guideline is for article-driven sites, such as those that give news or policy information. On these sites, users have clicked on a link expecting to find a particular chunk of text content. Give them this content in one block, with back buttons at the top and bottom. This allows the user to read the article without interrupting their flow. In this situation, limit other types of content and links - provide only a back button, and perhaps a link to the next related article.

Guideline 8
Even on the relatively high-res iPhone 3GS, this page is horribly long. Considering the copyright notice is from 2006, dumbphone and PDA users must have had quite a time scrolling.

Visual & Interaction Design

Someone could write a huge book on all of the interaction and visual design techniques and approaches that can be used in designing mobile web sites, have material left to spare, and find a large chunk of it out of date six months after publication. This section is less about the specific design of sites, and more about some simple design guidelines to follow when crafting the appearance and interactivity of mobile-optimised websites. Because they have their roots in fundamental human biological / cognitive interpretation of information, general usability guidelines like the Gestalt principles, Fitts' law , etc are still applicable. However, a few things stand out for special attention in the mobile space.

Guideline 9
kayak.com lets the user pull their location and date from the state of the device. Tapping + or - adds or subtracts numbers from the total - simple, straightforward input.

Guideline 9: Minimise input, especially text input

Here's something we all know about mobile devices, but easily forget as designers: using these devices to type is a lousy experience. While most smartphones have eased the pain somewhat with reasonable QWERTY keyboard inputs (touch or physical keys), they're still not efficient in the least, and can be markedly frustrating and often lead to user input error. In developing mobile-optimised sites that collect data from users, opt for forcing functions and form controls that can be manipulated with a click / tap, and avoid text entry fields where feasible. If using drop-down lists, ensure that the line items are not too long to display in the dropdown control. Where text entry fields are necessary, use predictive text suggestions to simplify the process if possible (smartphones only). Text entry fields accepting variable length strings should be the width of the screen, to enable users to see what they've entered.

Guideline 10
This is a visual design company. While their site is attractive, the grey text on blue in the menu, or grey text on black in the body make this site much harder to read, especially with screen glare.

In general, remember that your users are in a hurry. They don't like filling out forms on a website when they're parked in a comfy computer chair – they're certainly not going to take the time to fill out tons of superficial information one-handed while holding onto one of those dangling handles on the train.

Guideline 10: Use high-contrast visual elements and text

Because you never know where your site's users are actually going to be, it becomes really important to exaggerate visual contrast between site elements. Now, this isn't a license to overdo it – neon green on black will always be horrible to look at – but it is a reminder that people will be using your site in conditions of natural, direct sunlight, with high screen glare and environmental distractions. And of course, the screen is small, compounding the effect for people with any sort of far-sightedness. While a subtle design might be pleasing to the eye in office conditions, don't be afraid to take a device out onto the sunny street and give your planned design a good once-over. Keep background noise and tiled patterned backgrounds off of your mobile site. Elements and text should be visually distinct from the background, and each other.

Guideline 11
The font size on Whitehouse.gov is tiny, which is hard to read and makes text links hard to target.

Guideline 11: Keep fonts large

Web designers are familiar with the unpredictability of how fonts will render from machine to machine. It's very easy to underestimate the font size you need for a legible reading experience on a mobile device. Once you can read the font, bump it up a notch for optimal readability. There's not much to say here – small fonts are just a bad idea. You can really get in deep about the fonts that you choose if you like, but this is an overview guide, not a typography course. Keep those fonts large and readable. You can probably see the corollary advice coming already: keep your sentences terse, too. With largish fonts on a small screen in a single column, the danger of a run-on page is real.

Guideline 12
The Dutch version of the Deloitte mobile site is designed for tough screens and features huge targets for easy aim. They could increase the padding between the icons by aligning the left and right icons with the edge of the image. The designers of this site have clearly thought of the three primary actions their mobile users will want to take.

