CSC 428F/2514F

HUMAN-COMPUTER INTERACTION

Lecture 9
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HUMAN PERFORMANCE IN RELATION
TO COMPUTERS

presented by
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1. The significance of human "outputs" in interface design: what is "performance" in the most general sense for our purposes?

   Human outputs — like human "senses" — come in many varieties. Some are resolutely physical but some are inferred or incidental to behaviour. This enables the implementation of interfaces which adapt to the user (metaphysical).

   In interface response design, it all begins with a judgment call about the *harmony* between the *called-for response* and the *means provided* for their response. *Both* sides get massaged until the harmony is good enough. If you keep these principles paramount in your mind, you'll always have excellent response-side interfaces.

   People perform in analog reality albeit quantized around the edges. Asking people to respond in a quantized way may introduce an extra cognitive step. Luckily for HCI, typing is a miraculously wonderful skill… otherwise we would have little but touch-screen technology as input.

2. Concepts

   1. motor skills: performance which results in mechanical actuation using muscles

   2. skilled performance: performance is much more effective after a user asymptotes at his/her peak of performance

   3. coordination of chains of behaviour and Response-Response performance: performance which is characteristic of very fast and/or stereotypical responses such as typing and thus a desirable interface goal

3. Mechanisms of performance

    1. practice

    2. feedback and knowledge-of-results (the *new* Hawthorne effect); eye-hand coordination as a form of feedback

    3. fatigue and reactive states

SPECIAL TREAT: BEN WILL EXPLAIN WHY
MICE ARE NICE

(BUT ONLY IF YOU DOWNLOADED THESE NOTES AND REMEMBERED TO ASK HIM ON THE PREVIOUS PAGE)

4. Human performance characteristics and interface design

1. When a mouse is appropriate as a response mechanism and when other mechanisms make more sense?

2. Creating analog-like response "devices" on the screen: spooling a reel of videotape with the progressive rheostat shuffle-dial control panel; "talking" to the screen through your mouse.

   What are the analog dimensionalities of mental spaces?

3. "Incidental" interfaces
      1. physical… motion detectors
      2. metaphysical… naive-versus-experienced-user detector

4. Virtual Reality: interactivity is better than reactivity

5. Personal control is the operational definition of happiness

6. The only kind of fence which reduces highway noise (hint: it's the one *you* build for yourself)