# HCD402
# Module 2: Everyday Design of Objects

# Agenda

- Introduction
- The Design Process
- Designing Objects
- User-Centred Design Principles
- Don Norman's Design Principles
- Iterative Design Process
- Design Thinking Principles
- Case studies of everyday design objects
- Conclusions
- Q&A

# Introduction

- **Object design and development in Human Centred Design**
    - Human Centred Design (HCD) is an approach that focuses on creating products and systems that meet the needs and preferences of users.
    - HCD considers usability, functionality, and user experience as key factors in the design process.
- **Importance of well-designed products**
    - Well-designed products enhance user satisfaction, efficiency, and safety.
    - They provide a positive user experience and establish a connection between the user and the product.
- **Overview of Don Norman's design philosophies**
    - Don Norman, a renowned design researcher, emphasizes the importance of user-centred design principles.
    - Norman's principles include visibility, feedback, affordances, and mapping, which guide the design of everyday objects.

# The Design Process

**Design as a complicated process**

- Designing a product involves juggling multiple components simultaneously, such as aesthetics, functionality, usability, and user experience.

- Balancing these components requires careful consideration and iterative refinement throughout the design process.

**Impact of lagging components on product quality**

- If any component lags behind others, it can negatively impact the overall product quality.

- For example, a visually appealing product that lacks usability or feedback may frustrate users and result in poor user experience.

- It is crucial to ensure that all design components are given proper attention and consideration.

# Designing Objects

- **Observation**
  - In the observation phase, designers immerse themselves in the user's environment to understand their behaviours, needs, and challenges.
  - Techniques such as user research, interviews, and ethnographic studies help gather valuable insights.
- **Idea generation**
  - Idea generation involves brainstorming creative solutions based on the observations made in the previous phase.
  - Designers encourage multidisciplinary collaboration and ideation sessions to generate a wide range of ideas.
- **Prototyping**
  - Prototyping brings ideas to life by creating physical or digital representations of the product.
  - Prototypes allow designers to visualize their concepts, gather feedback, and refine their designs.
- **Testing**
  - Testing involves evaluating prototypes with users to gather feedback and assess usability.
  - User feedback helps identify areas for improvement, leading to iterative design refinements.

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# Emphasizing Simplicity

**Importance of simplicity in different industries**

- Simplicity enhances usability, reduces cognitive load, and improves user satisfaction.

- Industries such as consumer electronics, user interfaces, and household appliances can greatly benefit from simplicity in design.

- Simplicity makes products more accessible and intuitive to a wider range of users.

**Identifying industries that can benefit from simplicity**

- Analysing industries where complexity often hinders usability and user experience.

- Identifying opportunities to simplify existing products and systems for better user engagement.

**Exercise: Breaking down and understanding flawed designs**

- Engaging in a practical exercise to analyse existing products with flawed designs.

- Identifying usability issues and understanding how these designs fail to meet user needs.

- Through critical analysis, proposing design improvements to enhance user experience.

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# Actions, Constraints, and Feedback

**Focus on actions, constraints, and feedback in object design**

- Designing objects that facilitate intuitive and effortless interactions for users.

- Considering how users will interact with the product and designing actions accordingly.

**Exploring Don Norman's book and other resources for insights**

- Don Norman's book, "The Design of Everyday Things," provides valuable insights into the relationship between design and user experience.

- Other resources, such as research papers, case studies, and online forums, offer diverse perspectives on design principles.

**Significance of constraints and feedback in the design process**

- Constraints help shape and guide design decisions, preventing users from making errors.

- Feedback from users is a crucial source of information for iterating and improving designs based on user needs and preferences.

# User-Centred Design Principles

**Overview of user-centred design principles**

- User-centred design principles prioritize the needs, goals, and preferences of users throughout the design process.

- Principles include empathy, user involvement, iterative design, and usability testing.

**Importance of involving users throughout the design process**

- Collaborating with users ensures that their perspectives and insights are integrated into the final design.

- User involvement helps validate design decisions and increases the likelihood of creating products that meet user expectations.

**Examples of user-centred design approaches in real-world products**

- Showcasing examples of products that successfully incorporate user-centred design principles.

- Highlighting how these products provide a seamless user experience and address specific user needs.

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# Don Norman's Design Principles

- **Visibility**: Ensuring that users can perceive and understand the status and state of the product.

- **Feedback**: Providing clear and timely feedback to users to guide their interactions.

- **Affordances**: Designing objects with visual and functional cues that suggest how they can be used.

