MEDRAD ELN

Think-Aloud (2nd Lo-Fi)

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Overview of activities

The goal of this Think-Aloud is to evaluate the validity and usability of the 2nd iteration of our low fidelity prototype of the MEDRAD ELN. Specifically, we will evaluate:

1. The navigational flow of our Lo-Fi ELN prototype against how real users accomplish real tasks associated with ideation and documentation
2. The usefulness and usability of the prototype at a finer level: layout, buttons, widgets, and associated terminology
3. To further confirm the validity of the needs identified in previous research and participatory design session

There are limitations of what this Think-Aloud session is meant to discover. Because the test will be accomplished with a set of early state paper wireframes, richer interactions are difficult to simulate and will not be focus of evaluation.

However, at the end of this session, we expect to deliver Usability Aspect Reports (UARs) which will identify critical events in the use of our Lo-Fi prototype. These reports will help inform and justify our design changes in the next iteration.

Protocol:

The session will comprise of an introduction to the ELN system, an introduction to the purpose of the study, a brief warm-up exercise to familiarize the participant on how to perform a Think-Aloud, 3 separate Think-Aloud tasks, and finally a post observational wrap-up discussion.

Target participants: MEDRAD Research Scientists and Engineers

Number of participants: Total of 2 Participants: Ideally, 1 research scientist, 1 engineer to ensure diverse user data

Recording device: None (notes will be taken by the session moderator)

User Session Kit:
MEDRAD ELN system charter
Tasks description sheets outlining the flow of user tasks
Set of wireframe sketches to support the above tasks

**Moderator Kit:**
Criteria for establishing Critical Incidents List
Tasks and Screen order script
This protocol

**Timeframe:** 2 sessions with 2 different individuals are scheduled for June 23, 2006.

9:00 AM – 10:00 AM: Fred Trombley
10:00 AM – 11:00 AM: John Kalafut

**The Session:**

**Introduction to MEDRAD ELN:** (5 mins)
Prior to introducing the Think-Aloud session, the moderator will present the MEDRAD ELN system charter to ensure that the participant will familiar with the components and context the system will be used in.

**Introduction to the purpose of the study** (5 mins)
Briefly explain the external goal of the study. Explain that we’re interested in testing the system that we’re about to present and that we’re not testing the user specifically. Ensure the participant that there are no wrong actions and participation is completely voluntary.

**Think-Aloud Warm-up exercise** (5 mins)
Explain the concept of Think-Aloud. Ask the participant to tell us everything they’re thinking about from the moment they read the task and when they complete it. Tell them that they don’t need to plan/think out what they want to say. Just act as if they’re by themselves, talking to themselves. Emphasize that the important thing is to keep talking. Briefly explain that if you notice moments of silence for a long time, that you may interrupt and ask them to keep talking.

To help the user get a feel for actually performing a Think-Aloud, perform a sample Think-Aloud. For example:

Think aloud as you count how many windows are in your house.

Now, ask the user to try just as you did. Another example follows.

“Please think aloud as you name how many doors are in your house?”
or
“Please re-count your actions in your morning routine before you came to work.”
Finally, establish some rules during the session.
1. You will not be able to answer any questions during the observation
2. If you have questions, go ahead and ask them, but you won’t respond until after the session is complete.
3. Remind them that if they’re silent for more than 5-10 seconds, you will ask them to “Please keep talking”.

The Think-Aloud Tasks (30 mins)

To begin the Think-Aloud session, introduce the task to the participant by giving them a task description sheet to read and to follow as they perform the task. When they’re finished, remember to tell them to “Please keep talking”. Introduce the first screen from the ‘Task and screen order script’. As you observe for critical incidents, look for the appropriate moments to introduce a new screen that logically follows their actions in the wireframe interface. Continue until the task is completed.

During observation, please keep the following in mind:
- "Please Keep Talking"
- "Please don’t try to explain to me what you’re doing. Just ask as if you are alone, speaking to yourself as you solve the problem"
- If the user gets frustrated, take a quick break.

Continue the same process through the other tasks.

Post Observation Wrap-up Discussion (5 mins)

Following the completion of the tasks, ask the user if they have any opinions/suggestions about the product they just tested.

Outcome of research: From this Think-Aloud session, we will have gained a better understanding of the mental model our users employ when executing the tasks we seek to demonstrate in our ELN prototype. We will have evaluated the flow screens and usability of the interface elements. This will enable us to make more informed design decisions as we move from low fidelity to high fidelity screen mockups. We will have also validated our concept with users and gained end-user buy-in as a result of involving them in the design of our solution. This will play an important role in determining the adoption rate of the system when it is eventually deployed and prototyped at MEDRAD.
Think-Aloud – Establishing Criteria for Critical Incidents

**Possible Criteria for Problems**
The user articulates a goal and cannot succeed in attaining that goal within three minutes (then the experimenter steps in and shows the user what to do).

The user articulates a goal, tries several things, and then explicitly gives up.

The user articulates a goal and has to try more than three things to find the solution.

The user does not succeed in a task. That is, there is a difference between what you asked the user to do in the task and what they actually did.

The user expresses distressed surprise.

The user describes something as a negative effect or says that something is a problem.

The user makes a design suggestion.

**Possible Criteria for Good Features**
The user describes something as a positive effect or says that something is really easy.

The user expresses happy surprise.

