HCI Week 1: Accessibility

Nicole Meng-Schneider and Dr Tara Capel

Part of slidedeck inspired by Dr Kami Vaniea

Overview

- Accessibility Factors and User Impairments
- Inclusive and Accessible Design
- Activity

Accessible systems help everyone.

Accessibility Factors*

- **User Impairments –**
  issues in body function or alteration in body structure.
- **Activity Limitations –**
  difficulties in executing activities.
- **Participation Restrictions –**
  problems exist in taking part in activities due to issues such as discrimination.
- **Environmental Factors –**
  facilitators or barriers in the environment impact on the user.
- **Personal Factors –**
  aspects such as motivation and self-esteem can influence an individual's participation.

*Crabb, M., Heron, M., Jones, R., Armstrong, M., Reid, H., & Wilson, A. (2019, April). Developing Accessible Services: Understanding Current Knowledge and Areas for Future Support. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (p. 216). ACM.

User Impairments

- Visual impairment
- Hearing impairment
- Physical impairment
- Speech impairment
- Dyslexia
- Autism
- Learning disability
- Age group related impairments

Inclusive and Accessible Design

Inclusive and Accessible Design

- **Inclusive Design –**
  a design methodology that enables and draws on the full range of human diversity
- **Accessibility –**
  the qualities that make an experience open to all
- If we start the design process from our own abilities and biases, we end up with products designed for people of a specific gender, age, language ability, tech literacy and physical ability
- Designing for inclusivity opens up products and experiences to more people with a wider range of abilities

https://inclusive.microsoft.design/

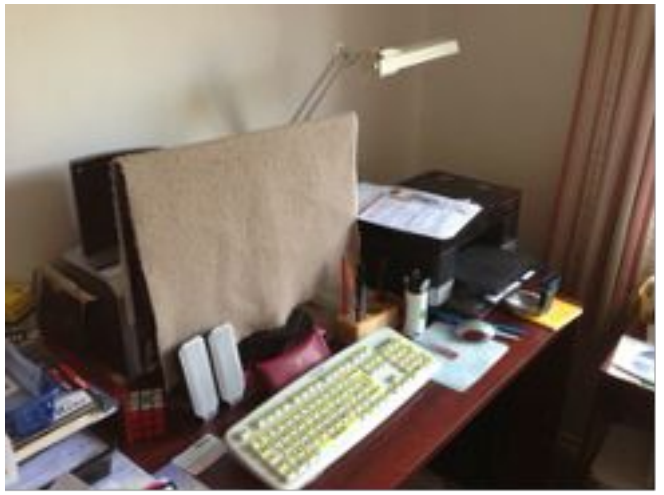
Inclusive Design Principles

- **Recognise Exclusion –**
  exclusion can occur when we design from our own biases, we are responsible for knowing when our designs cause exclusion
- **Learn from Diversity –**
  people adapt to different situations, understanding these adaptations is the key to real insights
- **Solve for one, extend to many –**
  inclusive design connects different people who have similar circumstances, consequently benefitting a wider range of people

https://inclusive.microsoft.design/

Example: The Messaging Kettle

- Designing technology with older adults
- Problem:
  - maintaining social connection over a distance
  - frustrations with existing technologies used to connect
- Method: contextual interviews, object interviews with older adults in their homes
- Discussed social routines, activities with others and alone, technology use, favourite things, values and culture



Tea Making Habits

Connecting Homes in the UK and Australia

Photos from Margot Brereton, all rights reserved

Ambe, Aloha Hufana, Alessandro Soro, Daniel Johnson, and Margot Brereton. "From collaborative habituation to everyday togetherness: a long-term study of use of the messaging kettle." *ACM Transactions on Computer-Human Interaction (TOCHI)* 29, no. 1 (2022): 1-47.

The Role of HCI

- Inclusive and accessible design highlights the importance of user research to gain insights into diverse user groups
- Through methods such as interviews, diaries and usability and user experience testing we can understand users' needs and challenges
- Encourages empathy to design with end-users in mind, considering their diverse backgrounds, abilities and preferences
- Emphasises the role of user testing and iterative design to ensure inclusivity
- Encourages collaboration and feedback from diverse user groups throughout the design process

Methods and Resources

- Raising awareness of accessible policies and guidelines
  https://www.w3.org/TR/WCAG21/
  https://www.ideasforears.org.uk/hearing-access-protocol/
- Developing tools to assist in accessible design
  https://www.semanticscholar.org/paper/Using-Automated-Tools-to-Improve-Web-Site-Usage-by-Ivory-Mankoff/7bb9856bb44e56fb117efa9625ae728986adf1ba
- Coordinating with the (disabled) community
  https://dl.acm.org/doi/10.1145/2661334.2661361
- Conducting accessibility self assessment
  https://g3ict.org/publication/g3ict-ict-accessibility-self-assessment-framework
- Microsoft Inclusive Design: https://inclusive.microsoft.design/
- Google Material Design: https://m3.material.io/
- Colour Contrast Checker: https://webaim.org/resources/contrastchecker/

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  - Which accessibility need is not provided for here?
  - What could the lack of an accessible option cause? What could be the consequences for the user?
  - How could the design be made more inclusive? Or how might you redesign the technology altogether?

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- Share with class (10 minutes)

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