- **Mapping**: Establishing a clear relationship between controls and their intended functions.

**Application of these principles in everyday object design**

- Illustrating how these principles can be applied in various objects, such as smartphones, kitchen appliances, and furniture.

- Highlighting how Norman's principles contribute to improved usability and user experience.

# Case Study: Flawed Coffeepot Design

**Analysing a poorly designed coffeepot**

- Presenting a case study of a coffeepot with significant usability issues.

- Identifying specific design flaws that hinder the user experience.

**Identifying usability issues and user frustrations**

- Discussing how the design fails to meet user needs, such as complicated controls, unclear indicators, and difficulty in pouring.

**Proposing design improvements to enhance user experience**

- Suggesting design solutions to address the identified usability issues.

- Emphasizing the importance of simplicity, clear feedback, and intuitive interactions in the redesigned coffeepot.

# Simplicity in User Interfaces

**Importance of simplicity in user interface design**

- Simple user interfaces improve learnability and efficiency.

- They reduce cognitive load and make interactions more intuitive.

**Examples of successful simple interfaces**

- Showcasing examples of products or applications with simple, intuitive user interfaces, such as Apple products.

- Highlighting how these interfaces prioritize essential functions, declutter visual elements, and provide clear feedback.

**Strategies for simplifying complex user interfaces**

- Introducing design techniques such as hierarchical organization, clear navigation, and minimalist visual design.

- Emphasizing the need to prioritize key functions and remove unnecessary complexity.

# Iterative Design Process

**Explanation of the iterative design process**

- Iterative design involves repeating cycles of design, prototyping, testing, and refining.

- Each iteration incorporates user feedback and insights to drive improvements.

**Continuous improvement through feedback and iteration cycles**

- Discussing how feedback from users during testing informs design iterations.

- Illustrating the incremental improvements made through each iteration.

**Benefits of iterative design in creating user-centred products**

- Ensuring that the final product meets user needs effectively.

- Reducing the risk of costly redesigns or failures by incorporating user feedback early in the process.
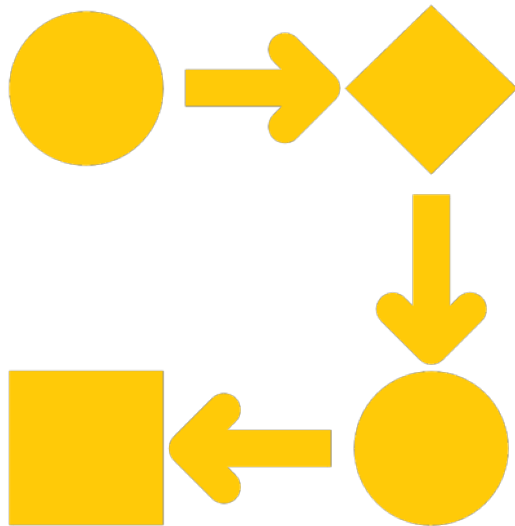
# Usability Testing Methods

**Overview of usability testing methods**

- Explaining various usability testing techniques, such as think-aloud protocol, task-based testing, and user surveys.

- Highlighting the importance of selecting the appropriate method based on the research objectives and the target user group.

**Importance of involving users in usability testing**

- Emphasizing the value of direct user feedback and observations.

- Discussing how usability testing provides insights into user interactions, pain points, and areas for improvement.

**Gathering insights and feedback to refine designs**

- Describing how usability testing data guides design iterations.

- Illustrating how test results inform design refinements to enhance the overall user experience.

# Affordances and Constraints

**Understanding the concepts of affordances and constraints**

- Defining affordances as the perceived or potential actions that an object or interface allows.

- Discussing constraints as the limitations or restrictions that guide user behaviour and prevent errors.

**Designing objects with clear affordances for intuitive use**

- Exploring how objects can provide visual and functional cues to indicate their use.

- Showcasing examples of objects with well-designed affordances that support intuitive interactions.

**Applying appropriate constraints to guide user interactions**

- Discussing how constraints can prevent unintended actions or misuse of objects.

- Exploring the balance between providing freedom and enforcing necessary constraints in design.

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# Designing for Inclusive User Experiences

**Importance of inclusivity in design**

- Discussing the significance of considering diverse user needs and abilities.

- Highlighting the social and ethical responsibility of creating inclusive products.

**Considering diverse user needs and abilities**

- Exploring design considerations for users with disabilities, cultural differences, and varying levels of expertise.

