CS4826 HCI

Week 4

User-Centered Design Principles

- Don Norman's principles based on observing human interaction with everyday objects
- Perceptual and Cognitive Clues
- Cultural Factors
- Application to the design of interactive systems

User-Centered Design Principles

1. Use both knowledge in the world and knowledge in the head.
2. Simplify the structure of tasks.
3. Make things visible: bridge the Gulfs of Execution and Evaluation.
4. Get the mappings right.
5. Exploit the power of constraints, both natural and artificial.
6. Design for error.
7. When all else fails, standardize.

Usability vs. Use

- There is more to good interaction than usability:

- http://www.youtube.com/watch?v=RlQEoJaLQRA&feature=related

Usability Heuristics

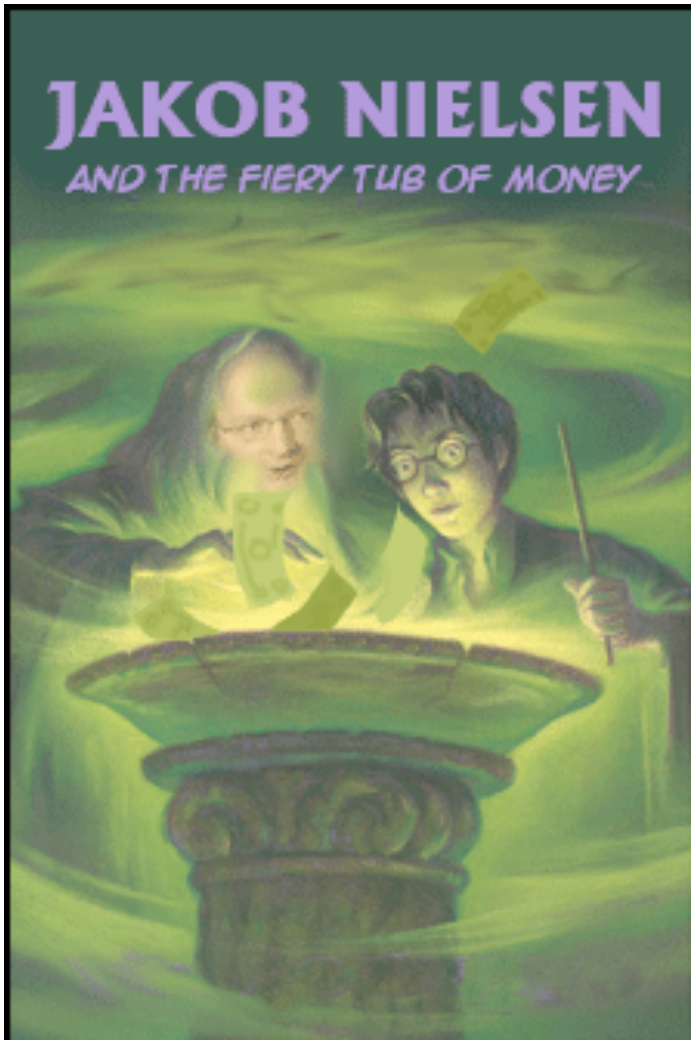
- There has been work to develop sets of Heuristics (guidelines) for the design of usable interactive systems
- Jakob Nielsen developed the most well-established set of Usability Heuristics in use today

