Information System - Inclusive Co-Design

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http://jpaulgibson.synology.me/~jpaulgibson/TSP/Teaching/CSC4104/CSC4104-InformationSystems-Inclusive-Co-Design.pdf

Inclusive Design

Inclusive design describes methodologies to create products that understand and enable people of all backgrounds and abilities. It may address accessibility, age, economic situation, geographic location, language, race, and more.

The focus is on fulfilling **as many user needs as possible**, not just as many users as possible.

At its core, inclusive design is about **empathising** with users and adapting interfaces to address the various needs of those users.

Inclusive design generates inclusive-**design patterns**

https://www.nngroup.com/articles/inclusive-design/

Alita Kendrick

Inclusive Design - a common design pattern

On government sites, users are often asked to select their race from a predetermined set of options.

(Why) is this sometimes a good thing?

But, options are often mutually exclusive.

(Why) is this often a bad thing?

Inclusive Design pattern - use checkboxes instead of radio buttons

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What is the cost of not being inclusive?

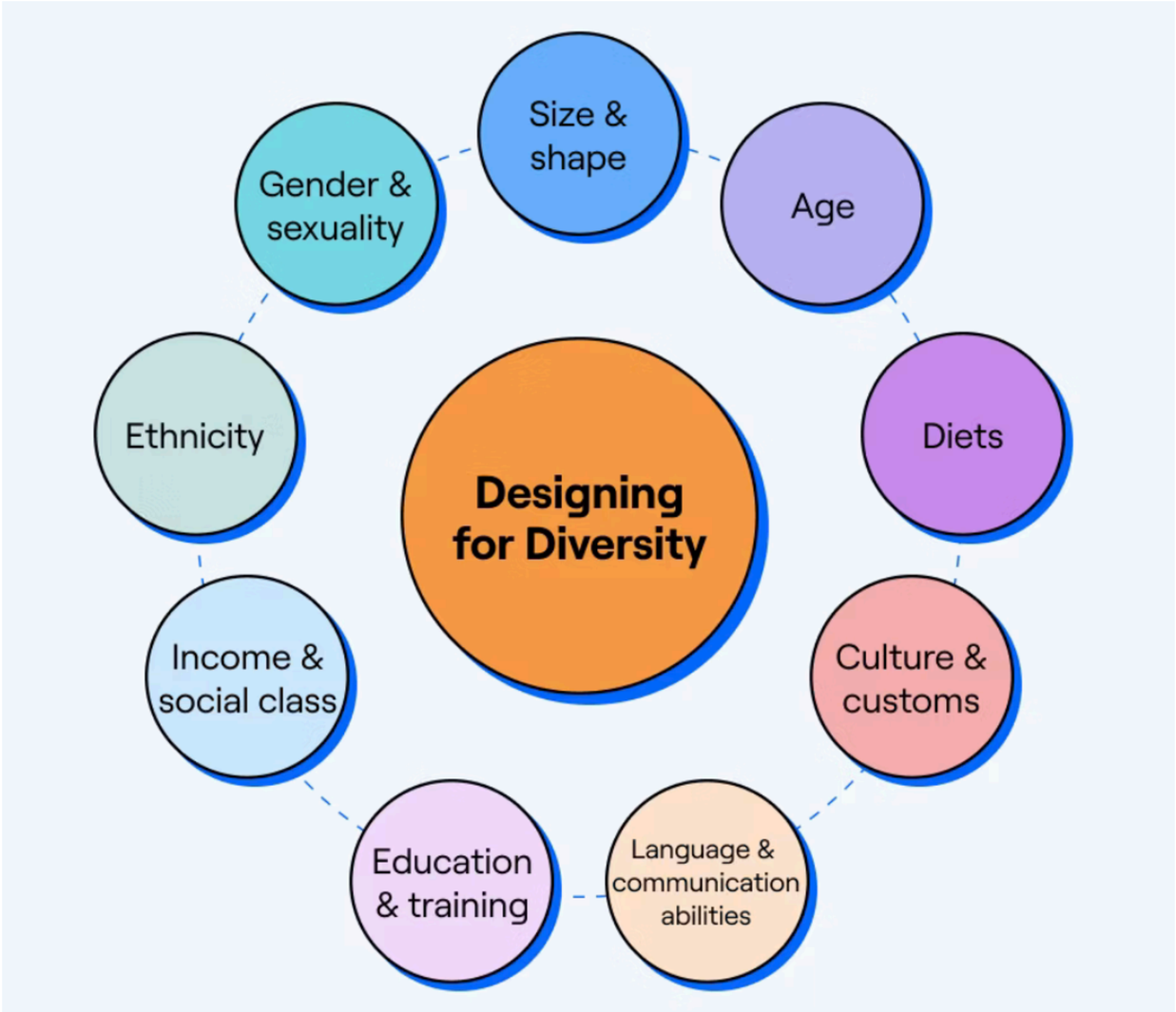
Ignoring inclusive design best practices may unintentionally lead to products that are discriminatory against specific user segments. As a result, it may also prohibit business growth opportunities. According to the European population projections, by 2050, 40.6% of Europe's population will be 55 or older. Creating products for a target group of 18-35 will therefore exclude a large portion of society and lead to many missed opportunities.

