Usability Evaluation Comments

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Jakob Nielsen's landmark 1993 *Usability Engineering* established a thorough theoretical groundwork for usability and provided design rules to follow; meanwhile Jeffrey Rubin's 1994 *Handbook of Usability Testing* provided comprehensive strategies and procedures to conduct the tests. Subsequent works by build on these two seminal writings from the 1990s, refining and/or summarizing the essential principles of usability test and design. Your course text, Krug's *Don't Make Me Think*, is one such work: concise, informative, and entertaining.

Nielsen's *Usability Engineering* targeted primarily software and interface designers who need practical advice on incorporating usability considerations during development. He identifies five components of usability.

1. *Learnability*: How easy is the interface to learn initially?
2. *Efficiency*: How fast can users accomplish basic tasks once the interface is learned?
3. *Memorability*: How memorable is the interface? Do users have to re-learn the interface after some period of time away from it?
4. *Errors*: Do the users make few errors and can recover easily if they do? Does the system prevent catastrophic errors?
5. *Satisfaction:* Do the users like using the system?
   (1993, p. 26)

Rubin's *Handbook of Usability Testing* is a how-to manual on conducting the tests, and he emphasizes that they be embedded in an iterative instructional design process, allowing "one to make steady and rapid progress on a project, to learn through empirical evidence, and to 'shape' the product to fit the end users' abilities, expectations, and aptitude" (p. 31). He distinguishes between types of usability testing and when to use them along the product life cycle.

▪ Exploratory Test

When to use	*Objective*	*Pre-conditions*	*Methodology*
Early in design stage	To examine preliminary design concepts; to establish 'skeleton' of product	User profile; task analysis; prototype with representative, basic functionality, developed during focus group session(s) with SMEs, designers and other stakeholders	Tester is one-on-one with user; user thinks aloud during 'walk-through' of prototype, interacting with tester and speculating on what typical user *might do*
Comments Your prototype will most likely at this stage be paper-based, developed during focus group session(s). You are testing basic functionality of main pages, asking, for example, “If you were to click on this button, where do you think you would go?” You may brainstorm on design ideas with user, who is speculating what other users might do while using product.			

▪ Assessment Test

When to use	*Objective*	*Pre-conditions*	*Methodology*
Early or mid-way in development stage, following exploratory test	To evaluate how well user can navigate interface and perform tasks; to 'flesh out' product	Prototype with advanced, developed functionality—designed with feedback from exploratory test	Tester encourages user to think aloud but otherwise has minimal interaction; observes what user *actually does*
Comments: Your prototype will be electronic, developed according to feedback from Exploratory Test. Navigation elements are in place and working. You are testing actual use of product, giving users specific task to accomplish. For example, “complete Lesson One in this tutorial and proceed to Quiz 1.” You want to know what user actually does.			

▪ Validation Test

When to use	*Objective*	*Pre-conditions*	*Methodology*
Late in development stage or during implementation	To verify that product meets minimal performance criteria; verify that there are no catastrophic bugs; Final Quality Assurance	Product close to release; performance criteria established using results of Assessment Tests	Tester has no or very little interaction with user; measures what user does against established performance criteria
Comments: You have completed several Assessment Tests and have revised the product accordingly. You now set minimal performance criteria and conduct the validation test. For example, “9 out of 10 users will be able to complete Lesson One in the tutorial and proceed to Quiz 1 without • making a navigation error • referring to the documentation • calling the help desk/instructor”			

- **Comparison Test**

When to use	*Objective*	*Pre-conditions*	*Methodology*
Anytime during product life cycle	To compare different prototypes or interfaces to choose best design and/or produce 'hybrid' using best features of each; to compare product to competitor's	Prototypes or interfaces at similar stage of development	Tester presents to user alternate prototypes, interfaces, and/or products side-by-side, asking user to determine 'best' design features of each.
Comments: This test can also be used during preliminary focus group sessions (focus groups technically not part of usability testing). For example, the group may want to assess competition's product while brainstorming design ideas. During design and development stages the comparison test can be very useful. For example, the comparison test can be used in conjunction with the Exploratory test: you have two designs for your CBT and want feedback on the best design features to include in your product.			

References:

- Nielsen, Jakob (1993) *Usability Engineering.* San Francisco: Morgan Kaufman.
- Rubin, Jeffrey (1994). *Handbook of Usability Testing*. New York: Wiley & Sons.