

Why Implementing Swipe Gestures Causes A Mobile Accessibility Issue

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The use of left and right swipe gestures are appearing more frequently as an interaction pattern in mobile app and mobile web design. Here is an article describing how fourteen apps have implemented swipe gestures <http://www.brit.co/swiping-apps>, and another that discusses implementing popular mobile gestures including swiping, sadly with no mention of potential accessibility implications <http://thenextweb.com/dd/2015/11/09/how-to-implement-gestures-into-your-mobile-design>.

What's the issue? VoiceOver, TalkBack, and Narrator, are the software products blind users of the: iOS, Android, and Windows Phone platforms respectively, require to interact with their touch screens. Each of them have their own default gestures, including swipe left and right, as essential functions (swiping left moves to the previous item, swiping right moves to the next item). This means that if one of these screen reading software products is turned on, any swipe gesture available in an app or on a mobile site is rendered inoperable because they are already in use. In short, swipe-based functionality is not accessible to all users. It is worth noting that while the focus here is on swipe gestures, this would hold true for any other gesture in use by any of these assistive software products. Also see the comment posted below by Mauricio Meza who describes the impact of swipe gestures on users of switch-based assistive technology.

What's the solution? The clear solution would be to replace any swipe gesture(s) altogether with another means of performing an action. For example, replace a Swipe Right to like something, with an actual Like button. The other solution would be to provide another means of performing a swipe-only task(s), such as accompanying a Pull-down gesture to display a menu, with a Menu button. Of course any alternative means of performing an action must be obvious to end-users or clearly documented, especially if they have to go elsewhere to perform the action (which in itself is not ideal). The other thing to keep in mind is that for some users, disabled or not, a swipe in general may well not be an intuitive action to take.

Here are the gestures and what they do by default for the three products referenced above to be aware of when designing a mobile app or mobile site:

Android's TalkBack <https://support.google.com/accessibility/android/answer/6151827?hl=en>,

Apple's VoiceOver

<https://developer.apple.com/library/ios/technotes/TestingAccessibilityOfiOSApps/TestAccessibilityonYourDevicewithVoiceOver/TestAccessibilityonYourDevicewithVoiceOver.html>, and

Windows Phone's Narrator <http://www.windowsphone.com/en-us/how-to/wp8/settings-and-personalization/use-narrator-on-my-phone>.

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16 Comments

 **Mauricio Meza**
Co-founder and CEO at Komodo OpenLab Inc. ...

This is a big issue for switch users as well! For example eBook reader apps (iBooks, Kindle, Google Play Books) generally rely in swipe gestures to pass pages but to not provide an accessible alternative to those doing item scanning. Only iBooks have an alternative control (slider) that requires multi-steps to pass one page. The alternative is to use gestures that can be complex and, again, take multiple steps. A "next page" button would make things so much simpler!

Like Reply | 1 Like

 **Patrick Lauke**
Accessibility Consultant at The Paciello Group ...

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Pure swipe gestures are of course also a problem for keyboard-only users (e.g. using an Android phone/tablet with a paired bluetooth keyboard). So even without AT, it's a big hurdle.

Rather than removing/replacing gestures altogether, I'd say the best approach is to ensure that gestures only complement existing, more traditional (focusable, actionable) controls. Treat gestures as a shortcut for power-users that are able to swipe, but offer more traditional controls as well.

Like Reply | 5 Likes



Sarah Clatterbuck
Inclusive Software Engineering Leader

Swipe, like mouse hover, should be a complimentary action, not a primary action for mobile interfaces. Thanks for the article, [Jennison](#).

Like Reply



Marli Larimer
Digital Product Manager at Starbucks & City of Kent Councilmember

Great article! I just attached this story to a help ticket related to this very issue.

Like Reply | 1 Like



Matt King
Accessibility Specialist in UI Engineering at Facebook

I can imagine circumstances where avoiding swipe left or right is good for accessibility, but there may be as many or more situations where the opposite approach can improve the experience for VoiceOver users as well as for those who do not use VoiceOver.

Many apps with lovely accessibility use swipe gestures, e.g., Apple's mail and messaging apps. In mail, non-VoiceOver users can swipe left or right in the inbox and execute a variety of useful actions, e.g., delete. And, very conveniently, VoiceOver users access the same actions from the actions rotor.

Imagine Apple mail providing actions in the inbox context for each mail item by including a set of action buttons or an actions menu button for each item. This would fill the screen with more targets, making them smaller, harder to read, and harder to touch unless you significantly reduce the amount of content on each screen, which is also not necessarily good for accessibility. It would also mean at least twice as many elements to swipe through, decreasing efficiency, especially for keyboard users. Finally, and very importantly, each action button would need a long label to clearly communicate the mail item to which it applies, further reducing ease of use for VoiceOver users.

Context actions provided by swipe gestures that are supported in the VoiceOver actions rotor are beautiful in that their target is inherently understandable without special affordances. In a touch interface, they greatly improve efficiency. They reduce clutter, and for VoiceOver users, they are readily discoverable. For some classes of users they are somewhat less discoverable, but I would imagine there are good ways of mitigating that concern without adding more touch targets to the screen.

