

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

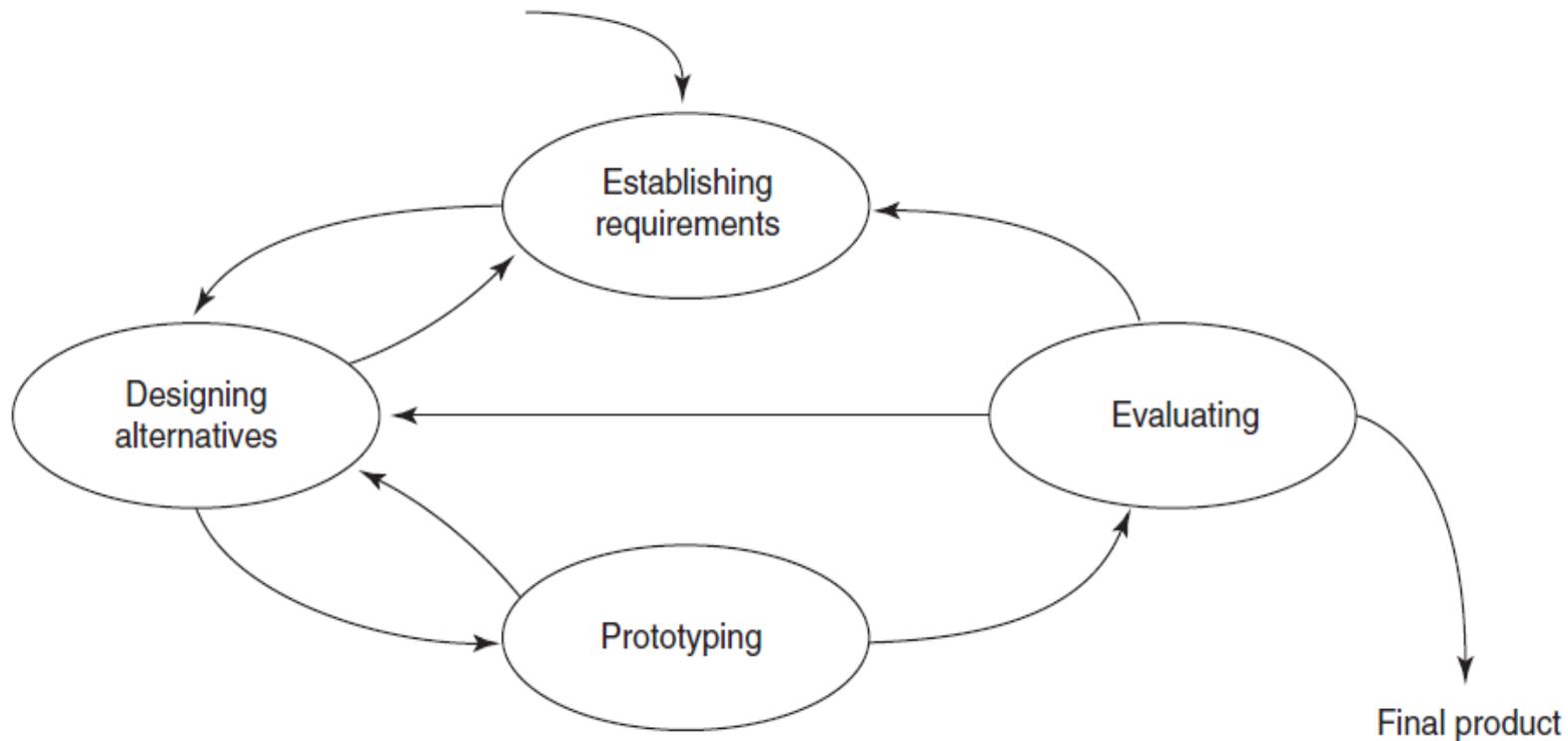


Figure 9.3 A simple interaction design lifecycle model

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?

