Participatory User Interface Design with Aphasic Individuals
Rhian Davies, Leah Findlater, Karyn Moffatt
davies, lk, kmoffatt) @ cs.ubc.ca
University of British Columbia

Research Goal
Investigate how technology can be designed to better support people with aphasia, contributing to the broad goal of universal usability.

The water is overflowing...

Participatory Design
Users are considered experts in the subject area and participate as equal members on the design team.

Research Questions
How is current technology addressing the needs of people with aphasia, and is it working?

The business here with the...umm...

How do cognitive deficits, such as memory, place limits on interface design?

How can effective interfaces be designed for small screen displays?

How can a system be designed to be adaptive and customizable by users and clinicians?

What is Aphasia?
A cognitive disorder that impairs language abilities: some or all of speaking, listening, reading, and writing
It results from damage to the brain: stroke, trauma, tumors, infections
It is acquired: it occurs in someone who previously had language ability
It is not a deficit of sensation or intellect

Relies on participant knowing his or her own abilities well enough to comment on them, an ability lacking in some aphasic individuals.

Prototypes were useful for generating a discussion on needs and desires.

Interface design must accommodate a range of deficits.
E.g., a bright line can help individuals overcome visual field and motor deficits on the right side.

Evaluation

Initial Research Interviews
Low-fi Prototypes
Low-fi Evaluation
Medium-fi Design
Medium-fi Prototypes
Medium-fi Evaluation

Design Cycle

Implementation

Design

Evaluation

Investigated ability of existing technologies to fulfill needs.
Extra time is needed to ensure participants have an opportunity to express themselves.
Discussions require the use of alternative communication techniques, such as drawing and gesturing.

Evaluated with two participants.
One had aphasia as a result of a brain tumour and the other as a result of a stroke.

Process needs to adapt to changes in abilities of participants:
E.g., fatigue, cerebrovascular recovery following stroke, deterioration due to tumor growth.

Many thanks to the other members of the Aphasia Project:
Dr. Amit Sing, CEO and Founder Institute for Women and Technology, Aphasic Individual
Dr. Jennifer McNamara, Assistant Professor, Computer Sciences UBC
Dr. Brian White, Assistant Professor, Computer Science UBC and Thorng.
Dr. Michael Tidwell, Assistant Professor, Computer Science UBC and Thorng.
Dr. Peter van der Linden, Cohl Associate Professor, School of Psychology and Education.
Dr. Karen Lavin, Clinical Associate Professor, School of Psychology and Speech Science.