Guideline 12: Provide substantial target size and padding

In the effort to keep page sizes small, it can be tempting to pack page elements in on top of each other. The problem with this approach is that people have fat fingers. Fat fingers have long been the culprit of many embarrassing and / or costly

keyboarding mistakes, and now touch screens allow inaccurate fingertips to quickly take an interface experience off course.

There are three simple ways to accommodate for the general inaccuracy of human digits:

1) Targets should be big enough to allow people to fudge their aim just a bit.

2) Targets should be far enough apart from each other to allow for a bit of error in accuracy.

3) Targets should not react to a touch / click, but to a release-on-target. This allows users to abort their action if they've missed. Related to this, targets should have a clicked-but-not-engaged graphical state.

These won't hurt your site's usability with alternative input types, either. Even "big" elements are pretty small on a mobile device's screen, and following this guideline will help visually distinguish page elements and allow selected items to be highlighted.

Site Navigation

Good navigation practices will be fully supported by the guidelines supplied to this point. Targeted content, reasonable page lengths, friendly interaction design, predictive text for search functionaltiy - these considerations will make using any website more pleasant and intutive, and provide the foundation for a relevant, usable navigation structure. There are still a few things you can do to make your mobile navigation more user-friendly.

Guideline 13: Limit navigation options, and keep them direct.

All that precious content that's been years accumulating on your site is really important to your visitors, right? Not quite. This guideline goes back to the recommendation to do upfront research. You really need to know what's important to your mobile users, and then give that to them. If you have a site with many pages, consider how important most of those pages are to users in the mobile context. Due to limited screen real estate and possible low attention levels, you really can't expect mobile users to sift through a 30-item navigation tree. If you can limit your navigation items to just a few, you can even provide them as buttons at the top of the page.

Put a lot of thought into your link names. You'll just lose your users if they have to try out each link to see what's behind the door.

Guideline 14: Provide recent or highly salient content on the home page

Instead of asking users to click on "Top stories" or "Critical updates", provide these pieces of information on the homepage outright. If this sort of information is too cumbersome for the home page - a full-text article, for example - provide access with specialised links that are the centre of attention. If you have a good sense of what your users are going to be looking for, you should give it to them without making them work to find it.

Guidelines 13 & 14
This US pharmacy chain has a banner link to schedule a flu shot. This is a primary action item relevant to the current time of year - flu season.

The chain has six potentially useful action items on the home page, but one should not be included. The bad link is to a "drug information center"., which requires users to sort a huge list of confusing drug names, and then tells them the information is only available on the full site. A site should not link to missing content, even if it may be forthcoming.

The chances of their average consumer using the advanced search here are slim to none - what would they be searching for, anyway?

Guideline 15: Use signposts - home button and breadcrumbs at the top of the page

PC internet users basically expect the logo in the top left of a web page to bring them back to home. This convention works on regular websites quite well. There's some debate over whether you should include a "home" button in the menu on normal web pages - we normally include one - but on a mobile page you're pretty crunched for space. Test with your users to see if they need that support. Additionally, the logo serves to remind the user which site they're visiting.

Nielsen recommends using breadcrumbs only for sites where users are required to go several levels deep to find the content they need. Because we've really focused in on providing streamlined mobile content, it's rare that you'll need to use them. Breadcrumbs aren't great to click as they're usually too small to be good targets, but they can provide a valuable signpost as to where the user is located.

Guideline 15
The reasonably-sized NY Times header functions as a home button.

Guideline 16: Include a basic menu at the bottom of the page

By the time people have made it through the content on your page, requiring them to get back to the top to access navigation is a hassle, so give them menu and navigation items at the bottom. As long as you don't put any important content below this menu, the only drawback to including a well-designed footer menu is that it adds a bit of page length – small price to pay for the convenience it provides. Just don't overdo it. This should only be a few top-level options: items like home page, full site, contact info, or possibly site search.

Guideline 17: Present critical functionality at page top and bottom

For sites where search is highly important, provide a search bar at the bottom and top of the page. For smaller sites that have a limited number of top-level menu items (2-3) repeat them at the top and bottom of each page. Don't make users chase after critical elements on each page.

