

Usability Testing with Paper Prototypes

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Agenda

- What is usability testing?
- Why do usability testing?
- How to do usability testing.
- Why paper prototypes?
- Comparison of usability evaluation techniques.
- Usability testing demo.

What is usability testing?

- An empirical approach to evaluating how well users can use a system.
- A technique to involve real users in evaluation of a software product.
- A technique to evaluate how easy it is to perform real tasks using a software product.

Why do usability testing?

- Ensure that software actually addresses users' needs
- Get input from users before it's too late to make changes
- Combat classic testing mistakes
- Find more usability problems than other techniques

Classic Testing Mistakes

- Not reporting usability problems
- A testing effort biased toward functional testing
- Not testing the documentation
- Not testing the installation procedures
- An overreliance on beta testing
- Testers are not domain experts
- Insisting that testers be able to program
- A testing team that lacks diversity
- Test suites that are understandable only by their owners
- Attempting to automate all tests
- Embracing code coverage with the devotion that only simple numbers can inspire

Usability Testing vs. Other Techniques

- Usability testing finds more global usability problems than other techniques
- Usability testing finds most significant problems; finding & fixing more problems may not be worth the effort
- Usability testing costs more than other techniques, but has lower per-problem-found cost
- Using any technique, software engineers are bad at finding usability problems

Technique Comparison Data

	Guidelines	Heuristic	Walkthru	Testing
most severe	12	28	9	18
least severe	11	52	10	2

Jeffries, 1991

	Testing	Team WT	Individual WT
system 1	13	1	0
system 2	8	0	2

Karat, 1992

	# problems	% problems
Testing	25	100%
Heuristic		
Expert	11	44%
SE	4	16%
Non-expert	2	8%
Walkthru		
Expert	7	28%
SE	4	16%
Non-expert	2	8%

Desurvire, 1992

How to do usability testing.

- Set testing goals.
- Identify items to test.
- Establish test execution team.
- Invite testers.
- Prepare materials.
- Execute tests.
- Evaluate results.
- Take action!

Set Testing Goals

- What do I need to know?
- When do I need to know it?
- What are the most risky aspects of the user experience?

Identify Items to Test

- Software
 - Which components?
 - Which user tasks
- Documentation
 - On-line
 - Off-line
- Administrative functions
- Support functions

Establish Test Execution Team

- “Computer”
- Interviewer
- Note-taker
- Observers

Invite Testers

- Who needs to participate?
 - User level (novice, power, etc.)
 - User background
 - Non-traditional users (e.g. sys admins, support staff)
- How many people need to participate?
- Who is available at the right time?

Prepare Materials

- Create paper prototypes
 - Paper screen shots for each screen the testers may reach
 - Sticky notes to represent drop-down menus
 - Sticky notes for making on-the-fly adjustments
- Note-taking materials for testers
- Information packets, thank-yous, non-disclosure agreements, etc. for participants

Execute Tests

- Interviewer discusses goals with participant and describes task
- Participant attempts to complete task while thinking aloud
- Interviewer interjects questions as necessary to understand what participant is thinking
- “Computer” operates paper prototype
- Note-taker records participant actions, thought processes, and other observations

Evaluate Results

- Identify areas where design failed to meet participant expectations
- Identify areas where participants showed confusion
- Identify tasks or actions participants were unable to complete

Take Action

Testing of any sort only has value if the results are used to improve the product!

Why paper prototypes?

	Paper	On-Line
Pros	<ul style="list-style-type: none">● Cheap● Fast● Can be done very early in design● Can be easily iterated● Catches major problems	<ul style="list-style-type: none">● Closely mimics actual user experience● Catches many usability problems
Cons	<ul style="list-style-type: none">● Doesn't mimic real use closely● Doesn't catch as many minor problems	<ul style="list-style-type: none">● Expensive to create● May set unrealistic performance expectations● Hard to iterate● Cannot be done as early● Strong temptation to use prototype in final product

Usability Testing Demo

- Persona: you are an average user. You work with a distributed team and need to share information with teammates around the world.
- Task 1: locate the exercise about risk management from a class you took last year.
- Task 2: share the project plan for the Profiled Content Management project.

References

- Dumas, J. and Redish, J. *A Practical Guide to Usability Testing*, Intellect Books, 1999.
- Marick, B. *Classic Testing Mistakes*, Testing Foundations, 1997.
- Weir, D. *Usability Testing Tutorial*, Seagate Technology, 2001 (proprietary).
- Demo: e2open customized for Seagate.