- Discussing examples of products that successfully address inclusive design principles.

**Examples of inclusive design in everyday objects**

- Showcasing products that accommodate different user abilities, such as inclusive kitchen utensils, tactile feedback devices, and universal design principles.

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# Ethnographic Studies in Design

**Exploring the role of ethnographic studies in design**

- Describing how ethnographic studies enable designers to understand user behaviours, needs, and cultural influences.

- Discussing the use of observation, interviews, and immersive research techniques.

**Understanding user behaviours, needs, and cultural influences**

- Sharing insights gained from ethnographic studies, such as understanding daily routines, pain points, and cultural contexts.

- Emphasizing the importance of empathizing with users to create meaningful designs.

**Leveraging ethnographic insights for user-centred design**

- Illustrating how ethnographic data can inform design decisions and uncover unmet user needs.

- Discussing how designers can apply ethnographic insights to create products that resonate with users' values and preferences.

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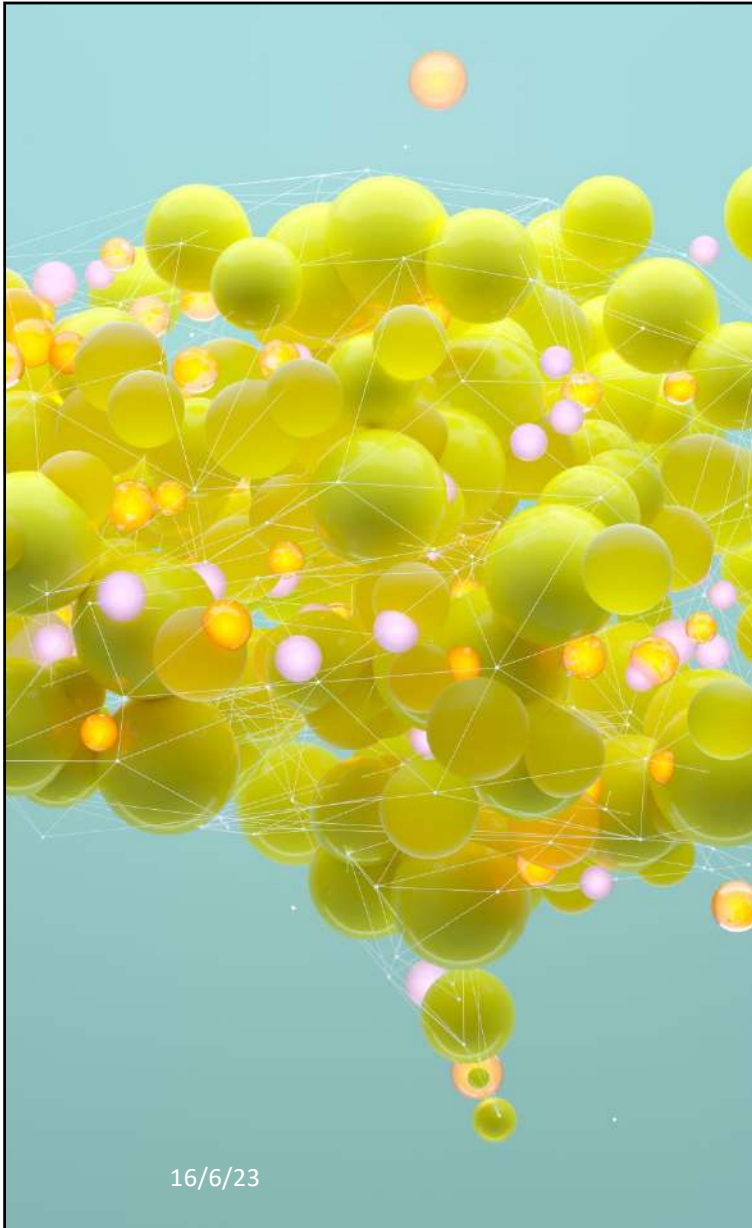
# Design Thinking Principles

**Empathy: Understanding user needs and perspectives**

- Highlighting the importance of empathizing with users to uncover deeper insights.

- Using techniques, such as user interviews and observation, to cultivate empathy.

**Ideation: Generating creative solutions**

- Encouraging brainstorming and divergent thinking to generate a wide range of ideas.

- Using techniques like mind mapping, sketching, and ideation sessions.

**Prototyping: Bringing ideas to life**

- Focusing on the value of creating prototypes to visualize and test design concepts.

- Using different prototyping methods, such as paper prototypes, digital mock-ups, or 3D printing.

