Usability and Accessibility *week 3*

Usability measures the quality of a user's experience: ease of learning, efficiency of use, memorability, error frequency and severity, and subjective satisfaction. It refers to how well users can learn and use a product and how satisfied they are with that process. Good usability allows users to complete their tasks quickly and easily, possibly considering cost-effectiveness and usefulness, too. User-centred design is key.

Usability can be defined as the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context.

Usability heuristics are rules-of-thumb to ensure products follow established usability principles. They are applied before real users use the product. The following are two sets of such heuristics.

Norman's design principles:

1. Visibility: make functional parts available and easily visible (not just by sight – by sound, touch, etc., too).
2. Affordances and constraints: use attributes people recognise.
3. Feedback: the user should be informed timely of their actions' outcomes.
4. Natural mapping: have a clear relationship between controls and their effect.
5. Good conceptual model: make sure the user's mental model is as close as can be to the designer's conceptual model.

Nielsen's 10 usability heuristics:

1. Visibility of system status: e.g. loading bars, error pop-ups.
2. Match between the system and the real world: e.g. relatable language.
3. User control and freedom: e.g. emergency exits (cancel, undo, quit).
4. Consistency and standards: words, situations, and actions always meaning the same thing as they do elsewhere.
5. Error prevention: e.g. provide clear messages about the effects of any irreversible actions.
6. Recognition rather than recall: the user should not have to remember information from one part of the system to another.
7. Flexibility and efficiency of use: provide shortcuts for experienced users.
8. Aesthetic and minimalist design: dialogues should not contain irrelevant or rarely needed information.
9. Help recognise, diagnose, and recover from errors: error messages should be expressed in plain language (no codes), indicate the problem, and suggest a solution.
10. Help and documentation: easy to search and user-focused help information.

Accessibility is the extent to which products, services, environments, etc. are accessible to as many diverse users as possible, in as many diverse contexts as possible (while usability refers to specifics). It becomes relevant when a user's environment makes performing a task difficult.

The Equality Act makes it a legal requirement to make products accessible.

Present information in multiple ways, for example, colour coded items should also be labelled and/or have a unique colour-dependent pattern.

[Government guideline posters for designing for accessibility.](#)

Designing for people from a different culture is part of accessibility as they may have different understandings of colours or symbols, for example.

Situational impairment is a (temporary) difficulty accessing a system due to the context or situation one is in, e.g. an injury, intoxication, being in a lecture, driving.

Accessible design is focused on diverse users to maximise the number of potential users who can readily use a system in diverse contexts. This can be achieved by designing systems that are ready to use by most users without modifications, making adaptable systems, and having standardised interfaces to be compatible with assistive products.

Assistive technology is any product used to increase, maintain, or improve the functional capabilities of a person with a disability or impairment.

There are tools online to analyse how well-suited to colour-blindness a webpage is and some that can recolour systems to be more accessible.