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
- Managers and owners
- Customers

Check-out operators
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

From: www.ideo.com/
The TechBox

04_ Each drawer resembles a bento box

05_ The curator keeps order

06_ All the entries are tagged

07_ It really is used daily

08_ 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