

**Low-Cost Usability Studies Generate
Precise Improvements in End-User
Software**

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Abstract

- In this session you will learn how common computer hardware and usability software can be economically combined to improve the user experience. This combination of tools affords software developers the means to gather precise measurements and insights needed to produce software that is better, because it is easier to use. A successful recent case study at the National Defense University will be presented.

Usability

- **Usability** is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal.
- In this study we chose to examine usability by investigating the ease of performance of certain selected tasks (identified by functional area experts) for two user experience levels: novice and expert

Usability Testing

- **Used to require** an extensive lab, using computers, multiple video cameras and a dedicated team of workers.
- Now it requires a laptop computer, small web camera, \$1,000 piece of software, a small team of experienced computer users with a working knowledge of research methods.

Videos of Experienced and Inexperienced Users

Common Task:

Student enrolling in a course

Usability Studies can be done quickly and effectively

- Six weeks from proposal to decision.
 - Participants agreed to be recorded for study. Additional releases obtained for videos to be shown for academic purposes.
- Tasks solicited: Criteria: Frequent, important, doable with both systems. Roles: Student, Faculty and Registrar. 3 tasks from each.
 - Tasks were completed without supporting material, until such time as the participant could not proceed without guidance (task script).
- Volunteers solicited: 8 inexperienced faculty, 4 inexperienced staff, 5 inexperienced current students, and 2 system experts.
- Usability methodology employed: Morae user performance measuring software (Techsmith).
 - Dependent measures: Task Completion; Time to Completion, User Satisfaction.
- Data collected in about 5 working days.
 - 114 user videos recorded and analyzed
 - Average user laboratory exposure: 45 minutes
 - Order of performance of tasks and systems was controlled experimentally.

Lessons Learned

- System creators and expert users can learn to use “difficult software.”
- Inexperienced or infrequent users of software can not navigate difficult software.
 - Directions (cheat sheets) do not help.
- If you are building or buying software include usability testing as a part of the process.
- If you are developing software (or teaching software development) including usability testing as a part of the software development effort is advantageous.

Two final points

- (1) The attribute of being easy to use, it is designed in, it doesn't happen by chance.
- (2) Why is usability important?
 - Hard to use software risks turning users off or worse, turning them away.

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Are there any questions?

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