**Testing and iteration: Gathering feedback and refining designs**

- Emphasizing the iterative nature of design thinking.

- Understanding how user feedback and testing drive design refinements and improvements.

# Case Study 1: Ergonomic Office Chair

**Objective:** To design an ergonomic office chair that promotes comfort, supports proper posture, and enhances productivity.

**Process**

1. Observation: Conducted workplace observations and user interviews to understand the needs and challenges of office workers.

2. Idea Generation: Collaborated with industrial designers, ergonomics experts, and office workers to brainstorm innovative chair design concepts.

3. Prototyping: Created multiple chair prototypes with adjustable features, lumbar support, and breathable materials.

4. Testing: Invited office workers to test the chair prototypes and provided feedback on comfort, adjustability, and overall usability.

5. Iteration: Incorporated user feedback to refine the chair design, making adjustments to armrests, seat depth, and backrest angles.

6. Final Product: Developed a highly ergonomic office chair that promotes good posture, reduces strain, and enhances overall comfort and productivity in the workplace.

**Outcome**: The ergonomic office chair received positive feedback from users and demonstrated a significant improvement in user comfort and well-being. The design was praised for its adjustable features, proper lumbar support, and breathability, which resulted in increased user satisfaction and reduced instances of back pain and discomfort among office workers.

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# Case Study 2: Intuitive Smart Home Lighting System

**Objective**: To design a smart home lighting system that offers intuitive control and enhances the user experience for homeowners.

**Process**

1. Observation: Conducted home visits and user interviews to understand homeowners' daily routines, lighting preferences, and pain points.

2. Idea Generation: Collaborated with lighting experts, interior designers, and homeowners to brainstorm ideas for a user-friendly lighting system.

3. Prototyping: Developed interactive prototypes of the lighting system with touch-sensitive controls, voice activation, and personalized lighting presets.

4. Testing: Invited homeowners to test the prototypes, gathering feedback on ease of use, responsiveness, and integration with other smart home devices.

5. Iteration: Incorporated user feedback to refine the system's interface, adjust control options, and enhance integration with popular smart home platforms.

6. Final Product: Released a smart home lighting system that allows homeowners to control lighting through intuitive interfaces, voice commands, and automated presets. The system seamlessly integrates with other smart home devices and provides personalized lighting experiences.

**Outcome**: The intuitive smart home lighting system received positive feedback from homeowners for its ease of use and flexibility. Users appreciated the ability to control lighting through simple gestures, voice commands, and personalized presets that catered to their specific needs and moods. The system's integration with other smart home devices enhanced convenience and provided a seamless user experience, resulting in increased adoption and customer satisfaction.

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# Case Study 3: User-Friendly Home Security System

**Objective**: To design a user-friendly home security system that ensures the safety and peace of mind of homeowners.

**Process**

1. Observation: Conducted home visits and interviews with homeowners to understand their security concerns, challenges, and desired features.

2. Idea Generation: Collaborated with security experts, technology specialists, and homeowners to generate ideas for an intuitive and effective security system.

3. Prototyping: Developed interactive prototypes of the security system with user-friendly interfaces, mobile app integration, and customizable alerts.

4. Testing: Invited homeowners to test the prototypes, gathering feedback on ease of installation, user interface, and overall system performance.

5. Iteration: Incorporated user feedback to refine the system's design, improve user interfaces, enhance system responsiveness, and address any usability issues.

6. Final Product: Launched a user-friendly home security system that offers easy installation, intuitive controls, and comprehensive protection features. The system integrates with mobile apps, provides real-time notifications, and allows users to customize security settings.

**Outcome**: The user-friendly home security system gained popularity among homeowners due to its simplicity, reliability, and customizable features. Users appreciated the system's easy installation process, user-friendly interfaces, and the ability to monitor and control their home security remotely. The system's effectiveness in providing peace of mind and ensuring the safety of homes and loved ones led to high customer satisfaction and increased adoption in the market.

# Conclusion

**Recap of key points covered in the presentation**

- Summarizing the importance of everyday design in Human Centred Design.

- Highlighting the role of observation, idea generation, prototyping, and testing in the design process.

- Reinforcing the significance of user-centred design principles, including simplicity, feedback, and inclusivity.

**Emphasizing the need for ongoing exploration and application**

- Encouraging continuous learning and application of user-centred design principles.

- Inspiring participants to consider the everyday objects they interact with and explore opportunities for improvement.

# Q&A

# Thanks for your attention!