

Feedback on Touch Screen User Interfaces

Introduction

Study Question

Does the feedback that the user receives from an application on a touch screen user interface improve the usability of the product?

Mobili-T Case Study



The goal of the Mobili-T project is to design a mobile swallowing therapy device for patients with swallowing impairments. A simplified form of the therapy consists of multiple swallows and a swallow that is held for a period of time.

The Mobili-T project is currently investigating ways to reduce the complexity of the necessary equipment to a portable device such as a touch screen tablet and the adhesive pad placed on the chin for the swallowing muscle measurements. This would allow for the therapy to be done in the privacy of the patient's home.

Case Study Question

Does the feedback that the patient receives from an application on a touch screen user interface improve the patient's ability to swallow?

Feedback

Visual Feedback



Visual feedback includes anything that would be seen on the screen of the device that occurs when the user interacts with the touch screen.

Auditory Feedback



Auditory feedback is about the sound emitted by the device when the user interacts with the device.

Haptic Feedback



Haptic feedback is about touch. For the most part, it is simple vibrations made by the device.

Multi-Modal Feedback



Any combination of the three main types of feedback.

- Visual + Auditory
- Visual + Haptic
- Visual + Auditory + Haptic

Design Process

Background Research

Secondary research
Literature review

Primary Research

Questionnaires
Task with touch screen device

Results

Visual and Visual + Auditory
Best performance

Design Solutions

Reach the Target
Fill the Circle
Sweep the Screen

Future Research

Test out solutions
Add complexity

Conclusion

Visual and multi-modal
Feedback positive results
More research needed

Background Research

Visual



Good visual feedback needs to be the norm.

Users need to look at screen constantly to see the feedback.

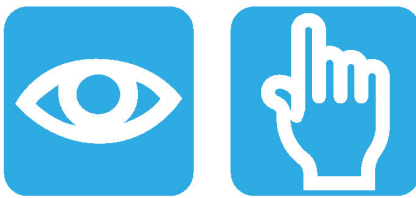
Visual + Auditory



Visual + Auditory has many benefits especially for older adults.
As well as typing on touch screens.

Some errors in tasks may still occur.

Visual + Haptic



Increases performance on tasks.
Assists older users.
Helps regain the feeling of physical buttons.

Haptic is limited in the information that can be conveyed to the user.

Visual + Auditory + Haptic



Users are more efficient doing tasks with this combination.

May overwhelm users with too much information at once.