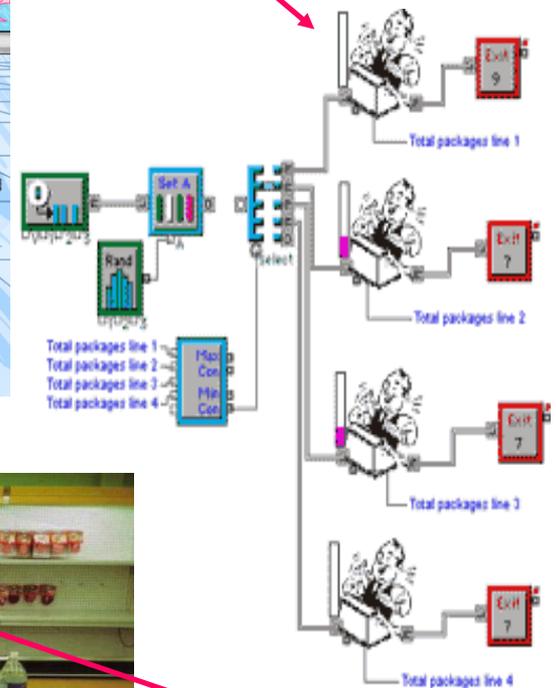
- Not as obvious as you think:
 - those who interact directly with the product
 - those who manage direct users
 - those who receive output from the product
 - those who make the purchasing decision
 - those who use competitor's products
- Three categories of user (Eason, 1987):
 - primary: frequent 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



Check-out operators



Managers and owners



Customers

What do we mean by 'needs' ?

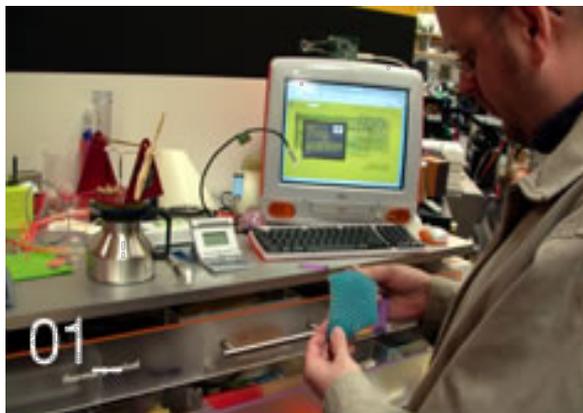
- Users rarely know what is possible
- Users can't tell you what they 'need' to help them achieve their goals
- Instead, look at existing tasks:
 - their context
 - what information do they require?
 - who collaborates to achieve the task?
 - why is the task achieved the way it is?
- Envisioned tasks: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

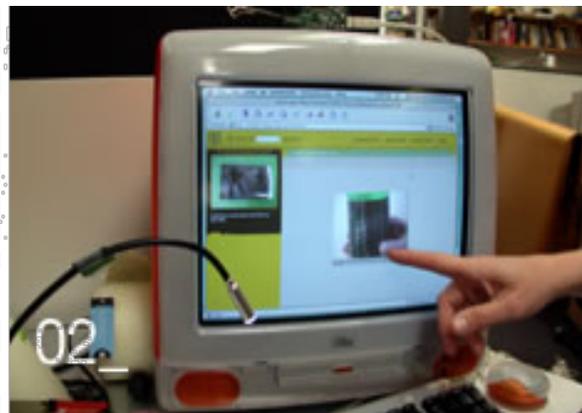
IDEO TechBox

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



01_

The Tech Box is centrally located



02_

An item on the intranet website



03_

The drawers are sorted by categories

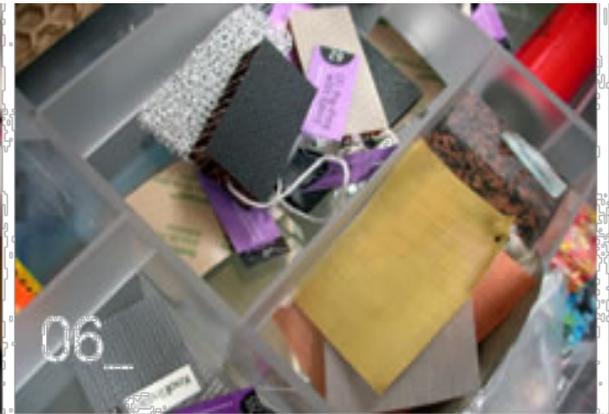
The TechBox



Each drawer resembles a bento box



The curator keeps order



All the entries are tagged



It really is used daily



Two demonstration 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