

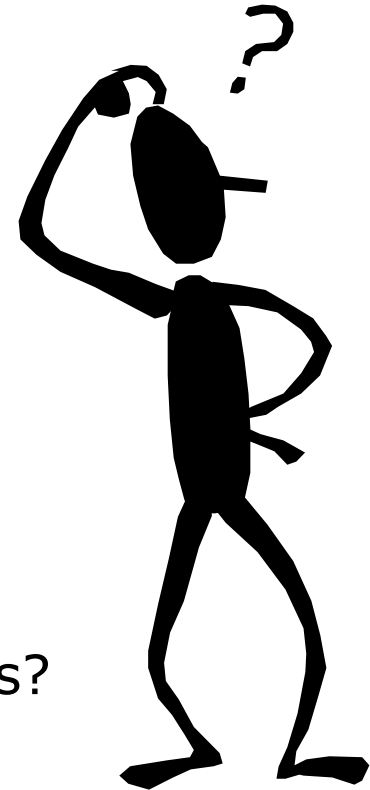
# Chapter 9

# The process of interaction design



# Overview

- What is involved in Interaction Design?
  - Importance of involving users
  - Degrees of user involvement
  - What is a user-centered approach?
  - Four basic activities
- Some practical issues
  - Who are the users?
  - What are 'needs'?
  - Where do alternatives come from?
  - How do you choose among alternatives?



# What is involved in Interaction Design?

- It is a process:
  - a goal-directed problem solving activity informed by intended use, target domain, materials, cost, and feasibility
  - a creative activity
  - a decision-making activity to balance trade-offs
- Four approaches: user-centered design, activity-centered design, systems design, and genius design

# Importance of involving users

- **Expectation management**
  - Realistic expectations
  - No surprises, no disappointments
  - Timely training
  - Communication, but no hype
- **Ownership**
  - Make the users active stakeholders
  - More likely to forgive or accept problems
  - Can make a big difference to acceptance and success of product

# Degrees of user involvement

- Member of the design team
  - Full time: constant input, but lose touch with users
  - Part time: patchy input, and very stressful
  - Short term: inconsistent across project life
  - Long term: consistent, but lose touch with users
- Newsletters and other dissemination devices
  - Reach wider selection of users
  - Need communication both ways
- User involvement after product is released
- Combination of these approaches

# What is a user-centered approach?

User-centered approach is based on:

- Early focus on users and tasks: directly studying cognitive, behavioral, anthropomorphic & attitudinal characteristics
- Empirical measurement: users' reactions and performance to scenarios, manuals, simulations & prototypes are observed, recorded and analysed
- Iterative design: when problems are found in user testing, fix them and carry out more tests

# Four basic activities in Interaction Design

1. Establishing requirements
2. Designing alternatives
3. Prototyping
4. Evaluating

# A simple interaction design lifecycle model

Exemplifies a user-centered design approach



# Some practical issues

- Who are the users?
- What do we mean by 'needs'?
- How to generate alternatives
- How to choose among alternatives
- How to integrate interaction design activities with other models?

# Who are the users/stakeholders?

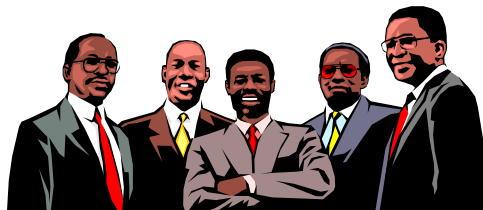
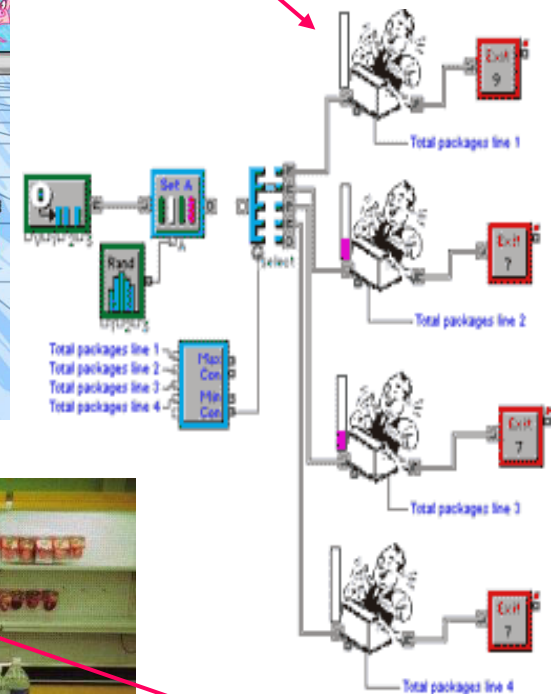
- Not as obvious as you think:
  - those who interact directly with the product
  - those who manage direct users
  - those who receive output from the product
  - those who make the purchasing decision
  - those who use competitor's products
- Three categories of user (Eason, 1987):
  - primary: frequent hands-on
  - secondary: occasional or via someone else
  - tertiary: affected by its introduction, or will influence its purchase

