CMPT 363: User Interface Design
Summer 2021

Week 11: Emotional Design + Inclusive Design + Accessibility

Instructor: Victor Cheung, PhD

School of Computing Science, Simon Fraser University

Recap from Last Lecture

- Emotional Design

  - Emotions & UX, 3 levels of emotional design – Visceral, Behavioural, Reflective

  - Expressive interfaces – adding features to interfaces to create emotional connection or elicit emotional response

  - Affective computing – recognize and express emotions in the same way as humans do

  - Anthropomorphism – making interfaces more human-like

 - Persuasive technologies – designed to change people's attitudes or behaviours

Today

- Inclusive Design
- Accessibility

Inclusive Design

Who to include?

What is Inclusive Design?

- Goal is to design products/services/environments that are optimized for specific users with specific needs, often overlooked during other kinds of design process

  - Pertains diversity with respect to ability, language, culture, gender, age, and other forms of human difference & preference
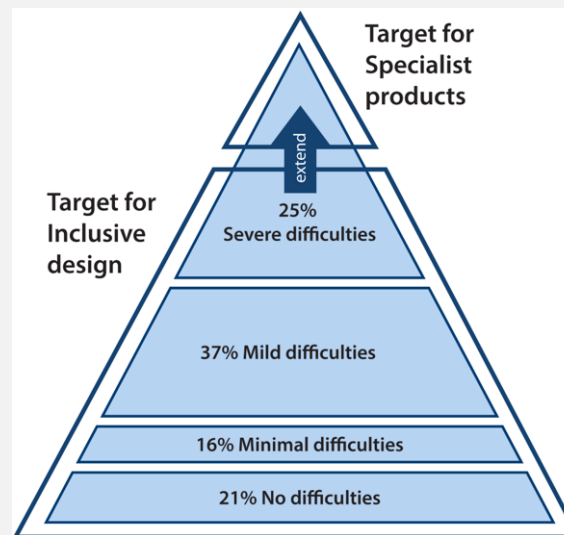
A report by Microsoft (2003): The Wide Range of Abilities and its Impact on Computer Technology presents survey results on the range of abilities in the US population and discusses the current and potential market for accessible technology.

How to Do Inclusive Design?

- It is important to recognize it is often not possible to create a "one-size-fits-all" or "one-size-fits-most" design (Universal Design)

- Instead, keep the diversity & uniqueness of each individual in mind

  - Get to know the target population and their ability & preference in using the design

  - Develop a family of products and derivatives to accommodate different members when possible

  - Reduce the level of ability required to use each version

  - Create designs that allow customization

- In our scope of computer UIs, we have more flexibility for customization

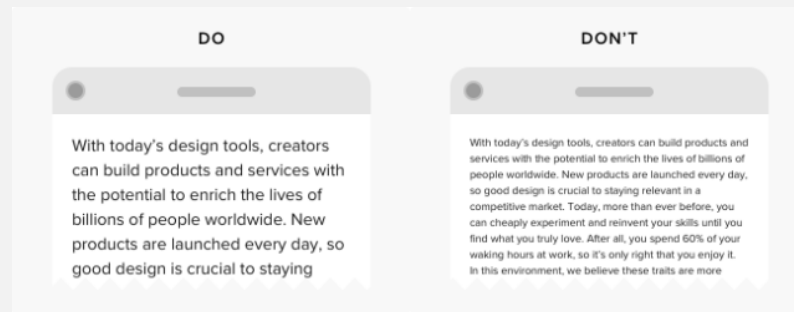 - E.g., language preference, personalized layout, display settings, …etc.

Inclusive Design Examples

- Tools that are more comfortable to use, fits more hand sizes, and different strengths/agility

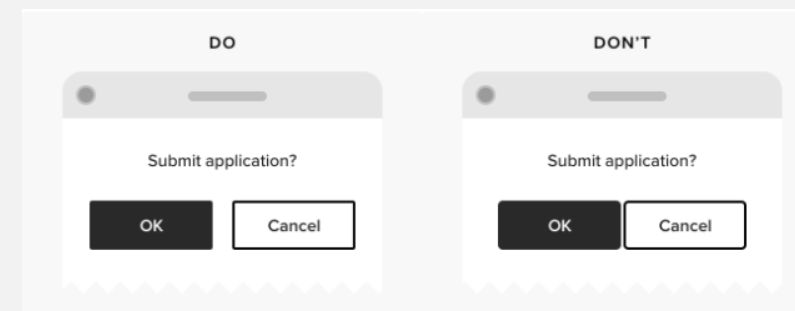Source: www.oxo.com

Some Inclusive Design Examples in UI Design

Larger text

Shorter line length

Make buttons big enough

Wider gap between buttons

Source: https://trydesignlab.com/blog/40-tips-inclusion-accessibility-user-interface-design/

Accessibility

A brief intro

The Need for Accessible Software

- 13.7% of Canadians are living with some form of a disability

  - Many more are impacted by temporary disabilities

  - Some are visible: sight, hearing, mobility, ..etc., some are invisible: learning, mental, …etc.