In practice, the cost of bias or not being inclusive could lead to entire generations feeling lost on how to contact officials or be a part of society simply because they don't have the latest technology. It could lead to missing out on hiring fantastic candidates because algorithms filter candidates based on their education level. In some cases, it could even increase the risk of injuries or death.

Car design example - "male and female bodies perform differently in crashes, but the vast majority of automotive safety policy and research is still designed to address the body of the so-called 50th percentile male." This results in women being more likely to be killed (+17%) or injured (+73%) in a car accident. This could have been avoided if women had been involved in the research and design process. The re-design of car interiors could have also been avoided, saving these companies millions.

https://maze.co/guides/inclusive-design/inclusive-design-principles/

Design for Diversity



Accessibility

Accessibility is focused on ensuring that interfaces and technology can be used by people with **disabilities** (including auditory, cognitive, physical, and visual disabilities).

Accessibility has a narrower scope than inclusive design in that it is focused on specific accommodations.

Additionally, accessibility standards such as Web Content Accessibility Guidelines (WCAG) make accessibility somewhat easier to assess than inclusive and universal design.

However, accessibility is only a bare minimum for meaningful experiences for individuals with disabilities.

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Web Content Accessibility Guidelines

Web Content Accessibility Guidelines (WCAG) 2 is developed through the W3C process in cooperation with individuals and organizations around the world, with a goal of providing a single shared standard for web content accessibility that meets the needs of individuals, organizations, and governments internationally.

The WCAG documents explain how to make web content more accessible to people with disabilities. Web “content” generally refers to the information in a web page or web application, including:

- natural information such as text, images, and sounds
- code or markup that defines structure, presentation, etc.

https://www.w3.org/WAI/standards-guidelines/wcag/

Four Principles of Accessibility (for web content)

Anyone who wants to use the web must have content that is:

1. **Perceivable** - Information and user interface components must be presentable to users in ways they can perceive.

2. **Operable** - User interface components and navigation must be operable.

3. **Understandable** - Information and the operation of user interface must be understandable.

4. **Robust** - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

If any of these are not true, users with disabilities will not be able to use the Web.

There are many general usability guidelines that make content more usable by all people, including those with disabilities. However, in **WCAG** 2.2, they only include those guidelines that address problems particular to people with disabilities. This includes issues that block access or interfere with access to the web more severely for people with disabilities.

Co-Design

Co-design (Originally **co-operative design**, also **Participatory design**) is an approach to design attempting to actively involve **all stakeholders** (e.g. employees, partners, customers, citizens, end users) in the design process to help ensure the result meets their needs and is usable

It is a form of **human-centered** design across two different dimensions.

1. emphasis on research or design,
2. how much people are involved.

The designer must believe that all people are capable of **creativity and problem solving.**

The designer is not just a researcher and creator, but now must be a **sociologue, cognitive scientist, philosopher and facilitator.**

Problem in IS - Often co-design technology (wrongly) assumes that users have equal knowledge of technology used

Design Thinking Process

Problem - Evaluate quality of TSP web pages (for accessibility)

Choose a subset of the web site - perhaps just those related to your project?

Search (online) for 3 different sets principles/guidelines

Analyse the web pages against the set of principles

Are the principles good? Rank them against a set of criteria (chosen by you)

Search (online) for examples of bad UI/UX design

Analyse the web pages and see if they repeat any of these bad examples

PROJECT WORK - Which design guidelines/patterns will you apply to your project, and why?