

Interaction Design

- Develop usable products
 - Easy to learn
 - Effective to use
 - Enjoyable experience
- Any examples ?
- Involve users in the design process

What is interaction design?

- Designing interactive products to support people in their everyday and working lives
 - (Sharp, Rogers, Pearce, 2002)
- The design of spaces for human communication and interaction
 - (Winograd, 1997)
- Human-Computer Interaction(HCI) is
 - concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them
 - (ACM SIGHCI, 1992)

Connections

INTERACTION DESIGN

Psychology

Social Sciences

Computer Science

Information Science



Ergonomics

Engineering

Design

Multidisciplinary teams

- The more people involved in interaction design the more ideas and designs are generated .. but ..
- The more difficult it can be to communicate and progress towards the designs being created

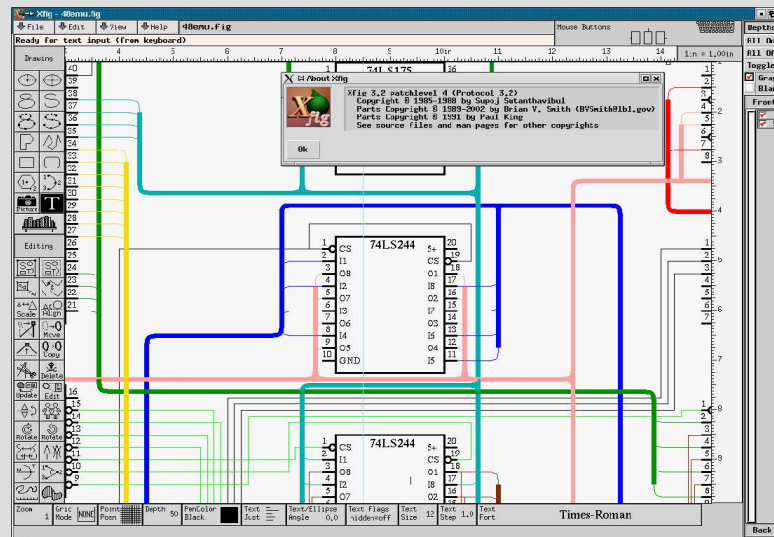
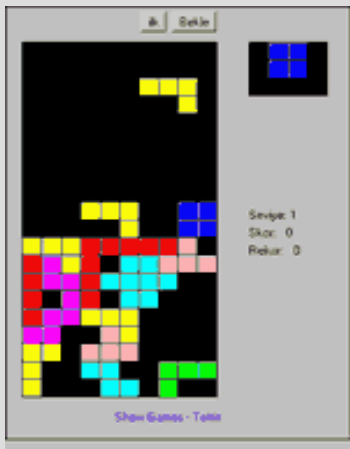
Bad experiences ?

- Think about when some device/ui caused you considerable grief ?
- Some examples :
 - VCR
 - Photocopier
 - Fax
 - Microsoft Bob
 - Clippy
 - Any others ?



Good designs ?

- Think about some device/UI that you really enjoyed using
- Some examples:



Why are some designs better ?

- Need for theories
 - Explanatory
 - Predictive
 - Taxonomies
- Intuition is not enough
- Principled approach
 - What people are good and bad at
 - What might help people with their tasks
 - Listen to what people want
 - User-based techniques during design
 - Experiments to evaluate hypotheses

A basic recipe

- Identify needs and establish requirements
- Develop alternative designs that meet the requirements
- Interactive prototypes of the designs that can be communicated and assessed
- Evaluate throughout the process
- Always be aware of user diversity

Usability goals

- Effectiveness
- Efficiency
- Safety
- Utility
- Learnability
- Memorability
- Criteria
 - Time to complete a task
 - Time to learn a task
 - Number of errors made

User experience goals

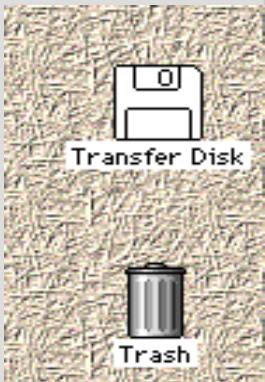
- Satisfaction
- Enjoyment
- Fun
- Entertainment
- Aesthetically pleasing
- Creativity

Tradeoffs between usability
and user experience

Design of Everyday Things

Don Norman 1988

- Design Principles
 - Visibility (car controls example)
 - Feedback (type on keyboard with delay)
 - Constraints
 - Physical (usb cable), Logical (shading out deactivated menu items), Cultural (red for danger)
 - Mapping
 - Relationship between controls and effects in the world (arrow keys)
 - Consistency (cut/paste)
 - Affordance - real vs perceived
 - Attribute of an object that allows people to know how to use it (give a clue)



Usability Principles

Nielsen 2001

- Visibility of system status
- Match between system and real world
- User control and freedom
- Consistency and standards
- Help users recognize, diagnose and recover from errors
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalistic design
- Help and documentation

Usability principles II

- Similar to design principles, except more prescriptive
- Used mainly as the basis for evaluating systems
- Provide a framework for heuristic evaluation

Project Proposals

- Each student AT LEAST 1 project proposal
- Short description
- Desired characteristics
 - Good decoupling from implementation
 - Potential for creative UIs
 - Original ideas encouraged
- No problem if
 - Existing open source codebase
 - Reuse of existing designs
 - Special Hardware (handheld devices)
- 3 best projects (by voting) will be selected and used for the class projects

Project Proposal Examples

ImageCollection: a user interface for creating, managing and editing collections of images supporting multiple views, creation of web pages and time-based annotations

BibliographicExplorer: a user interface for exploring bibliographies using a tree-metaphor where each node corresponds to a document and edges correspond to citations

MapCreator: a user interface for creating tile-based maps popular in many single and multiplayer computer games

Some statements

- ID is the design of products that reveal themselves over time (G.Salomon-Peerce book)
- Today's interfaces are good, but novice and expert users still experience anxiety and frustration all too often (DTUI-Shneiderman)
- People are not machines and machines are not people (Shneiderman)
- Imagining that we can create a good user experience for our products after their internals have been constructed is like saying that a good coat of paint will turn a cave into a mansion (About Face 2.0 - Cooper)