Planning Usability Into Your Product

The How and When of Usability Evaluation

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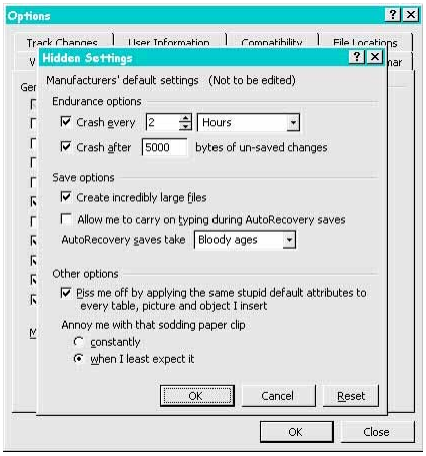
Preview

- How Do We Make Technology Serve People?
- What is Usability Evaluation?
- When Should We Plan Usability Evaluations?
- How Do We Manage Usability Evaluations?

How Do We Make Technology Serve People?



Usability Defined

Usability:

The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.

ISO 9241-11

The 5 E's of Usability

- Effective: Accomplishes user's goal
- Efficient: Accomplishes the goal quickly
- Satisfaction: User enjoys experience (Engaging)
- Error Tolerant: Hard to make mistakes, easy to recover
- Easy to Learn: No or small learning curve

A Few Myths

- Usability is just concerned with first-time users
  - Good design supports users through the life of the product
- Making software usable penalizes advanced users
  - Supporting all users well makes everyone work better
- An emphasis on supporting work creates boring, dull interfaces
  - Visual design can support usability and still be attractive and engaging

"usability is not a quality that can be spread out to cover a poor design like a layer of peanut butter"

- Clayton Lewis

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A User-Centered Approach

- Learn from users
  - Observe people in context to understand work environment and requirements for success
- Design with the user in mind
  - Create a conceptual model for the interface that matches how real people work
- Evaluate the design at key milestones
  - Usability evaluation of prototypes saves development time and costs

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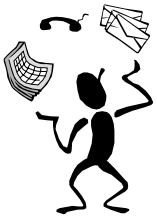
But That's Not A Manager's Job…

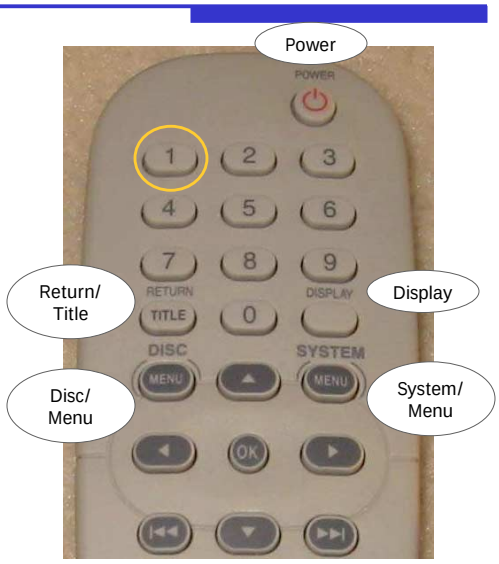
- Managers are paid to wear the "Get it done" hat rather than the "Get it done right" hat.
- "Somebody's got to actually get the thing to market."
- The manager's tools:
  - Schedule, scope, and budget
  - Risk assessment
  - Resource allocation



What is Usability Evaluation?

The DVD Quandary

- Can you figure out how to eject a DVD using this remote?
- Answer: Hold down the 1 button for 3 seconds.

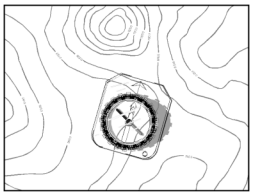


Usability Evaluation

- **Metrics:** A way to objectively measure a site's usability
- **Design:** A way to get feedback on whether an approach is working
- **Risk Management:** A way to avoid late-stage crises
- **CYA:** A way to justify and sell changes to upper management

What Information Do You Want?