Let's take a look at the Banana Republic ecommerce homepage, an example of good navigation design.

In the top left, users can hit the BR logo to go home - this exists on all pages. (Guideline 15)

Clearly, BR believes that search is of primary importance to users as it is the first action item on the page. (Guideline 14) It is repeated in the footer of all pages, but on product pages the item being viewed is the topmost page element

The clickable image is a bit large, but informs users of new catalog additions and conveys brand personality. (Guideline 14)

Two common-use items, find a store and login, are prominently located. (Guideline 14)

Main browsing navigation for this site is topic-based, with a manageable number of categories. (Guideline 13)

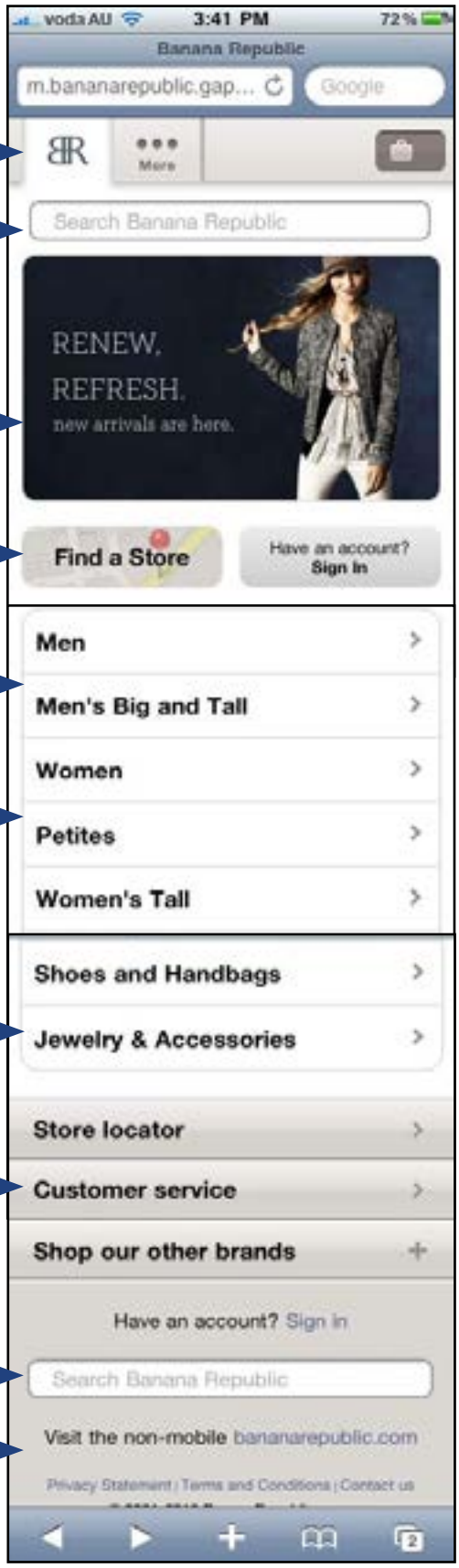
Menu items are all easy to read; use of small fonts is minimal. (Guideline 11) There is usually sufficient contrast between the text and background color. (Guideline 10) Items on the page are big enough and/or padded enough for touchscreen users. (Guideline 12)

Page length is reasonable, without asking the user to scroll too much. (Guideline 8)

The three useful items plus search and sign-in are located in the footer and are repeated on every page. (Guideline 16) One of these items is a link to customer service contact info. (Guideline 5)

The importance of search to site visitors is reinforced by the second search bar on the home page. (Guideline 17)

There is a link to the full site at the bottom of the footer. (Guideline 4)



Conclusion

Just like traditional web and software usability tactics, most usability considerations in the mobile web space are fairly common-sense. As has been repeated several thousand times in this guide alone, mobile users are essentially traditional web users with a new set of limitations – they've got small screens, new input interfaces, their environment is a big wildcard, and they're likely to be distracted / in a hurry. Every recommendation in this article is intended to mitigate these circumstances and enable site users to have a good experience on their mobile device.

