Task Analysis

Chapter 20

What is Task Analysis?

• Encompasses broad range of techniques
• Purpose of techniques
  – elicit descriptions of what people do
  – represent these descriptions
  – predict difficulties
  – evaluate usability
Goals, Tasks and Actions

- Goal -- State of a system human wishes to achieve
  - Achieved through use of a device
- Task -- Activities required to achieve goal
- Action -- Subtask
  - decomposed to level involving no problem solving or control structure

Types of Task Analysis

- Those that concentrate on steps required to complete task
  - Hierarchical task analysis
- Those that focus on user knowledge
  - Cognitive task analysis
  - Modeling “how-to-do-it” knowledge
  - Representing task knowledge
Hierarchical Task Analysis

- One of the most well known forms of task analysis
- Focuses on logic or practice of task
  - identifying tasks
  - categorizing tasks
  - breaking down into subtasks (decomposition)
  - check accuracy of decomposition
- Uses Data Flow diagram

Hierarchical Task Analysis cont..

- Three Stages
  - Starting
  - Progressing
  - Finalizing
Cognitive Task Analysis

- Informs the design process through application of cognitive theories
- Models mental rather than physical actions
- Models based on cognitive psychology
- Examples
  - Human Processor model
  - GOMS (goals, operations, methods and selection rules)

Modeling “how-to-do-it” Knowledge

- Procedural Knowledge
- Use GOMS
  - description of methods needed to accomplish goals
  - methods made up of series of actions the user performs
  - When there is more than one method, use the selection rules
Representing Task Knowledge

- Ease of learning a new system depends on previous knowledge of similar systems
- Need to attend to previous knowledge that the user has of both specific and generic tasks
- Use KAT to identify knowledge relevant to task.

KAT

- Knowledge Analysis of Tasks
  - understand the purpose of task analysis
  - identify user goals, subgoals, and subtasks
  - consider the order in which to be carried out
  - identify different task strategies
  - identify procedures
  - identify task objects and actions
  - identify representative, central and generic tasks