- Formative Usability Tests
  - Refine a design
  - Show if the design matches users' mental models
  - Tend to yield qualitative data
  - Can be informal or formal
- Summative Usability Tests
  - Measure usability
  - Show if users can complete tasks on time and with few mistakes
  - Tend to yield quantitative data
  - Tend to be formal



Informal Usability Tests

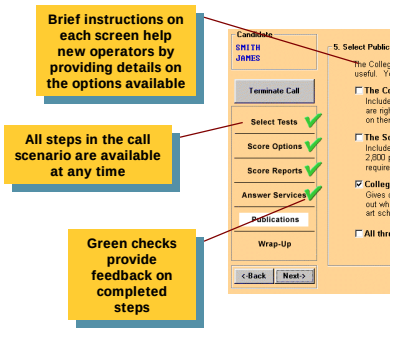
- May take place anywhere
- Relies on facilitator or note-taker to record results
- Needs only enough users to see problems: 3-5 users per user group
- Uses paper or working prototype
- May take 1-5 days and several hundred dollars

Formal Usability Tests

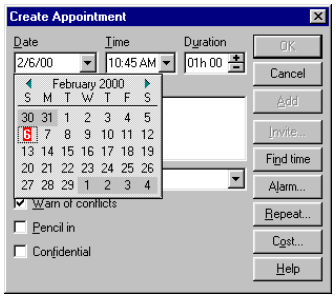
- May take place in a lab
- Use cameras and video equipment
- Show users' faces inset in a picture of the screen
- Produce highlights tapes
- Uses a working prototype
- Needs 6-8 users per user group
- May take 3-5 weeks and thousands of dollars

Heuristic (Expert) Reviews

- Conducted by usability experts
- Experts log usability issues and compare them to usability best practices
- Best done on a completed UI or working prototype
- Faster and cheaper than formal usability testing
- Based on opinion (albeit expert opinion) rather than observation



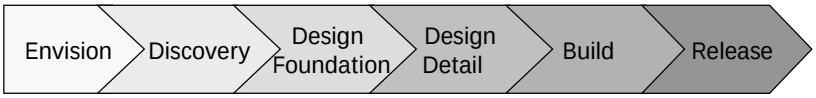
When Should We Plan Usability Evaluations?



The LUCID Framework

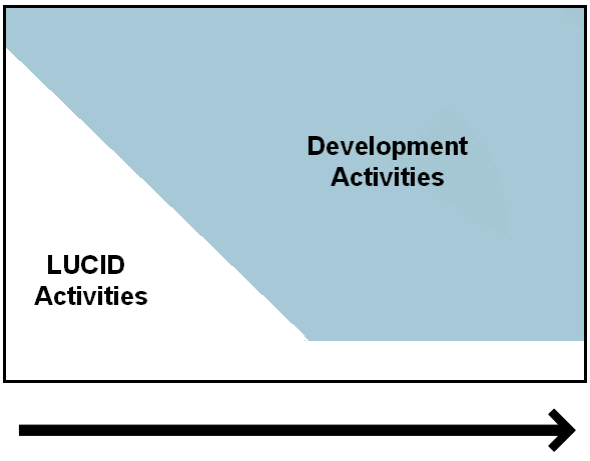
- LUCID is a methodology framework for managing the design and testing of the user interface
  - To provide designers with a framework within which apply best practices
  - To allow for seamless integration with software development methodologies
  - To support a user-centered approach to interface design
  - To enhance the usability of the final software

The 6 Stages of LUCID

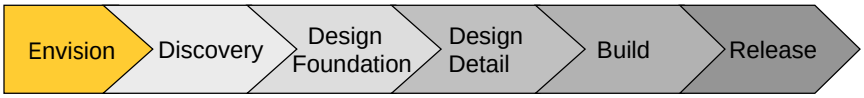


- **envision**: align the agendas of all stakeholders with organizational strategy and the need for "extreme usability," develop a clear, shared product vision.
- **discovery**: study users to determine high-level user requirements.
- **design foundation**: develop a conceptual design and create a key screen prototype.
- **design detail**: flesh out the high-level design into a complete screen specification.
- **build**: support the build process through review and late-stage change.
- **release**: develop a roll-out plan to support for users' transition to the new product; document lessons learned.