Conclusion
Bad design remains bad on mobile devices. Use common sense and follow basic usability guidelines.

As always, understanding what people want to do with a site and the context in which their intentions are set will strongly empower designers to make good fundamental decisions about site construction and layout. Good user research, not surprisingly, is critical to good mobile experience design.

Usability of mobile websites is a difficult task to nail down from a technical perspective. The complications of coding flexible sites that render as intended on the huge range of mobile devices is a specialised task that requires knowledgeable developers. The considerations we've reviewed are intended to help designers set presentation goals for developers.

Remember that usability testing of prototypes and live mobile websites is still quite possible, and is highly encouraged. The best way to create user-friendly interfaces is to understand what users want to get from their interactions, and what the current roadblocks in implementation are that slow them on their path to an idealised mobile site experience. Because the mobile use context is so environmentally varied, it's probably a good idea to get out there and put your site in the hands of people in their homes, at cafes, at their places of work. See how the site functions in a real context of use – it's the most realistic way to test!

Additional Considerations

This guide does not cover any of the brand-new bells and whistles that newer mobile devices and tablets offer – geolocation, multitouch input, RFID & near-field communication, gyroscopes, cameras, microphones, etc. These inputs and feedback devices enable a wide range of new interactions; when designing for devices with these functions, it is highly advisable to undertake usability testing. Because these are such new input types, usability best practices are still being formed. They will be based on existing human factors knowledge, but limited practical experience with such devices.

We also did not cover the various types of traditional input that mobile devices offer (touch, trackballs, keyboards, styluses, etc). This article contains practical advice to help users of all of these input types; if you have the resources to detect devices and build special sites for each type of input and / or device, please do so. If you do a good job, sites tailored for specific devices will feel and perform better than catch-all, inclusive sites.

We specifically built this guide to describe mobile website design, not app design. In some ways, apps are more forgiving in that you are designing for a set platform and can take that platform's unique capabilities in mind. Apps enable deliberate utilisation of device-specific input types and special features. Static screen size, for example, is a huge benefit for app design. App development also means different programming languages and design constraints.

Everything changes at lightning speed in the technology world, and the pace of change only seems to be accelerating. It's encouraging to remember that while we are designing interfaces for evolving tools, we are designing them to be used by the human organism. Most usability principles are rooted in an understanding of the physical and cognitive capacities that we as people possess. These capacities exist independent of the devices we build (at least for now), and carry across mobile, desktop, and machine interfaces.

Mobile Design Checklist

Question	Answer & Comments
Understanding users and determining site functionality	
What is my normal website's purpose and functionality?	
What are the most important things my site does for users?	
What are the top 1-5 things someone would want to do with my site on a mobile phone?	
Do I build for one platform, or is ubiquitous access the goal?	
Have I looked at web statistics from my normal site? What do they say?	
Have I looked at web stats from my region and / or customer base? What do they say?	
Designing for a goal	
Has unnecessary material been removed? - Are images optimised? - Are images legible? - Have site text and instructions been simplified? - Has markup been streamlined to avoid long downloads and broken functionality? - Does the site use popups? I hope not!	
Does the design support the primary use path? - Are the most frequently used elements placed at the top of the page? - Are action elements placed appropriately throughout the design? - Does the site avoid irrelevant messaging and other distractions?	

Does the site provide clear indications of progress? - Are there breadcrumbs on deep (3+ levels) pages? - Do pages have an identifiable title? - Are back / forward buttons provided?	
Does the site provide a clickable phone number? An email address?	
Page Layout	
Does the site use a single column for most elements?	
Are data entry fields single-column?	
Does the site avoid horizontal scrolling?	
Does the vertical scroll work for this site? - Is the vertical scroll reasonable for all but article / text-driven pages? - Would users need to scroll up and down repeatedly to use pages?	
Visual and Interaction Design	
Does the site minimise required data input? - Are text fields avoided where other inputs could be used instead? - Does the site use predictive text in search boxes? - Does the site ask for unnecessary information? - Are input controls appropriate to input type - i.e. + / - for adjusting numbers - Do dropdown lists display legible line items?	
Does the site use high-contrast visual and text?	
Does the site avoid distracting, noisy background patterns and images?	

