User Interface
Software Projects

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Interaction design basics

Content derived from Dix, Finlay, Abowd, Beale [http://www.hcibook.com/](http://www.hcibook.com/)
What is design?
What is design?

Achieving Goals Within Constraints
Achieving Goals Within Constraints

• goals
  • who is it for?
  • why do they want it?
  • what is the designer trying to achieve?
• constraints
  • materials, platforms
• trade-offs
Designing interactions not just interfaces
- not just the immediate interaction
- e.g. stapler in office – technology changes interaction style
  - manual: write, print, staple, write, print, staple, ...
  - electric: write, print, write, print, ..., staple

Designing interventions not just artifacts
- not just the system, but also ...
  - documentation, manuals, tutorials
- what we say and do as well as what we make
Understand your materials
Golden Rule of Design

Understand your materials
Golden Rule of Design

Understand your materials

• For Human-Computer Interactions
  • understand computers
    • limitations, capacities, tools, platforms
  • understand people
    • psychology, social
    • expect human error
  • understand the interaction between them
To err is human

• accident reports ..
  • air crash, industrial accident, hospital mistake
  • inquiry ... blames ... ‘human error’
• but ...
  • concrete platform breaks because too much weight
  • blame ‘platform error’ ?
    ... no – it’s a design error
    we know how concrete behaves under stress
• human ‘error’ is normal
  • we know how users behave under stress
  • so design for it!
• treat the user at least as well as physical materials
Focus on the user
Design Process

What is wanted? -> Analysis
Analysis -> Design
Design -> Prototyping
Prototyping -> Evaluation
Evaluation -> Implement and Deploy

Wednesday, January 11, 12
Design Process

- What is wanted?
  - interviews, ethnography, market research, surveys
  - expert review, 80/20 reviews, heuristics

- Analysis
  - scenarios, task analysis, specification

- Design
  - guidelines, principles
  - scenarios, task analysis, specification

- Prototyping
  - paper, lo-fi, hi-fi, wizard of oz

- Evaluation
  - acceptance tests, documentation help

- Implement and Deploy
  - interviews, ethnography, market research, surveys
  - expert review, 80/20 reviews, heuristics
Steps...

- requirements
  - what is there and what is wanted ...
- analysis
  - ordering and understanding
- design
  - what to do and how to decide
- iteration and prototyping
  - getting it right ... and finding what is really needed!
- implementation and deployment
  - making it and getting it out there
What is interaction design?

Content derived from Rogers, Sharp and Preece [http://www.id-book.com](http://www.id-book.com/)
• Elevator controls and labels on the bottom row all look the same, so it is easy to push a label by mistake instead of a control button

• People do not make same mistake for the labels and buttons on the top row. Why not?
Bad Designs

• Why is this vending machine so bad?
Bad Designs

• Why is this vending machine so bad?

• Need to push button first to activate reader
• Normally insert bill first before making selection
• Contravenes well known convention

From: www.baddesigns.com
Good Designs

- Marble Answering Machine by Bishop

- Based on how everyday objects behave
- Easy, intuitive and a pleasure to use
- Only requires one-step actions to perform core tasks

http://vimeo.com/19930744
Good and Bad Designs

- Which remote is better designed?
Good and Bad Designs

- Peanut shaped to fit in hand
- Logical layout and color-coded, distinctive buttons
- Easy to locate buttons
What to design

• Need to take into account:
  • Who the users are
  • What activities are being carried out
  • Where the interaction is taking place

• Need to optimize the interactions users have with a product
  • So that they match the users’ activities and needs