Understanding and Conceptualizing Interaction

A conceptual model is:
• “a high-level description of how a system is organized and operates”
• (Johnson and Henderson, 2002, p 26)

A conceptual model enables:
• “designers to straighten out their thinking before they start laying out their widgets” (p 28)
Components

- Metaphors and analogies
  - understand what a product is for and how to use it for an activity
- Concepts that people are exposed to through the product
  - task-domain objects, their attributes, and operations (e.g. saving, revisiting, organizing)
- Relationship and mappings between these concepts
First steps in formulating a conceptual model

• What will the users be doing when carrying out their tasks?
• How will the system support these?
• What kind of interface metaphor, if any, will be appropriate?
• What kinds of interaction modes and styles to use?
  • always keep in mind when making design decisions how the user will understand the underlying conceptual model
Conceptual models

- Many kinds and ways of classifying them
- We describe them in terms of core activities and objects
- Also in terms of interface metaphors
• Conceptualizing what we are doing, e.g. surfing the web
• A conceptual model instantiated at the interface, e.g. the desktop metaphor
• Visualizing an operation,
  • e.g. an icon of a shopping cart for placing items into
Interface metaphors

- Interface designed to be similar to a physical entity but also has own properties
  - e.g. desktop metaphor, web portals
- Can be based on activity, object or a combination of both
- Exploit user’s familiar knowledge, helping them to understand ‘the unfamiliar’
- Conjures up the essence of the unfamiliar activity, enabling users to leverage of this to understand more aspects of the unfamiliar functionality
Benefits of interface metaphors

- Makes learning new systems easier
- Helps users understand the underlying conceptual model
- Can be very innovative and enable the realm of computers and their applications to be made more accessible to a greater diversity of users
Problems with interface metaphors

• Break conventional and cultural rules
  • e.g. recycle bin placed on desktop
• Can constrain designers in the way they conceptualize a problem space
• Conflict with design principles
• Forces users to only understand the system in terms of the metaphor
• Designers can inadvertently use bad existing designs and transfer the bad parts over
• Limits designers’ imagination in coming up with new conceptual models
Interface metaphors

Scientific Calculator

Calculator

Monday, February 6, 12
Discuss

- Shopping cart metaphor
- What are the components of this metaphor?
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Interaction types

- **Instructing**
  - issuing commands and selecting options
- **Conversing**
  - interacting with a system as if having a conversation
- **Manipulating**
  - interacting with objects in a virtual or physical space by manipulating them
- **Exploring**
  - moving through a virtual environment or a physical space