Usefulness and Usability Evaluation

CSC 318 Tutorial
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Usefulness and Usability

What is usefulness?
- How much functionality meets users’ needs

What is usability?
- Effective
- Efficient
- Learnable
- Safe, etc.

Evaluating Usability

- How do we ensure usefulness and usability?
  - Usability Goals (PRS p19)
    - E.g. Efficient, effective, safe, learnable, etc.
  - User Experience Goals (PRS p19)
    - E.g. Rewarding, enjoyable, aesthetically pleasing, etc.
  - Design Principles (PRS p21)
    - Norman: Visibility, feedback, constraints, mappings, affordances
  - Usability Principles (PRS p27)
    - Nelson: Top Ten Usability Principles
  - Rules and Standardized Guidelines
    - E.g. ISO13407 Human-centered Design Processes (RS p268)

- Field Studies (PRS p341)
  - E.g. questionnaires, survey, ethnography, etc.

- Usability Testing (PRS p323)
  - E.g. naturalistic observations, scientific experiments, etc.
  - More Today on Usability testing
Usefulness and Usability Evaluation

What is Usability Testing?
- Test and observe typical users performance on carefully prepared tasks that are typical of those for which the system was designed.
- Measure performance quantitatively
  - E.g. number of errors, amount of time, number of mouse clicks, etc.
- Observe performance
- Keep in mind: Goals, Principles, and Guidelines

What Goals, Principles, or Guidelines are Violated?
- Visibility and Mapping
- Consistency and Standards

What Goals, Principles, or Guidelines are Violated?
- User control and freedom
- Error recovery
- Affordances

What Goals, Principles, or Guidelines are Violated?
- Visibility and Mapping
- Consistency and Standards
- Aesthetic and Minimalist Design
What Goals, Principles, or Guidelines are Violated?

- Consistency and Standards
  - E.g. 8% of males have colour deficiency
  - Cultural biases

DECIDE Framework (PRS 438)

- Determine goals
  - Identify usability problems with the UofT library website
- Explore questions
  - Can users find what they’re looking for without running into any problems?
- Choose paradigms & techniques
  - Usability testing where subjects will use the ‘think-aloud’ technique

Usability Testing Example

- Test the usability of the UofT Library Website:
  - A volunteer will complete a short task
  - The class will observe and/or take measurements

- Identify the practical issues
  - Design a typical task: Find the “The Design of Everyday Things” by Don Norman
    - First, check if it’s available as an electronic book to view on the web.
    - If it’s not, find out where it’s available.
    - Add it to my library for future reference.
  - What can be measured? What can be observed?
  - Select typical users
  - Prepare the testing conditions
DECIDE Framework (PRS 438)

- Deal with ethical issues
  - Consent forms, use of intrusive observational methods, etc.
- Evaluate, analyze, & present data
  - Determine salient data and work with it to make conclusions

Usability Testing Example

- Task:
  - Find the "The Design of Everyday Things" by Don Norman
    - First, check if it's available as an electronic book to view on the web.
    - If it's not, find out where it's available.
    - Add it to my library for future reference.
  - Use think-aloud techniques
  - Volunteer?
  - Everyone else is an observer/notetaker

Conclusions

- What did you measure?
  - E.g. Time, no. of pages visited, no. of errors, etc.
- What did you observe?
  - Any problems finding information?
  - What were the best and worst parts of the system?
  - Can these findings be described in terms or goals, principles, or rules?
  - Can administer post-task questionnaire or survey
- What conclusions can be made?

Conclusions

- What are some experimental considerations from this example?
  - Environment
  - Only one subject, may not be typical user
  - Task only exemplifies subset of potential problems (this is especially important when testing with prototypes)
Conclusions

- Read PRS Ch 14
- Questions about Assignment 4