

# Conducting Usability Testing on Complex Systems

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# Background

- We conducted several usability tests with complex systems.
- We needed to adapt the traditional steps in preparing, conducting, and analyzing the usability tests.



# What is Complex?

- What makes a system complex?
  - ▶ Users are highly educated and highly trained.
  - ▶ System has many features.
  - ▶ Tasks require many steps or processes, possibly with many interactions.
- Really, any system you can't learn in the time available

# Topics

- Learning the system
- Picking tasks
- Working out logistics
- Training participants
- Staffing the tests
- Moderating
- Recording results
- Analyzing data



# Learning the System

- How much does a UX professional really need to know?
  - ▶ Ideal – know the whole system
  - ▶ Typical – know the part of the system you're working with
  - ▶ Minimal – basic understanding of tasks and goals

# Learning the System

## ■ How:

- ▶ Work with domain expert on the team (critical)
- ▶ Attend demos, meetings
- ▶ Attend training
- ▶ Observe users
- ▶ Read manuals, reports, etc.

## ■ Review the recordings after each participant

- ▶ Will help you learn the system and refine the test methodology

# Picking Tasks

- How do you choose tasks?
  - ▶ Use what you know about the system
  - ▶ Work with team members
    - Have them suggest tasks with your guidance on what makes a good task
  - ▶ What seems like a simple task may be enough
  - ▶ Find focused tasks you can understand more easily
  - ▶ Consider the task flow and have a Plan B if participants don't complete a task
- Consider task wording carefully

# Picking Tasks

- Be careful with vague, open-ended tasks
  - ▶ Easier to set up
  - ▶ But may lead to great variety in behaviors
  - ▶ Harder to evaluate performance
  - ▶ Consider this approach with a few participants to identify more specific tasks to focus on.
- Participants may need their own tasks, depending on how specialized their job is
  - ▶ Try to make them similar



# Working Out the Logistics

- May not always be an issue
- There could be complex connections to multiple secure databases
- Determine how much of a task to set up ahead of time
- Have a plan to reset the system after each participant (and leave enough time for this)
- Record video if you can



# Training the Participants

- How much training do you provide?
  - ▶ Ideally, none
  - ▶ But in reality, they won't use the system without training
  - ▶ Provide as little training as possible
    - Group training session prior to testing
    - Individual training during the test session
    - Cheat sheet or other documents

# Staffing the Test

- Have at least one domain expert present for every test
  - ▶ Good practice anyway, but essential here
  - ▶ May also need IT staff present to fix problems
- Instruct the observers about
  - ▶ When and how to provide help to participants
  - ▶ What language to use (or not)

# Moderating the Test

- Consider the responsibilities of observers
  - ▶ Training the participants
  - ▶ Facilitating the test
  - ▶ Determining task success
  - ▶ Providing assistance when needed
- Encourage think aloud

# Moderating the Test

- Determine when to provide assistance
  - ▶ May be difficult for complex tasks
  - ▶ Look for cues other than task performance, such as comments, body language, etc.
  - ▶ Rely on your experience moderating tests

# Recording your Findings

- Determining task success
  - ▶ Set up parameters ahead of time if possible
  - ▶ Work with observers (carefully, since they may be biased to consider a task successful)
- Measuring task time
  - ▶ Did they only focus on task or get significantly side-tracked by exploring a new feature?
  - ▶ When did they really finish?
  - ▶ Review video

# Analyzing the Data

## ■ Identifying usability problems

- ▶ Some issues may be problems with training or difficulties with the task itself.
- ▶ Consider the kind of assistance you provided
- ▶ Work with the observers to identify real problems

## ■ Identifying solutions

- ▶ Review the video
- ▶ Rely on your experience
- ▶ Work with the team to develop realistic solutions

# Takeaways

- You CAN run usability tests with really complex systems.
- It's challenging, but...
- There are things you can do to make it easier.





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