



# ExperienceLab

## Usability guidelines | Touchscreens

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## Summary

Although ‘touch’ is the latest buzzword, touchscreen technology and devices have been in use for over ten years, from public systems such as self order and information kiosks, through to personal handheld devices such as PDAs or gaming devices. As the technology gains sophistication and teething problems are worked on, the list is ever increasing. However, it’s only since touchscreen heralded a new phase in mobile phone evolution, with the freedom of finger-based interaction, that ‘touch’ has taken hold of the consumers’ imagination.

However, despite increasing popularity, are touchscreens always good news for users? Is the interaction style both *usable* and *useful* for the mobile user? Does the novel interaction live up to user expectations? Does it really provide a more direct and inviting interaction, which matches users’ day-to-day activities without imposing unnecessary constraints?

In an ongoing programme of research into touchscreen interfaces for mobile devices, Serco ExperienceLab have examined many of the latest touchscreen mobiles. Based on our investigation, this document presents guidelines to help design and evaluate touchscreen solutions, in order to bring qualities such as simplicity and ease of use, as well as consistency and responsiveness to the users’ experience.

## Design Guidelines

### Screen size matters

- When it comes to touchscreens, screen clarity and size matters - large good quality screens are essential to provide space for key elements.
- As larger screens may foster concerns over vulnerability, the handset’s design needs to support notions of robustness and quash any concerns over screen fragility.

### Touchscreen responsiveness

- Aim towards minimising touch response lag. Delays will frustrate and confuse users, encouraging repeated selection of target elements. Optimising responsiveness will dissuade users from pounding the keys and/or using their finger, nail or pen, like a stylus.
- To minimise keying errors as much as possible, ensure that sensitivity and screen alignment (calibration) are optimised.
- Maximise sensitivity levels, uniformly, across all areas of the screen. Particularly where a scroll bar draws the users’ focus, sensitivity at the perimeter needs to be optimised.
- Consider the option of a universal stylus to minimise concerns associated with large fingers, long fingernails, or dexterity and accessibility issues, more generally,
- The tactile experience offered by a conventional keypad, both in terms of the spatial arrangement of keys and the feedback upon selection, offers a positive effect on efficiency and error rates as well as user satisfaction. Therefore:

- Consider options to support a more tactile user experience – e.g. vibrational sensations in response to user selections. If this is supplied, users must be given the option to turn this feature off.

## Navigation & efficiency of use

- If users have problem with the most basic functionality they will feel negative about the product.
  - Support key functions such as answering or ending a call, instant messaging, listening to music, viewing messages, accessing the internet, etc.
  - Minimise steps to access or perform such functions, by keeping access points at a high level.
- Allow clear and direct navigation to return Home and the Main Menu. This is especially important where the device doesn't present a physical button dedicated to this.
- Ensure consistency throughout the interface, as this reassures users and allows ease of navigation.
- If possible, provide a search option in addition to the option to scroll through a contacts list.
- Support flexibility by allowing users to create a shortcuts menu, based on their priorities.
- Struggling to perform functions will frustrate users. Therefore, if feasible, provide a Help system on the phone that is easy to find and use.

## The virtual keypad

- If devices exclusively rely on a virtual keypad, the aim should be to mirror levels of speed and accuracy offered by traditional handsets as far as feasible.
- Without an explicitly presented physical keypad, clear access to the virtual keyboard is vitally important. Users must not be left wondering how to enter text using the touchscreen.
- In terms of its design, consider presenting a QWERTY keyboard instead a multi-tap configuration where characters are shared on individual keys.
  - Without the familiar tactile cues of a conventional keypad, a QWERTY layout will be easier to use than a multi-tap keypad – with the latter, lag and precision issues may come to the fore.
- Ensure that users can change between different text input modes with ease.
  - Options to enable and disable predictive text and switch between letter, number or symbol inputs, must be clearly presented and quick to use.
- Ensure the selectable area (icon/button) is larger than the target or of an acceptable size.
  - Users need to feel confident that selecting a button is going to perform the task. Remember people will want to reach for a stylus if things go wrong or if they don't feel confident that their selection will be accurate.
- As well as being sized to accommodate finger-input, users need to perceive keys to be adequately sized for accurate selection.