Are fonts large enough to be legible on target devices?	
Are target elements easily activated for touch screens? - Are targets big enough for fat fingers? - Is there sufficient padding between elements? - Do clickable items have an “on press” state? - Can users abort activation by rolling off of a target?	
Site Navigation	
Is the main menu properly scoped? - Are the number of choices appropriately limited? - Are link titles immediately and clearly understood? - Do the menu items relate to primary functionality and goals of use? - Do the menu items link to unfinished or missing content?	
Is there a link to the home page at the top of each page?	
Does the home page provide direct access to new and / or highly salient content?	
Is there a basic footer menu on all pages, used to support common, context-independent actions?	
When possible, is critical functionality (search boxes and / or main links) repeated at top and bottom of the page?	

References

All retrieved between 1 Dec and 10 Jan, 2010). Listed in order of inclusion.

eDigitalResearch. Online usability with travel sites is rising despite continued poor customer service. (14 Dec 2010). Retrieved from: http://www.edigitalresearch.com/news/view/id/b459d492a052b17f218e56d07b67d23b

Nielsen, Jakob. Mobile Web 2009 = Desktop Web 1998. (17 Feb 2009). Retrieved from: http://www.useit.com/alertbox/mobile-2009.html

Nielsen, Jakob. 10 Best Intranets of 2011. (4 Jan 2011). Retrieved from: http://www.useit.com/alertbox/intranet_design.html

Wikipedia. Mobile browser. (Ongoing). Retrieved from: http://en.wikipedia.org/wiki/Mobile_browser#Popular_mobile_browsers

Koch, Peter-Paul. Mobile browsers. (4 Jan 2011). Retrieved from: http://quirksmode.org/mobile/browsers.html

cartoonized. Cell phone screen resolution, sorted by brand and model. (2010). Retrieved from: http://cartoonized.net/cellphone-screen-resolution.php

Rabin, Jo and Charles McCathieNevile. Mobile web best practices 1.0 Basic guidelines W3C recommendation. (29 July 2008). Retrieved from http://www.w3.org/TR/mobile-bp/

Heilman, Christian. 51: Graceful degradation versus progressive enhancement. (3 Feb 2009). Retrieved from: http://dev.opera.com/articles/view/graceful-degradation-progressive-enhance/

Gustafson, Aaron. Understanding progressive enhancement. (7 Oct 2008). Retrieved from: http://www.alistapart.com/articles/understandingprogressiveenhancement/

Wroblewski, Luke. Mobile web design tips: mobile should come first. (28 Oct 2010). Retrieved from: http://www.techradar.com/news/internet/mobile-web-design-tips-mobile-should-come-first-719677

Meeker, Mary et al. The mobile internet report: Ramping faster than desktop internet, the mobile internet will be bigger than most think. (15 Dec 2009). Retrieved from http://www.morganstanley.com/institutional/techresearch/pdfs/mobile_internet_report.pdf (PDF)

StatsCounter GlobalStats. Top 9 mobile browsers in Oceania from Nov 09 to Nov 10. Retrieved from: http://gs.statcounter.com/#mobile_browser-oc-monthly-200911-201011

admob. May 2010 mobile metrics report. (20 June 2010). Retrieved from: http://metrics.admob.com/

Opera. State of the mobile web. (ongoing). Retrieved from: http://www.opera.com/smw/

Rieger, Stephanie, and Bryan Rieger. yiibu mobile web reference. (ongoing). Retrieved from: http://yiibu.com/articles/mobile-web-reference/

Usability body of knowledge. Methods. (ongoing). Retrieved from: http://www.usabilitybok.org/methods

Wikipedia. Kiss principle. (ongoing). Retrieved from http://en.wikipedia.org/wiki/KISS_principle

