

CS3724 Human-computer Interaction

Formative Evaluation of User Interaction: Introduction

Formative Usability Evaluation

Users will evaluate the user interaction design sooner or later...

Let's have them do it sooner, so we can make changes to improve usability!

Topics

Evaluation - the
key to it all!

- What it is: Formative vs. summative evaluation
- Types of formative evaluation
- Steps in formative evaluation
 - Last piece of the puzzle
 - We call it usability evaluation; it is NOT “user testing”

Formative Usability Evaluation

- In contrast, summative evaluation is:
 - Evaluation of interaction design to assess statistically the level of usability, *after development is done*
 - Often used for comparison with previous version, or with another system
 - Traditional human factors testing with rigorous statistics, statistical significance
 - Done with randomly selected participants



Formative Usability Evaluation

- Formative usability evaluation is diagnostic:
 - Center of usability engineering process
 - Evaluation of the interaction design, *as it is being developed*, for the purpose of improving usability
 - Done with carefully selected participants
 - Early and continual
 - "Those user interface people don't know what they're doing; they can't get it right the first time; they keep changing their minds"
 - Should have something to evaluate no later than 10% into a project schedule

Formative Usability Evaluation

- In sum, "When the cook tastes the soup, that's formative; when the guests taste the soup, that's summative." (Robert Stakes)

Formative Usability Evaluation Methods

- Many possible ways to evaluate usability of an interaction design
 - Lab-based usability testing (Again, we do **not** do user testing)
 - Design walk-throughs – early but important
 - Expert usability inspection (e.g., Heuristic evaluation)
 - Remote usability evaluation methods (RUEMs) – usually post deployment



Other methods, variations

Formative Usability Evaluation Methods

- We'll mention usability inspection, but focus on usability testing in the lab
- Caution: state-of-the-art in usability testing is more art than repeatable science

Formative Usability Evaluation

- Types of empirical formative evaluation data
 - As you might guess, a good match to data stated in usability specifications
 - Subjective — user opinion
 - Objective — directly observed user performance

Formative Usability Evaluation

- Types of empirical formative evaluation data
 - Qualitative — non-numeric data and results
 - Most important for finding and fixing usability problems
 - Quantitative — numeric data and results
 - For informally assessing usability achievements
 - To monitor converge via iterative cycles and for knowing when to stop iterating

Steps in Formative Usability Evaluation

- *Before* evaluation session:
 - Develop the experiment
- *During* evaluation session:
 - Generate and collect data
- *After* evaluation session:
 - Analyze data
 - Draw conclusions
 - Redesign & iterate