

Chapter 9

The process of interaction design

Anna Loparev
Intro HCI
University of Rochester
02/05/2013

www.id-book.com

1

©2011

Approaches to ID

- User-centered design
 - User is only guide
- Activity-centered design
 - User's behavior
 - User still plays significant role



www.id-book.com

2

©2011

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



www.id-book.com

3

©2011

Four basic activities of ID

- Establish requirements

- Based on
 - Target users
 - Kind of support product can usefully provide
- Balance conflicting requirements



www.id-book.com

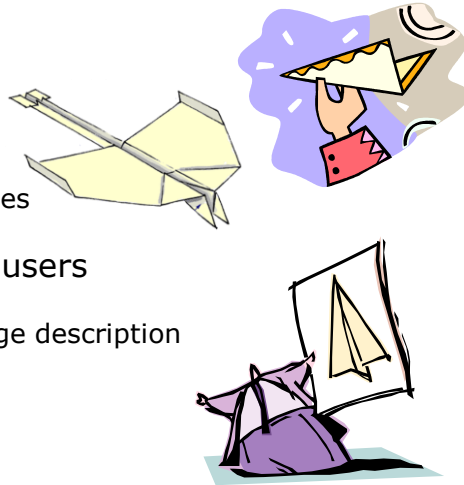
4

©2011

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...



www.id-book.com,
<http://www.zurqui.com/crinfocus/paper/airplane.html>

5

©2011

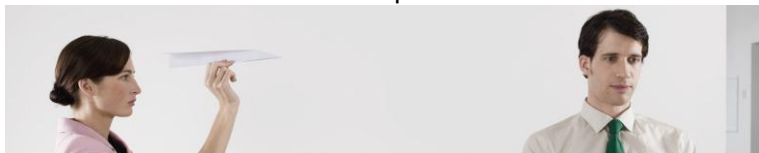
Four basic activities of ID

- **Prototype**

- Allows users to interact with design
- Types
 - Software
 - Paper

- **Evaluate**

- Criteria
 - Number of errors
 - How appealing
 - How well matches requirements

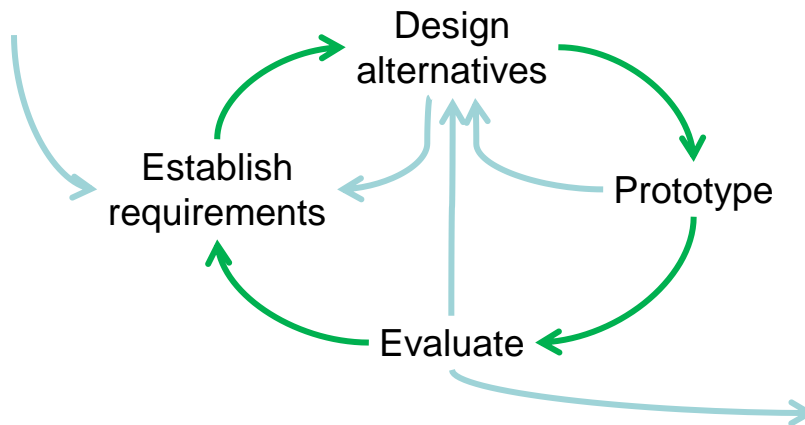


www.id-book.com

6

©2011

ID lifecycle model



www.id-book.com

7

©2011

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



www.id-book.com

8

©2011

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

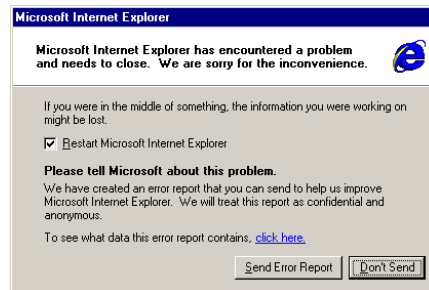


Degrees of user involvement: Newsletters

- 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

www.id-book.com,
<http://support.microsoft.com/kb/276550>

11

©2011

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

www.id-book.com,
<http://support.microsoft.com/kb/276550>

12

©2011

Degrees of user involvement: High involvement Cons

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

www.id-book.com,
<http://support.microsoft.com/kb/276550>

13

©2011

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

www.id-book.com,
<http://support.microsoft.com/kb/276550>

14

©2011

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

www.id-book.com

17

©2011

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

www.id-book.com

18

©2011

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



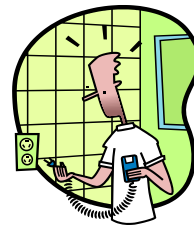
www.id-book.com

21

©2011

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



www.id-book.com

22

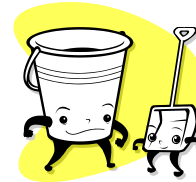
©2011

How to generate alternatives

- Ideas from different



Perspectives



Individuals



Applications

www.id-book.com

23

©2011

How to generate alternatives

- Evaluation of existing product
- Discuss with
 - Other designers
 - People outside of domain



www.id-book.com

24

©2011

How to generate alternatives

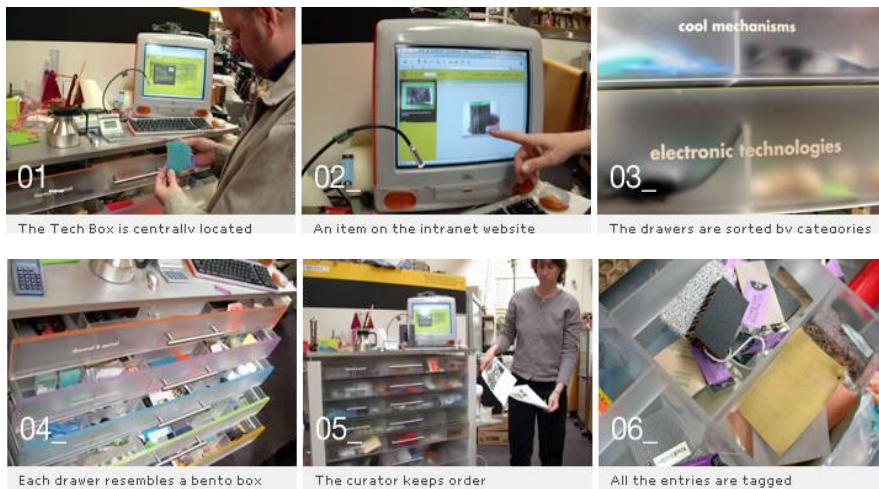
- Browse designs
- Inspiration
 - Competitors' products
 - Earlier version of similar system
 - Completely different

www.id-book.com

25

©2011

IDEO TechBox



From: www.ideo.com/

www.id-book.com

26

©2011

How to choose among alternatives



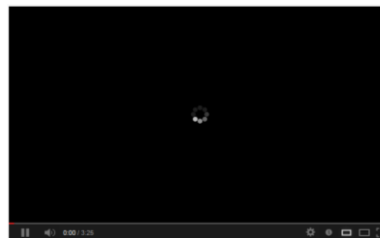
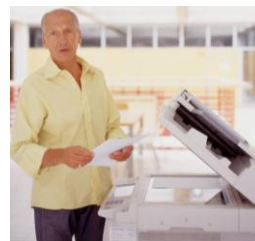
www.id-book.com

27

©2011

How to choose among alternatives

- **External**
 - What designers focus on
 - Visible
 - Measurable
- **Internal**
 - Hidden from user's view
 - Need to dissect



www.id-book.com

28

©2011

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



www.id-book.com

31

©2011