- Explore ways to maximise the perceived size of the keys on the virtual keyboard. For example, minimise concerns about the size of fingers relative to the keys, through a good visual design, where a good delineation of keypad elements is presented.

## Icon design

- Make use of familiar icons so users can associate with them.
- Where icons are relatively abstract, users will become frustrated if they continually struggle to locate target features. For example, without a physical key, ensure that the means to end a call is highly visible.
- Ensure visibility of icons if using abstract designs or faded out/graduated target areas.
- While preserving a non-cluttered display, consider supplementing the icons with labelling or other textual cues. A cluttered display will impede the user's selection.
- Provide the option for users to personalise the phone - colour schemes, design skins, etc.

## Locking mechanism

The ability to lock touchscreen handsets is typically cited as a concern by users.

- Quash concerns about accidental activation, by providing an explicit means to 'lock' touchscreen devices.
  - To support perceptions of robustness and minimise concerns, it is suggested that a metal slide key with definite tactile feedback, is considered.
- Ensure that the locking mechanism is intuitive, and that advice on this is given suitable priority in the user manual, so that users do not learn the hard way how to lock the device.
- Provide an automatic lock facility (after a period of inoperability).
- As with more traditional mobile phones, allow the lock to be overridden when there are incoming communications.

## Battery life

Battery life is becoming an increasing concern of consumers, as devices accumulate more and more features.

- Work towards maximizing battery life and encourage use by managing associated user expectations in any accompanying documentation.

For further information please contact:

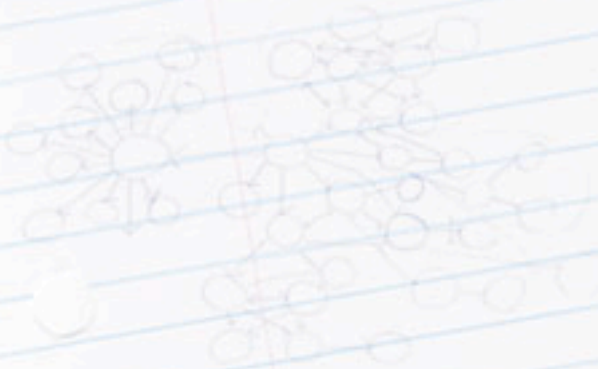
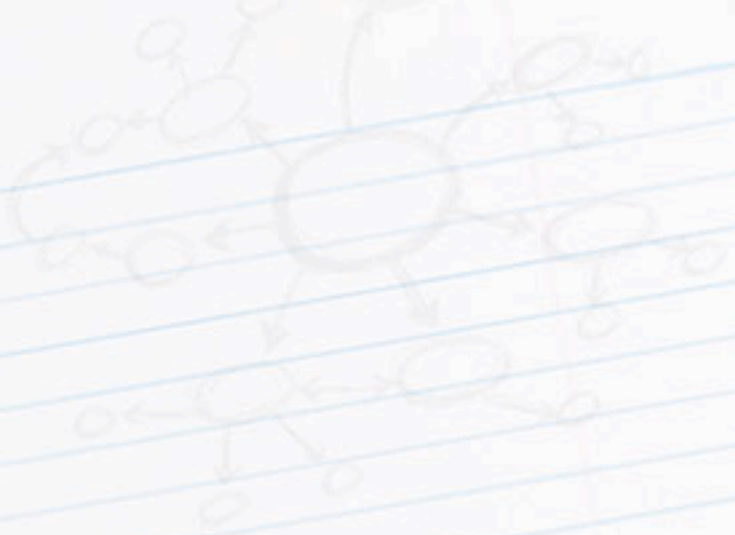
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