Some previous analysis (e.g., a Heuristic Evaluation) has predicted a usability problem, but this user has no difficulty with that aspect of the system.
MEDRAD Project Statement:

Our Electronic Lab Notebook (ELN) is a flexible solution for capturing, sharing, and protecting intellectual property. In order to balance ease of use and robust functionality, our design consists of two components:

The first component is a toolbar which enables the user to capture an idea or need quickly and ubiquitously. This encourages ideas to be captured in the system when an individual is in the middle of performing other tasks, such as reading an article on the web, doing a prior art search, or working on an existing idea. Additionally, the user will be able to upload a supporting file or capture the web page they were on at the time of ideation and need creation. Finally, e-signature and date/time stamp will be captured to reinforce Intellectual Property (IP) claims.

The second component is a web-based solution that supports individual and collaborative idea development and documentation. Key features that support these activities include the following:

- Intuitive interface for idea development that also offers guidelines for proper documentation. These guidelines are provided in the form of sections and placeholders that reflect the current innovations work practices. (i.e.: Idea Description, Sketches, Research, Prototype development and testing, Correspondence)
- Flexible browsing of ELN contents
- Comprehensive search through MEDRAD’s past and current projects and ideas, as well as Intellectual Property databases such as Aureka and USPTO.gov. Search results are presented in flexible formats to support the Innovations group’s needs.

Our final deliverable for this project will be a high fidelity interactive prototype of the two components described above. This prototype will serve as a “proof of concept” for our ELN solution which could later be implemented by MEDRAD to fit their technical infrastructure.
Task 1: Capturing a New Idea

You are talking to your colleague about the procedure of delivering imaging contrast into the patient. During your discussion, you come up with an idea of how to improve the procedure.

**Your Idea:**
*Create a system to improve the procedure. The system includes a container to hold the medium, a pressurizing device for pressurizing the medium in the container, a fluid path connecting the pressurizing device to the patient, and a sensor in communication with at least one of the container, the pressurizing device or the fluid path. The sensor is operable to measure a property of the contrast enhancement agents.*

You make a quick sketch and scan it in. Now you have a file of the sketch on your desktop. You also found some background info that supports your idea on a website. In order not to forget the idea, you decide to capture your idea with the QuickCapture tool.

To Summarize:

Using the QuickCapture Tool, record your idea, the sketch and the website of the background info. You developed your idea with 3 other colleagues, so you want to make sure that you include them as contributors to the idea. You’d also like to get feedback regarding your idea, so make sure to send your idea to others.

1. Document your idea
2. Add the sketch to the idea
3. Add the website content to the idea
4. Add the colleagues you discussed your idea with to the idea
   a. Ned Uber
   b. Marty Uram
   c. David Griffiths
5. Obtain feedback from other colleagues
   a. John Kalafut
   b. Kevin Cowan
6. Send your idea to the ELN

Please think aloud as you go through the task. This is a preliminary prototype, so please be frank about things that are unclear. If you have suggestions/comments, please keep them in mind until the end of the task.

THANK YOU!
[Moderator Notes]
Screens Necessary:
1. Website screen (related to delivering imaging contrast)
2. Small Icon for sketch file
2. Quick capture – blank
   a. Title content
   b. Description content
   c. Small Icon for webpage capture
   d. Collaborator content
   e. Feedback content
3. Quick capture - confirmation
Task 2: Updating an Existing Idea

It is some time later and you've reached a stage in your initial idea where you are building, testing and refining the prototype for the contrast delivery system. You just ran some tests on your prototype and documented your results in an excel spreadsheet. The data suggests that certain changes should be made to the prototype.

With this new data, you want to update your existing idea with the changes you've found. Capture this information using the ELN by finding the existing idea and updating it with the new test data.

To Summarize:
1. Open the ELN
2. Find the idea that you want to update
3. Add your new test data to the idea
4. Add a summary of the test data
5. Add the suggested changes to the description of the idea
6. Save

Please think aloud as you go through the task. This is a preliminary prototype, so please be frank about things that are unclear. If you have suggestions/comments, please keep them in mind until the end of the task.

THANK YOU!
[Moderator Notes]

Screens Necessary:

3. Main personal page
   Idea entries
   Need entries
   Project entries
   Idea of the day
4. Idea Page (for the result they pick)
   starting tab with some content
6. Idea page with the prototype bucket displayed
   Idea page with the
   empty section
   written narrative
7. Cutout of the prototype picture
8. Cutout of some test results

Icon of prototype picture on desktop
Icon of excel spreadsheet containing experiment results
Cutout of the prototype picture
Cutout of some test results
Hello, Bob Bobson!
Hello, Bob Bobson!

Suspendisse magna purus
- Idea
- Need


Collaborators
- Ned Uber III
- Dave Griffiths
- Marty Uram

Directory

Idea Captured!
Email Sent

Add Another  Done  Go to Idea
Ut tincidunt, ante nec pulvinar vehicula, felis diam sollicitudin nisi, vel scelerisque ipsum tellus ut lorem. Etiam quis felis. Vivamus dignissim lacus vehicula eros. Pellentesque mi velit, molestie id, consectetur eget, cursus quis, odio.

Hello, Bob Bobson!  

Idea Title: Proin tempus malesuada  

Add to my Address Book  View Correspondence  

pcds@eln.medrad.com  

Drag a widget to add to prototype  

Sketch  
Equation  
Experiment Results  
Model  
Simulation  

Description  

IP Search  

Lit Review  

Expansion  

Prototype  

Save  

Collaborators  
Needs Addressed  
Associated Projects