# Who are the stakeholders?

- Suppliers
- Local shop owners



Check-out operators



Managers and owners



Customers

# What do we mean by 'needs'?

- Users rarely know what is possible
- Users can't tell you what they 'need' to help them achieve their goals
- Instead, look at existing tasks:
  - their context
  - what information do they require?
  - who collaborates to achieve the task?
  - why is the task achieved the way it is?
- Envisioned tasks:
  - can be rooted in existing behaviour
  - can be described as future scenarios



# How to generate alternatives

- Humans stick to what they know works
- But considering alternatives is important to 'break out of the box'
- Designers are trained to consider alternatives, software people generally are not
- How do you generate alternatives?
  - 'Flair and creativity': research and synthesis
  - Seek inspiration: look at similar products or look at very different products

# IDEO TechBox

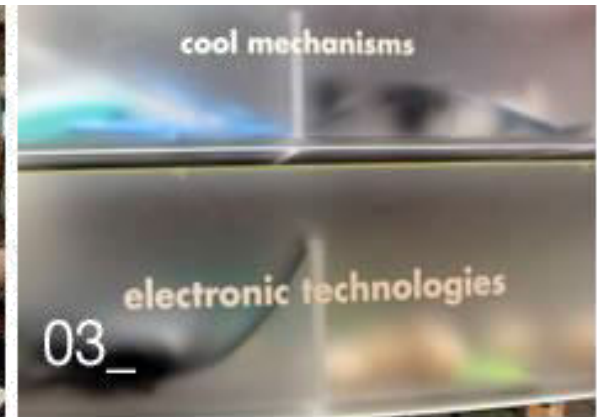
- Library, database, website - all-in-one
- Contains physical gizmos for inspiration



The Tech Box is centrally located



An item on the intranet website



The drawers are sorted by categories

From: [www.ideo.com/](http://www.ideo.com/)



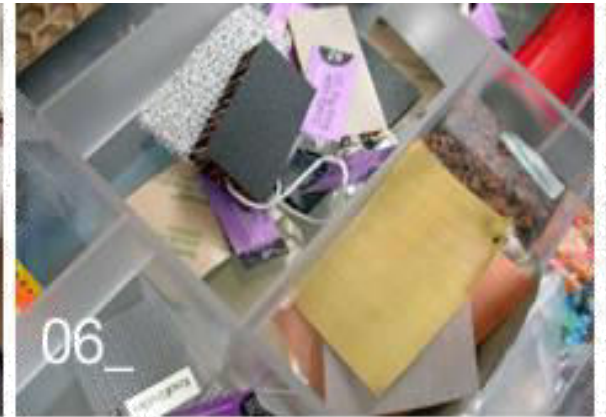
# The TechBox



Each drawer resembles a bento box



The curator keeps order



All the entries are tagged



It really is used daily



Two demonstrations units on top

# How to choose among alternatives

- Evaluation with users or with peers, e.g. prototypes
- Technical feasibility: some not possible
- Quality thresholds: Usability goals lead to usability criteria set early on and check regularly
  - safety: how safe?
  - utility: which functions are superfluous?
  - effectiveness: appropriate support? task coverage, information available
  - efficiency: performance measurements



# Testing prototypes to choose among alternatives



# How to integrate interaction design in other models

- Lifecycle models from other disciplines
- Agile software development promising
  - have development and design running in separate tracks
  - maintain a coherent vision of the interface architecture

# Summary

## Four basic activities in the design process

1. Establishing requirements
2. Designing alternatives
3. Prototyping
4. Evaluating

## User-centered design rests on three principles

1. Early focus on users and tasks
2. Empirical measurement using quantifiable & measurable usability criteria
3. Iterative design