

Formative Usability Testing Methods



Acknowledgements

- ▶ AMIA Usability Task Force
- ▶ HIMSS Usability Task Force
- ▶ Robert Schumacher, Janey Barnes – original learning module creators

Purpose

- ▶ Formative Usability Testing is a methodology used to obtain **qualitative reactions** to user interface **concepts** and **designs**.
- ▶ Also known as Exploratory Usability Testing Methods.

Goals of the Method (1 of 2)

- ▶ **Primarily used to obtain qualitative reactions to UI concepts and designs:** workflows, information architectures, language, icons, navigation, visual design, etc.
 - **Frequently, user needs and enhancement ideas are reported by the participants.**
 - **As the interface matures, other more quantitative measures may be taken.**

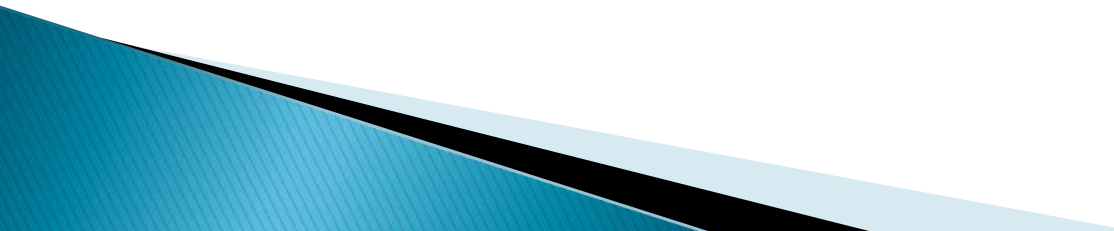
Goals of the Method (2 of 2)

- ▶ Formative testing is also used to help design/development teams choose between alternative designs.
- ▶ Formative testing is very pragmatic and should be used early and often during the development process.
- ▶ The emphasis though should be on *behavior* rather than on attitude and opinion.

Best Timing in the Software Development Lifecycle

- ▶ From very early in design/development process up until summative testing is called for.

Application Analysis (NISTIR 7804)

- ▶ Provide a description of the design of the application's user interface
 - ▶ And how the design has been **optimized via iterative formative and exploratory usability assessments** during development.
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Details for Planning & Executing the Method (part 1)

- ▶ Determine research questions/issues that need to be addressed
- ▶ Develop tasks that need to be done to address the research questions
- ▶ Develop Recruiting Screener
- ▶ Create Moderator Guide
- ▶ Prepare materials

Details for Planning & Executing the Method (part 2)

- ▶ Recruit participants (4–8 per user group)
- ▶ Run pilot session
- ▶ Conduct sessions
- ▶ Compile data
- ▶ Draw Conclusions and Report to team

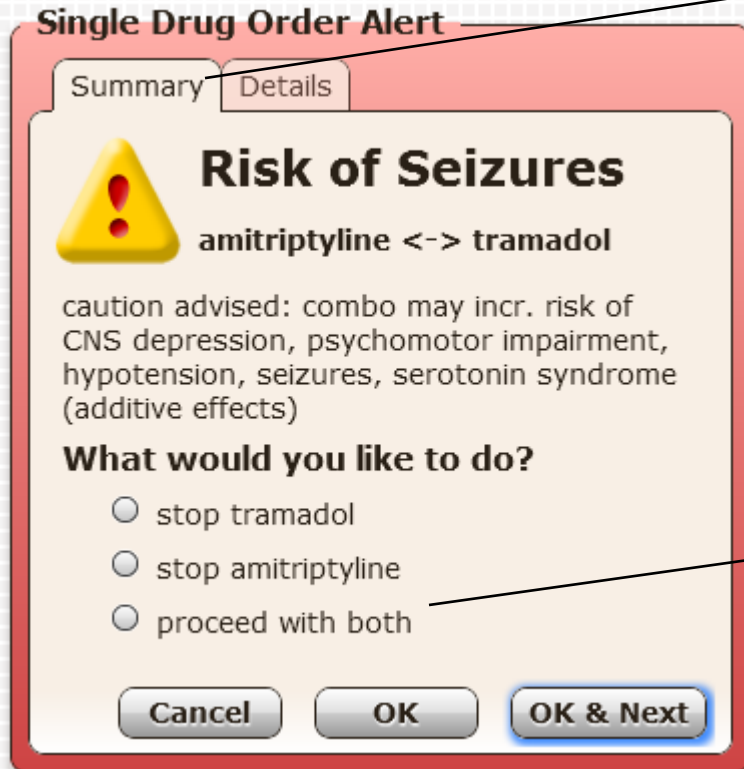
Exercise

- ▶ This is a hands-on activity related to planning/executing a Formative Usability Test:
 - Using the Drug x Drug Interaction Prototype
 - Define objectives
 - Define tasks
 - Define measurement
 - Identifying and finding users
 - Discuss a test with one task

Impact of the Formative Usability Test

- ▶ Reporting the findings and recommendations back to the team so as to have a positive impact on the development of the product.

Impact of the Formative Usability Test



Participants appreciated the Summary View.

Problem is – clicked proceed with both and expected to move ahead one step not come back to previous page

Impact of the Formative Usability Test

This is the information important to participants

citalopram (Celexa 20 mg oral tablet) - amitriptyline 25 mg oral tablet
(interaction)

citalopram() amitriptyline(): MAJOR

MONITOR CLOSELY: Concomitant use of agents with serotonergic activity such as serotonin reuptake inhibitors, monoamine oxidase inhibitors, tricyclic antidepressants, 5-HT₁ receptor agonists, ergot alkaloids, lithium, St. John's wort, phenylpiperidine opioids, dextromethorphan, and tryptophan may potentiate the risk of serotonin syndrome, which is a rare but serious and potentially fatal condition thought to result from hyperstimulation of brainstem 5-HT_{1A} and 2A receptors. Symptoms of the serotonin syndrome may include mental status

Impact of the Formative Usability Test



The screenshot shows a software window titled "Drug to Drug interaction". In the top left, a large "Severity 2" is displayed. To its right, the text "Suggest: Consider Therapy Modification" is shown, with a link for "More Risk Information". Below this, two drug names are listed: "Tramadol (Ultram)" under the "New" category and "Amitriptyline (Elavil)" under the "Established" category. A "Problem: Risk of Seizures" is noted with a "...more" link. There are two checked checkboxes: "Don't warn me again on this patient for this interaction" and "Unless dose changes". A "Set Threshold" section includes a slider from "Low Risk" (1) to "High Risk" (5), with the current setting at 3. At the bottom, there are buttons for "Show Alternatives", "Monitoring Details", "Suggest Adjustments", "Cancel", and "Proceed".

Jeff Belden, toomanyclicks.com

All the clinician needs to see... Characteristics of a good warning: Get the person's attention, What's wrong, How bad is it, What's going to happen if the person continues?

Impact of the Formative Usability Test

- ▶ Reporting the findings and recommendations back to the team so as to have a positive impact on the development of the product.

	Completion	Mouse Clicks	Time	After
	Path to completion Pass Ask for Assistance Fail Did Not Complete	Manual Count of Mouse Clicks 0-10 11-20 21-30 31-40 41+	Task Time during Talk Aloud 1-90 91-180 181-270 271-360 361+	How Difficult-Was Very Easy 1 2 3 4 5 6 7 Very Hard
Task1				
Task2				
Task3				
Task4				