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 to choose among alternatives?
  – How to integrate interaction design activities in other lifecycle models?
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

• Generating alternatives and choosing between them is key

• 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

Figure 9.3 A simple interaction design lifecycle model
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 lifecycle 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
- Check-out operators
- 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 and website all-in-one
- Contains physical gizmos for inspiration
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
  – learnability: is the time taken to learn a function acceptable to the users?
  – memorability: can infrequent users remember how to achieve their goal?
Testing prototypes to choose among alternatives
How to integrate interaction design in other models

• Integrating interaction design activities in lifecycle models from other disciplines needs careful planning

• Several software engineering lifecycle models have been considered

• Integrating with agile software development is promising
  – it stresses the importance of iteration
  – it champions early and regular feedback
  – it handles emergent requirements
  – it aims to strike a balance between flexibility and structure
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