LUCID Fits Within a Larger Development Process



Stage 1: Envision

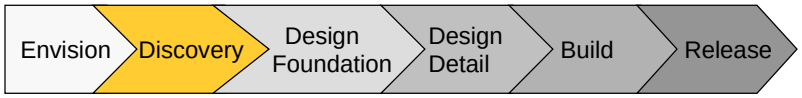


- Envision = alignment + collaboration
  - Competitive usability testing
  - Summative usability testing (for usability baseline)
  - Early formative usability testing
  - Heuristic (expert) reviews

Stage 1: Envision Methods

Technique...	What you get...
Competitive usability testing Need: Competing product	Measure of how usable the competition is so that you know what you have to beat
Summative usability testing Need: Previous release	A baseline so that you can demonstrate that you have improved a product's usability
Early formative usability testing Need: Concept sketches	Measure of whether users respond to the basic product concept
Heuristic (expert) review Need: Previous release	List of issues to resolve and recommendations for resolving them

Stage 2: Discovery

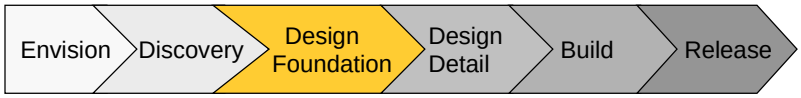


- Discovery = user/task modeling + requirements
  - Summative usability testing (for prioritization)
  - Early formative usability testing
  - Contextual inquiry (for establishing or re-engineering workflow)

Stage 2: Discovery Methods

Technique...	What you get...
Summative usability testing Need: Previous release	A clear record of where users make mistakes and get confused - insight into their mental models and expectations
Early formative usability testing Need: Concept sketches	Measure of whether users respond to the basic product concept
Contextual inquiry (site visits) Need: Current customer	A clear record of how your product fits into the users' work life, and a clear model of the users' workflow so that you can re-engineer it

Stage 3: Design Foundation



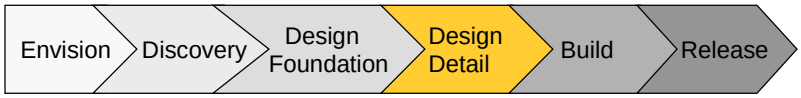
- Design Foundation = user interface concept
  - Formative usability testing
  - Heuristic (expert) reviews
  - Prototype walkthroughs

Stage 3: Design Foundation Methods

Technique...	Questions answered...
Formative usability testing Need: Paper or working prototype	Do users understand the basic concept and navigation?
Heuristic (expert) reviews Need: Paper or working prototype	What are the most likely findings of a usability test?
Prototype walkthroughs Need: Paper or working prototype	Do screens match users' mental models of the work? Do the screens match the users expectations?

Key Idea: Do not demo a prototype - ask people to use it!

Stage 4: Design Detail

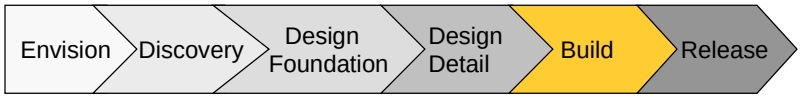


- Design Detail = specifications + style guide
  - Formative usability testing
  - Heuristic (expert) reviews
  - Prototype walkthroughs (for less task-based evaluation)

Stage 4: Design Detail Methods

Technique...	Questions answered...
Formative usability testing Need: Paper or working prototype	Can users execute specific task flows?
Heuristic (expert) reviews Need: Paper or working prototype	What are the most likely findings of a usability test?
Prototype walkthroughs Need: Paper or working prototype	Do screens match users' mental models of the work? Do the screens match the users expectations?

Stage 5: Build



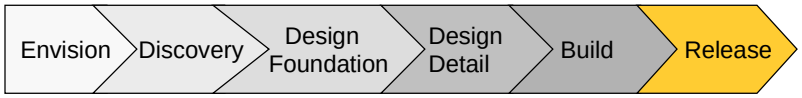
- Build = development + user assistance
  - Formative usability testing
  - Summative usability testing (for verifying improvements)
  - Heuristic (expert) reviews

Stage 5: Build Methods

Technique...	Questions answered...
Formative usability testing Need: Functional screens	What is the best way to optimize specific screens?
Summative usability testing Need: Functional screens	Is the new version more usable that the last version?
Heuristic (expert) reviews Need: Functional screens	What are the most likely findings of a usability test?

Key Idea: Evaluation carries some risk at this stage.

Stage 6: Release



- Release = product rollout + follow-up
  - Summative usability testing (for verifying improvements)
  - Out-of-the-box usability testing (for measuring initial experience)
  - User surveys (for measuring user opinion)

Stage 6: Release Methods

Technique...	Questions answered...
Summative usability testing Need: Finished product	Is the new version more usable that the last version?
Out-of-the-box usability testing Need: Packaged product	What is the user's initial experience with the product?
User Surveys Need: Product and surveys	What are users' subjective opinions about the product?

