Chapter 9
The process of interaction design

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Approaches to ID

- **User-centered design**
  - User is only guide

- **Activity-centered design**
  - User’s behavior
  - User still plays significant role
Approaches to ID

• **Systems design**
  - System of people, computers, objects, etc.
  - Focus on context
  - User’s role is to set goals
  - Good for complex systems

• **Genius design**
  - Only designer

Four basic activities of ID

• **Establish requirements**
  - Based on
    • Target users
    • Kind of support product can usefully provide
  - Balance conflicting requirements
Four basic activities of ID

• **Design alternatives**
  - Conceptual design
    • Conceptual model
  - Physical design
    • Details
    • Colors, sounds, images
    • Menu, icon design
  - Have to describe to users
    • Sketches
    • Write natural language description
    • Diagrams and/or...

• **Prototype**
  - Allows users to interact with design
  - Types
    • Software
    • Paper

• **Evaluate**
  - Criteria
    • Number of errors
    • How appealing
    • How well matches requirements
ID lifecycle model

1. Establish requirements
2. Design alternatives
3. Prototype
4. Evaluate

Importance of involving users

- **Expectation management**
  - Realistic expectations
  - No surprises
  - No disappointments
  - Communication, but no hype
  - Training

- **Ownership**
  - Make the users active stakeholders
  - More likely to forgive or accept problems
  - Affects acceptance and success of product
Degrees of user involvement:
Member of team

- **Full time**
  - Constant input
  - Lose touch with users

- **Part time**
  - Patchy input
  - Very stressful

- **Short term**
  - Inconsistent across project life

- **Long term**
  - Consistent
  - Lose touch with users

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Degrees of user involvement:
Newsletters

- **Or other channels of communication**
- **Wider selection of users**
- **Input via**
  - Design workshops
  - Evaluation sessions
  - Other data-gathering activities
- **Sometimes full time group leaders**
Degrees of user involvement: Post-release

- Now get data based on real use
- Customer service agents
- Error reporting systems (ERS)

- Combo of team, newsletter, post-release

Degrees of user involvement: Involvement Pros

- **High**
  - Early user study benefits outweigh costs
  - For new products, developer satisfaction higher

- **Moderate**
  - For maintenance projects, both developers and users most satisfied

- **Low**
  - For new products, user satisfaction higher
Degrees of user involvement: High involvement

Cons

- Fewer innovations
- Lower degree of flexibility
- Low team effectiveness
- Only noticeable later in project

Degrees of user involvement: Four issues with users

- Want sophisticated ideas too late
- Non-constructive participation
  - Fear of job loss or worsening job conditions
- Don’t care/understand software dev issues
- Higher aspirations
  - Hence higher levels of stress
  - Unnecessary conflicts
  - Increased reworking
Degrees of user involvement: Design implications

- **Influenced by**
  - Kind of product being developed
  - Kind of user involvement possible
  - Application domain

- **Multimedia applications**
  - User-oriented design

- **Different kinds of users at different stages**

- **More effective when relevant to user’s life**
  - Often close to or after deployment

User-centered approach

- **Well designed system will**
  - Make the most of human skill and judgment
  - Be directly relevant to the activity in hand
  - Support rather than constrain the user
User-centered approach: Principles

Early focus on users and tasks

Empirical measurement Iterative design

User-centered approach: More principles

- User’s tasks and goals are driving force
- Support users’ behavior and context of use
  - Priorities
  - Preferences
  - Implicit intentions
- Design for users’ characteristics
  - Cognitive and physical limitations
User-centered approach: More principles

- **Take user input seriously**
  - Throughout development
- **All design decisions within context of**
  - User
  - User’s work
  - User’s environment

Some practical issues

- Who are the users?
- What do we mean by ‘needs’?
- How generate alternatives
- How choose among alternatives
- How integrate ID activities with other lifecycle models?
Who are the users?

Primary

Secondary

Tertiary

What do we mean by ‘needs’?

• Users rarely know what is possible
• Instead, look at users’:
  – Characteristics and capabilities
    – Cognitive and physical
  – What trying to achieve
  – How achieve it currently
  – Can they achieve more effectively and enjoyably
• Helpful to understand similar behavior
How to generate alternatives

- Ideas from different Individuals
  - Perspectives
  - Applications

How to generate alternatives

- Evaluation of existing product
- Discuss with
  - Other designers
  - People outside of domain
How to generate alternatives

- Browse designs
- Inspiration
  - Competitors’ products
  - Earlier version of similar system
  - Completely different

IDEO TechBox

From: www.ideo.com/
How to choose among alternatives

• **External**
  - What designers focus on
  - Visible
  - Measurable

• **Internal**
  - Hidden from user’s view
  - Need to dissect
How to choose among alternatives

- Evaluation with users
  - Prototypes
- Technical feasibility
- Quality thresholds
  - Usability goals
  - UX goals
- Usability engineering
  - Specify quantifiable measures of performance
  - Document in a usability specification
  - Assess product against specifications

How to integrate ID with other lifecycle models

- Agile software development
  - Iteration
  - Early, repeated user feedback
  - Handle emergent requirements
  - Balance flexibility and structure
  - Collaboration
  - Face-to-face communication
  - Avoid unnecessary activities
  - Practice over process
How to integrate ID with other lifecycle models

• Field study