Jakob Nielsen

- http://www.useit.com/

Jakob Nielsen

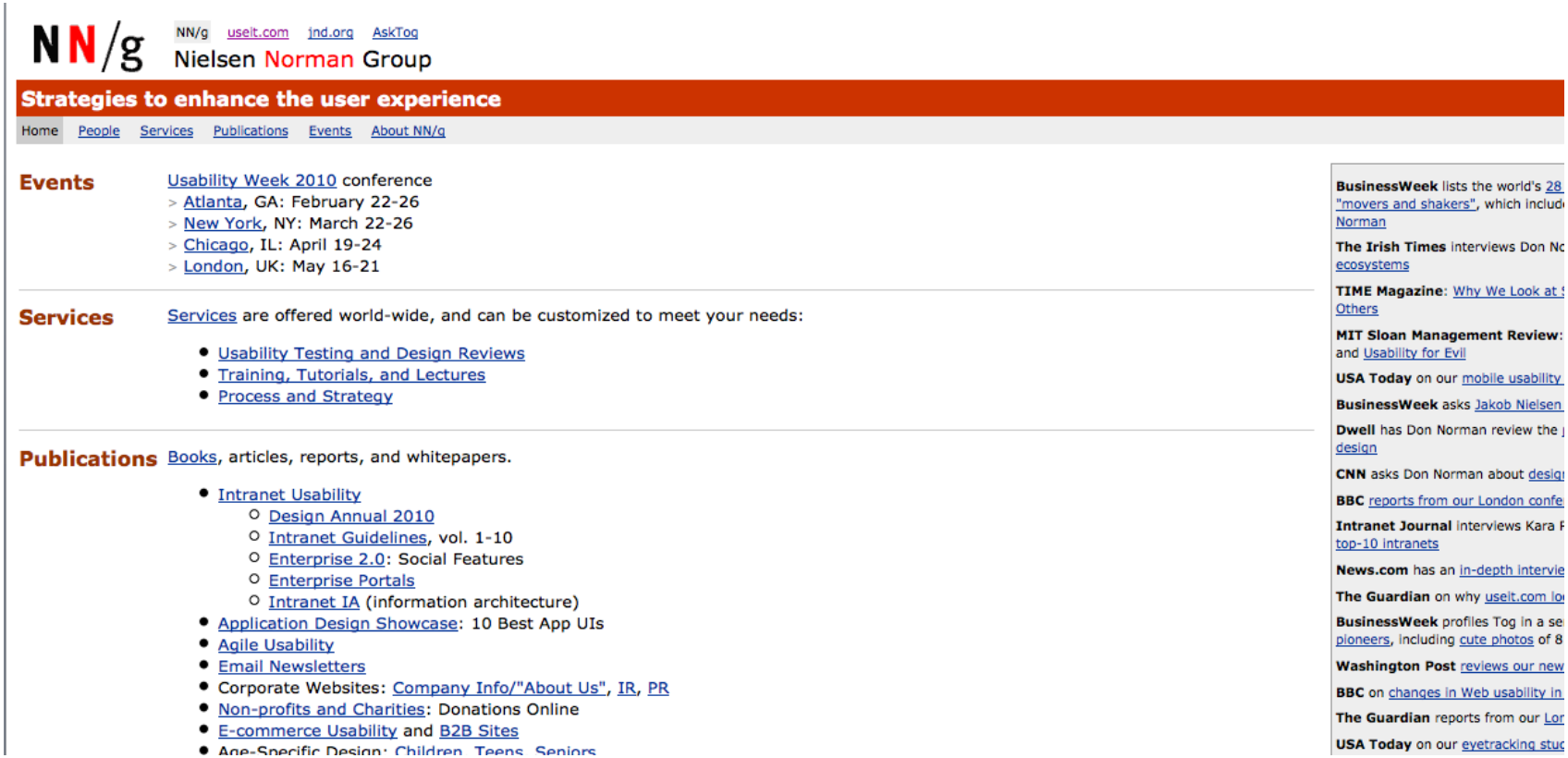
Jakob Nielsen



Heuristic Evaluation

- It is the process of evaluation of an interactive system by a pool of usability experts
- The experts conduct a thorough walkthrough (exploration) of the system, and apply a set of guidelines to evaluate its usability
- The Nielsen's Usability Heuristics are the most commonly used ones. Nielsen's Heuristics are based on Don Norman's work on User-Centred Design

http://www.nngroup.com/



NN/g NN/g useit.com jnd.org AskTog
Nielsen Norman Group

Strategies to enhance the user experience

Home People Services Publications Events About NN/g

Events

Usability Week 2010 conference
> Atlanta, GA: February 22-26
> New York, NY: March 22-26
> Chicago, IL: April 19-24
> London, UK: May 16-21

Services

Services are offered world-wide, and can be customized to meet your needs:

- Usability Testing and Design Reviews
- Training, Tutorials, and Lectures
- Process and Strategy

Publications

Books, articles, reports, and whitepapers.

- Intranet Usability
  - Design Annual 2010
  - Intranet Guidelines, vol. 1-10
  - Enterprise 2.0: Social Features
  - Enterprise Portals
  - Intranet IA (information architecture)
- Application Design Showcase: 10 Best App UIs
- Agile Usability
- Email Newsletters
- Corporate Websites: Company Info/"About Us", IR, PR
- Non-profits and Charities: Donations Online
- E-commerce Usability and B2B Sites
- Age-Specific Design: Children, Teens, Seniors

BusinessWeek lists the world's 28
"movers and shakers", which includ
Norman

The Irish Times interviews Don No
ecosystems

TIME Magazine: Why We Look at S
Others

MIT Sloan Management Review:
and Usability for Evil

USA Today on our mobile usability

BusinessWeek asks Jakob Nielsen

Dwell has Don Norman review the
design

CNN asks Don Norman about desig

BBC reports from our London confe

Intranet Journal interviews Kara P
top-10 intranets

News.com has an in-depth intervie

The Guardian on why useit.com lo

BusinessWeek profiles Tog in a se
pioneers, including cute photos of 8

Washington Post reviews our new

BBC on changes in Web usability in

The Guardian reports from our Lor

USA Today on our eyetracking stud

Usability Heuristics

- **1. Visibility of system status**

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Usability Heuristics

- **2. Match between system and the real world**

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

Usability Heuristics

- **3. User control and freedom**

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

Usability Heuristics

- **4. Consistency and standards**

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Usability Heuristics

- **5. Error prevention**

Even better than good error messages is a careful design which prevents a problem from occurring in the first place.

Usability Heuristics

- **6. Recognition rather than recall**

Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Usability Heuristics

- **7. Flexibility and efficiency of use**

Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Usability Heuristics

8. Aesthetic and minimalist design

Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Usability Heuristics

Usability Heuristics

9. Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Usability Heuristics

.10. Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.