Etemad, Elika and Jorunn D. Newth. Pocket-sized design: taking your website to the small screen. (31 Aug 2004). Retrieved from: http://www.alistapart.com/articles/pocket/

Nielsen, Jakob. Scrolling and scrollbars. (11 July 2005). Retrieved from: http://www.useit.com/alertbox/20050711.html

Spool, Jared M. As the page scrolls. (01 July 1998). Retrieved from: http://www.uie.com/articles/page_scrolling/

Friedman, Vitaly. 30 usability issues to be aware of. (9 Oct 2007). Retrieved from: http://www.smashingmagazine.com/2007/10/09/30-usability-issues-to-be-aware-of/

Soegaard, Mads. Gestalt principles of form perception. (2010). Retrieved from: http://www.interaction-design.org/encyclopedia/gestalt_principles_of_form_perception.html

Humphreys, David and Tania Lang. Usability heuristics, rules, laws and things to remember - part 1. (26 Mar 2010). Retrieved from: http://www.peakusability.com.au/articles/2010March.html

Wroblewski, Luke. Better mobile form design. (9 Mar 2010). Retrieved from: http://www.lukew.com/ff/entry.asp?1014

Wikipedia. Poka-yoke. (ongoing). Retrieved from: http://en.wikipedia.org/wiki/Poka-yoke

Davis, Bill. Web fonts quality. (4 Nov 2010). Retrieved from: http://blog.fontslive.com/2010/11/web-fonts-quality.html

Little Spring Design. Typography in mobile devices. (17 Nov 2009). Retrieved from: http://wiki.forum.nokia.com/index.php/Typography_in_Mobile_Devices

Rocheleau, Jake. Designing typography for the modern web. (6 Sep 2010). Retrieved from: http://webdesignledger.com/tips/designing-typography-for-the-modern-web

dictionary.com. fat-finger. (2010). Retrieved from: http://dictionary.reference.com/browse/fat-finger

Olding, Rachel. Penguin reprints book, peppered with an error, wants it taken with a grain of salt. (17 April 2010). Retrieved from: http://www.smh.com.au/national/penguin-reprints-book-peppered-with-an-error-wants-it-taken-with-grain-of-salt-20100416-skjl.html

staff writers. Australian shares battered by Wall St 'fat finger' plunge. (7 May 2010). Retrieved from: http://www.news.com.au/business/human-error-behind-huge-dow-jones-share-market-plunge/story-e6frfm1i-1225863396968

Shaikh, A. Dawn & Kelsi Lenz. Where's the search? Reexamining user expectations of web objects. (Feb 2006). Retrieved from: http://www.surl.org/usabilitynews/81/webobjects.asp

Additional publications referenced

Redish, Janice. (2007). Letting go of the words: Writing web content that works. Morgan Kaufmann.

Prayaga, Shyamala. Mobile user interface and usability guide. (17 Jun 2010). Retrieved from: http://www.scribd.com/doc/33158304/Mobile-UI-and-Usability-Guide

Budiu, Raluca and Jakob Nielsen. (2009). Usability of mobile websites: 85 design guidelines for improving access to web-based content and services through mobile devices. Accessed via: http://www.nngroup.com/reports/mobile/

About PeakXD

PeakXD is a user experience consultancy based in Brisbane, Australia. We work with organisations to help them achieve their business goals by facilitating the development of highly usable and effective websites and applications.

We provide services throughout Australia. Some services can also be provided to international clients.

PeakXD is a Queensland Government GITC accredited business (Term Agreement Q-3106) and an Australian Government Endorsed Supplier under the Commonwealth Government's Endorsed Supplier Arrangement (ESA).

Our team has years of user-centred design experience, conducting discovery-stage research, a full range of design activities, and evaluative research.

We hope you found this guide informative and helpful!

For more information about Peak, please visit our website at

http://www.peakxd.com.au/

For business inquiries, please contact tania@peakxd.com.au

PeakXD

Level 2 North Tower
10 Browning Street
South Brisbane 4101
07 3129 7070