Lecture 11

Keystroke Level Model

Keystroke Level Model

- Definition
  - Predicts average time to do a task for an expert user
- Purpose
  - Analyze method efficiency during the design process
  - Compare two different designs for efficiency of performance
  - Evaluate a product for efficiency
- $T_{execute} = T_{key} + T_{point} + T_{home} + T_{draw} + T_{mental}$

How to Do it

- Write down the method for the task
  - Specify a task with low-level actions
    - key press, mouse pointing action, reach for mouse or keyboard
    - Add mental action at the beginning of a command
    - Add system response time
- Give times for each action and system response
  key press = .2 sec; mouse point = 1.1 sec; reach = .4 sec; mental time = 1.35 sec; draw n_D STRAIGHT-LINE SEGMENTS OF TOTAL LENGTH l_D CM = $0.9\ n_D + 0.16\ l_D$
- Sum to compute estimated time for the task

Example

- TASK: Replace a 5 letter word with another 5 letter word
- METHOD
  - Mental   M[recall command]
  - Home to mouse   H[mouse]
  - Point to word   P[mouse]
  - Select word   2K[double click mouse]
  - Home to keyboard   H[keyboard]
  - Cut command   2K[ctrl + X]
  - Type new word   5K[word]
- $T_{execute} = T_{key} + T_{point} + T_{home} + T_{draw} + T_{mental}$
  $= (9 \times .2) + (1 \times 1.1) + (2 \times .4) + (1 \times 1.35) = 5.05$ secs

Caveats

- Cannot predict errors
- Assumes methods are well-learned skill—not learning
- Accuracy within 80%

  mean +/- 20%mean

  mean = 5.05 secs, range [4.04 to 6.06 secs]