  - All of us are susceptible

    - Will be aging & impacted by some form of age-related disabilities/limitations

    - Might suffer from some injury

  - It is required by law or standards

    - E.g., All Government of Canada websites & web applications need to meet the WCGA 2.0 conformance requirements, Accessible Canada Act

Web Content Accessibility Guideline

Source: https://www150.statcan.gc.ca/n1/daily-quotidien/131203/dq131203a-eng.htm

Meaning for Different People

- For a user who is blind, web accessibility means

  - Access to certain banks, home shopping, news, dictionaries, travel agents, …etc.

  - And only those which work with their screen-reader (assistive technology), and provide additional information that doesn't rely on purely visual information

- For a user with epilepsy, web accessibility means

  - Confidence that a web page does not contain harmful flashing content

- For a user in wheelchair, web accessibility means

  - Interaction does not require additional mobility like movement of the mobile device
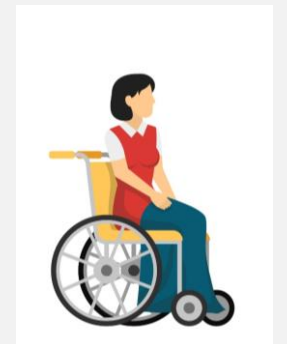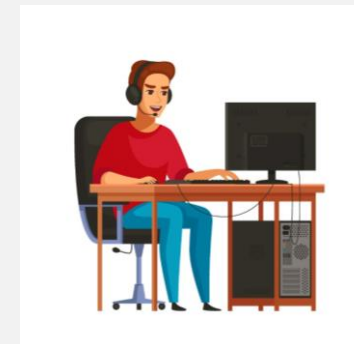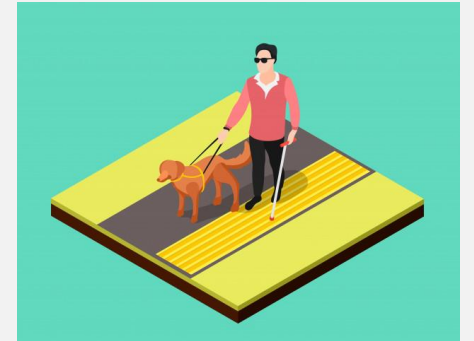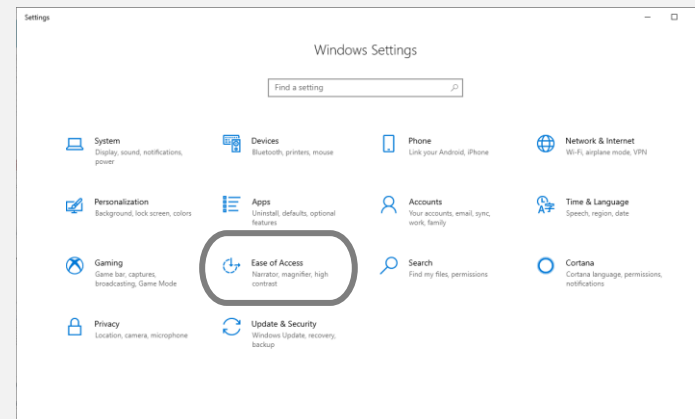
Different Disabilities Present Different Barriers

- Blindness – cannot see visual content

- Low vision – cannot see fine details of visual content

- Mobility disabilities – has limited range of motion

- Hearing disabilities – cannot hear things clearly

- Seizure disorders – susceptible to flashing content

- …many more

Different Disabilities Lead to Different Needs

- Blindness – audio description of visual content, other forms of input (e.g., speech)

- Low vision – treatment of visual content (e.g., higher contrast, bigger text), other forms of input (e.g., speech)

- Mobility disabilities – other forms of input (e.g., speech)

- Hearing disabilities – captions accompanying audio

- Seizure disorders – treatment of visual content (e.g., more static content)

- …many more

Assistive Technologies

- Technologies that help the user to perform activities that they don't normally can without the assistance
  - Examples: screen readers, screen magnifiers, voice input aids, on-screen keyboards, alternative input devices
- Can be low-tech (e.g., raising the height, adapting shapes) or high-tech (e.g., specialized or miniaturized hardware)
- Modern operating systems provide a lot of features

Accessibility In Workspace/Software (12min)

https://www.youtube.com/watch?v=KI4CT4DaypM

Summary

- Inclusive Design

  - Does not always mean disability, can simply be different

  - Diversity not "one-size-fits-all/most"

- Accessibility

  - Disabilities – different kinds lead to different barriers & needs

  - Assistive technologies – different levels of tech

Post-Lecture Activity

- Read/watch these (and those in the slides)

  - ID-Book Ch. 6

  - Designing Emotional Interfaces by Gleb Kuznetsov (13min read)
    https://www.smashingmagazine.com/2019/01/designing-emotional-interfaces-future/

  - Applying Anthropomorphism to Ads (6min watch)
    https://www.youtube.com/watch?v=fkatwsysiCY

  - What is Inclusive Design
    http://www.inclusivedesigntoolkit.com/whatis/whatis.html

- Think: Have you used any assistive technologies? Have you had any experience with equipment or software that is hard to use due to its design not being inclusive (how would you suggest to address that)?