Whirlwind Tour Of Human-Computer Interaction

“Learning to use a computer system is like learning to use a parachute - if a person fails on the first try, odds are they won’t try again” - Anonymous

Human-Computer Interaction

The study, planning, and design of the interaction between people and computers
Human-Computer Interaction

• How do people interact with technology?
• How can technology improve lives?
• How can we improve existing technology?
  • More Useful
  • More Usable
  • More Inspiring/Empowering
  • Universal Usability

The study, planning, and design of the interaction between people and computers
Human-Computer Interaction

The study, planning, and design of the interaction between people and computers

Challenges

Trying to slap an interface on an existing system usually fails

Knowing what users want and need before you build something is generally a good idea

Self-centered design an increasingly bad idea

in 2010 - 81% of US had access to computers, 92% were online

Not just the college educated, young people, etc.

Requirements for accessibility dictated by ADA

Success often depends on ease of use, not features
Evolution & Adoption of Computing

What is Usability?

- Can you give a definition?
What is Usability?

Who are you designing for?

What are they trying to do?
What is Usability?

Usability goals

- Increase learnability
- Increase efficiency
- Increase memorability
- Decrease errors
- Increase satisfaction
- Increase utility
- Increase effectiveness
- Satisfying
- Enjoyable
- Fun
- Entertaining
- Helpful
- Motivating
- Aesthetically pleasing
- Supportive of creativity
- Rewarding
- Emotionally fulfilling
Usability goals

Not always clear or simple

- Increase learnability
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Sometimes honesty is the best policy
Usability as a Process

1. Identify users
2. Identify activities/context
3. Identify needs
4. Derive requirements
5. Derive design alternatives
6. Build prototypes
7. Evaluate prototypes
8. Iterate (rinse and repeat)
9. Ship, validate, maintain
Usability as a Process

Study people & tasks
- Questionnaires
- Interviews
- Focus groups
- Naturalistic observations
- Controlled studies
- Artifact analysis

Prototype
- High/Low fidelity
- Participatory design

Evaluate

Usability as a Process

Rethinking what your phone looks like (1950s)
Usability as a Process

Rethinking what your phone looks like (1950s)

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<th>Time (s)</th>
<th>Error (%)</th>
<th>Like (rank)</th>
<th>Dislike (rank)</th>
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**Usability as a Process**

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Most room for improvement? Usability/Cost tradeoff?
Usability as a Process

POWELL MOTORS

Presents

The Homek

Powerful like a Gorilla

From Observation to Design

“I don’t know how to get out of this square. We’re trapped.”
If only there were some way to imagine ourselves... outside of this square.”

(c) Married to the Sea
Deriving Design Alternatives

- Inherently creative process (inspiration)
- Participatory design
- Look at following for inspiration?
  - Previous designs
  - Competitors
  - Related/unrelated systems
- Brainstorming
- Independent/competing teams
- Lots of Prototyping!

“The secret to having good ideas is to have many ideas” -- Bill Buxton

Key UI Technologies

- WIMP
- Direct Manipulation
- Mouse
- Metaphors
- Touch Interfaces
- Immediate Feedback
- Others?