If there are a lot of context actions, say more than 4 or 5, it is probably better to use a context menu opened with long press for non-VoiceOver users or double tap and hold for VoiceOver users. Again, with a VoiceOver hint, it easy to make these actions discoverable in apps where that is a concern.

So, at least in IOS, if swipe left or right is being used to provide context actions, I believe that can be a good, and sometimes better, approach as long as the gesture is implemented with VoiceOver action rotor support. I am not yet knowledgeable enough about Android to make the same claim for that platform.

With respect to scrolling scrollable content for a switch user, such as in an iBook, I think the limitations there are something that IOS itself should address. The scrollable element itself should be in the item list with separate entries for each scroll direction. I don't think developers should have to add another element to the screen to enable scrolling by a switch user.

Like Reply | 1 Like



Archimedes Trajano
IT Polymath. Hands-on Enterprise Architect. Full-stack Coder

[Patrick Lauke](#) is right on the ball. I do like my swipe gestures in my Mailbox app, though I am not sure about it's accessibility, the iOS mail app can work without the swipe gestures (since they were just added on later).

I wonder how 3D touch would affect accessibility, that would probably cause more issues than swipe.

Like Reply | 2 Replies



Patrick Lauke
Accessibility Consultant at The Paciello Group

3D touch seems to work with VoiceOver (don't currently have a 3D touch capable device, so can't confirm myself). However, I haven't seen any information about how/if it would work for keyboard or switch access users. So, as with gestures, I'd say 3D touch can be seen as a helpful quick context menu, but must not replace more traditional controls (not to mention that not every iOS device will have 3D touch, so apps will have to cater to those device anyway, even within the iOS closed ecosystem).

Like Reply



Patrick Lauke
Accessibility Consultant at The Paciello Group

and of course I forgot the link about 3D touch and VoiceOver... <http://www.applevis.com/guides/ios-iphone-voiceover/voiceover-users-guide-3d-touch-iphone-6s>

Like Reply



Jennison Asuncion
Digital Accessibility Leader Connecting The High-Tech, Digital Accessibility, & Users With Disabilities Communities

To be clear, the intent of my post is more to bring attention to the fact that without careful thought, custom gestures can be implemented in an app or on a mobile site that may conflict with gestures in use by mobile screen reading software. The consequence being that left unaddressed, intended functionality in an app or on a mobile website, in such cases, is rendered inoperable to screen reader users. Mauricio Meza, in his comment, further pointed to difficulties swipe gestures can cause for switch-based assistive technology users.

Like Reply | 1 Reply



Ankur Mathur
Head of Data science at Iterable (Hiring)

Perhaps the screen readers need to overlay non-ubiqitous gestures?

Like Reply



John Hayman
Technical Team Lead at BlueCat

The important thing to take away (for me) is, any time you are using a non-standard gesture, think twice (and then maybe a couple more times), about the accessibility impact.

Like it or not, swipe gestures are here to stay. Whether that's swipe views (<http://developer.android.com/design/patterns/swipe-views.html>), or swipe to delete/archive (<https://www.youtube.com/watch?v=00xUH86sJV0>).

For now, swipes should probably be limited to "power user" features that provide a convenience method, but are not the only way to accomplish the task.

Talkback allows one to perform a swipe up/down/left or right by using two fingers, instead of one.

The BlackBerry 10 screen reader allows you to perform an up (or down) swipe using 2 fingers, and a left (or right) swipe using 3 fingers.

Like Reply | 1 Reply



Jesse Hausler
Principal Accessibility Specialist at Salesforce

As you note.. given that Talkback and BB's reader allow 2 finger swiping to do the job of 1 finger swiping without any AT running. The real need here is for iOS's VoiceOver to provide a VO gesture for single finger swiping.

Like Reply



Ryan Burgess
Software Engineering Manager at Netflix, Leading Acquisition UI Engineering

Great article! Thanks for sharing!

Like Reply



Arled Kola
Senior Developer at Cancer Research UK

Thanks for sharing [Radina Matic](#)

Like Reply | 1 Like



Deborah Kaplan
Full-stack developer. Open source programmer. Accessibility expert.

I so hope the IndieUI work continues in some format or another, since it would help address this very problem.

Like Reply



Jennie Delisi, MA, CPWA
Accessibility Analyst in The Office of Accessibility, a program of MNIT Services

Great article, Jennison. In addition to the comments left by others, we need to consider the accessibility needs of those that do not use assistive technology. For example, those with tremor or other fine motor challenges. The swipe gestures can add added levels of difficulty interfacing with an app; even though for others it may support them. Just like a curb cut (present if you need it) having alternative ways to interact with an app or mobile website can make them more usable by everyone.

Like Reply | 1 Like



Jennison Asuncion

Digital Accessibility Leader Connecting The High-Tech, Digital Accessibility, & Users With Disabilities Communities

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