Key Idea: Feed usability results into the next Envision...

How Do We Manage Usability Evaluations?

Common Questions

- How much?
  - Labor costs
  - Fixed costs (lab, equipment, incentives, recruiting)
- How long?
  - Can estimate based on a “Work Breakdown Structure.”
  - Can estimate based on a rule of thumb.
  - First estimate labor hours required.
  - Then distribute them into a calendar schedule.

Common Risks

- Access to users
  - Marketing/Sales are often gatekeepers
  - Concerns about “responsible” contact must be met
  - Development partners and user groups are often good sources
- Getting something to test
  - Use a testing environment for late stage tests
  - Do a dry run with prototype/product

Key Idea: Develop repeatable solutions!

WBS for Usability Tests

- **Create Evaluation Plan**
  - Determine product availability
  - Review and learn product
  - Establish goals for the usability evaluation
  - Coordinate test platform
  - Design evaluation tasks
  - Create Evaluation Plan
- **Recruit Participants**
  - Identify participants to recruit
    - Develop recruitment screeners
    - Obtain contact information for participants
  - Recruit/Schedule participants
- **Prepare Evaluation Materials**
  - Set up product to test (may include screen prints, portable demo, or data entry in specified environment, etc.)
  - Create and assemble materials (questionnaires, scripts, scenarios, release forms, etc.)
  - Coordinate facilities (find lab, set up equipment)
  - Conduct dry run with lab equipment
- **Conduct Evaluation**
  - Conduct usability evaluations (x participants in y days)
  - Analyze evaluation data
- **Present Findings**
  - Prepare draft report/presentation
  - Review draft report/presentation
  - Prepare final report/presentation
  - Present final report/presentation
  - Facilitate decision-making

WBS for Heuristic Reviews

- **Review Kickoff**
  - Establish goals of review
  - Establish usability goals for product
  - Establish project schedule
  - Introduce reviewer(s) to product
  - Allow reviewer(s) to ask questions about product
- **Initial Review**
  - Conduct independent reviews of product
  - Merge review observations and questions
  - Submit questions about product
- **Second Review**
  - Meet with project team to answer question
  - Finish product review
- **Heuristic Report**
  - Write draft heuristic report
  - Review/revise report with secondary reviewers
  - Review/revise report with project team
  - Complete final report
- **Results Presentation**
  - Present results/recommendations to project team
  - Facilitate decision making
  - Consult with project team during implementation of recommendations

Worksheets and Templates

- Templates provided can guide planning, management, and design of usability evaluations.
- Electronic versions and additional design and management tools will soon be available at the LUCID web site:
  - www.cognetics.com/lucid/
  - Coming Soon: Free access to tools with registration

Summary

Take Home Messages

- User-centered design (UCD)
  - Allows you to “Do it right” while still getting it done
  - Provides a manageable approach to UI design
  - Reduces costs by finding and fixing problems early
- Knowing what you get from tests at each stage of a project helps you recommend only the right ones
- Providing estimates and work plans to managers shifts the discussion from “whether” to “how”

Thanks!

Thanks for your attention!

Any questions?

Additional Resources

Usability: What and Why (for managers)

- Cooper, A. **The Inmates are Running the Asylum: Why High-Tech Products Drive us Crazy and How to Restore the Sanity.** SAMS, Indianapolis, IN, 1999. ISBN 0-762-31649-8.
- Krug, S. **Don't Make Me Think: Common Sense Approach to Web Usability**. Que, 2000. ISBN: 0789723107

Usability: How-To (for UI designers)

- Dumas, J. and Redish, J. **A Practical Guide to Usability Testing,** Revised Edition, Intellect, 1999. ISBN: 1-84150-020-8.
- Nielsen, J. **Usability Engineering**. Academic Press: Boston, MA, 1993.
- Rubin, J. **Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests**. Wiley: New York, NY, 1994.

About Cognetics

- We bring a complete, real-world perspective and an award-winning design team to creating information and knowledge management tools.
  - User-centered interface design
  - Evaluation and testing
  - Consulting and methodology
  - Staff coaching and development
- Our approach creates design that goes beyond surface aesthetics
  - Understand the user's perspective and work flow
  - Simplify where possible
  - Work with the technology
  - Execute rapidly, test frequently, manage tightly

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