CSE 593

User Evaluation Methods (Qualitative) Part 1

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Logistics

- Feedback on assignment 1 (Group).

- Assignment 2 (Individual) due tomorrow (Oct 9) at 5PM.

- Assignment 2 (Group) due next week (Wednesday, Oct 16 at 5PM).

- Midterm course evaluation is available.

- No lecture next Tuesday! Study break!

- Thursday: studio!

Goals

Learn what we mean by user evaluation

Learn to differentiate qualitative and quantitative evaluation methods

Learn how to apply simplified user testing as a discounted (qualitative) user evaluation method

Goals

Learn what we mean by user evaluation

Learn to differentiate qualitative and quantitative evaluation methods

Learn how to apply a set of discounted (qualitative) user evaluation methods

But first, Quiz 4 review.

Quiz – User requirements

- The librarian needs information about overdue books.
  - Qualitative

- The application should be easy to use for novice users
  - Testable
  - Not objective

- The system must respect the dignity of all living beings
  - Not testable

Quiz – discoverability vs findability

- Findability ensures that when users are actively searching for some data or functionality, they can find it effortlessly

- Discoverability ensures users can stumble upon features:
  - that they are not aware of
  - even if they aren't explicitly looking for them

# Quiz – affordances, signifiers, and other stories

- Affordance in Psychology refers to properties of physical objects

- When imported into HCI, *perceived properties* became important too

- In digital environments, actions are not always as obvious as they are with physical objects

- Signifiers are cues that tell users what to do

-Norman, Donald A. "The way I see IT signifiers, not affordances." *interactions* 15, no. 6 (2008): 18-19.
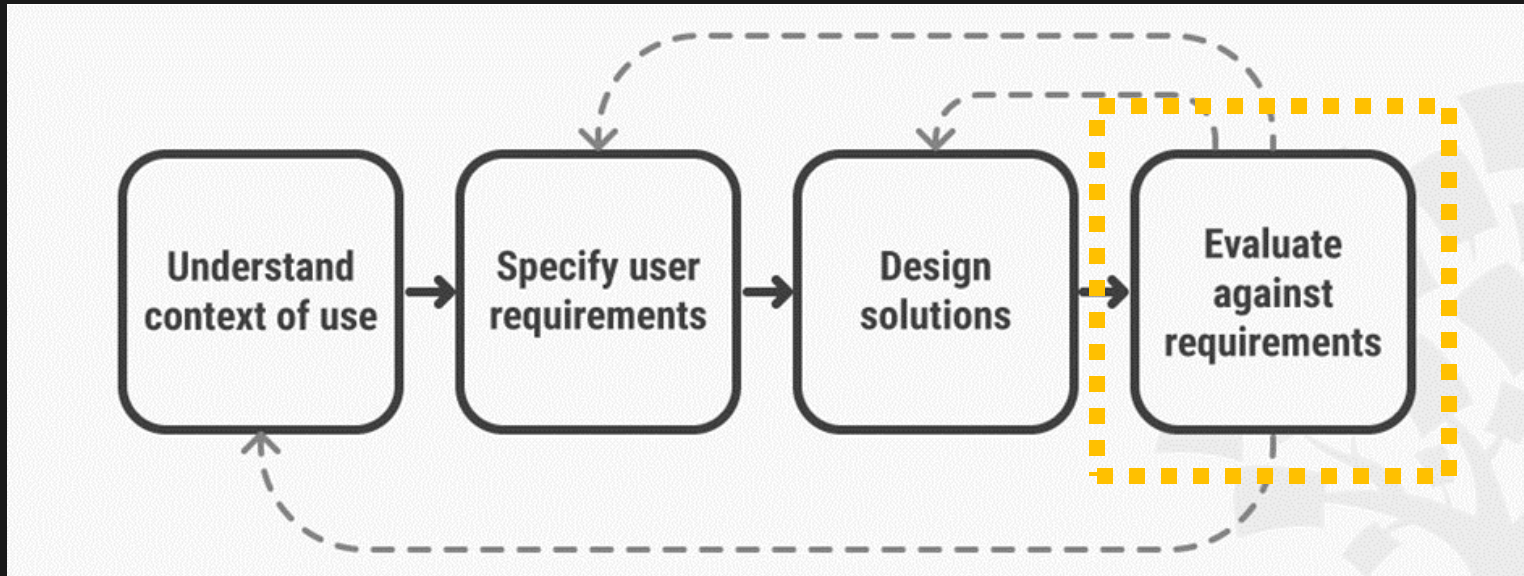- MIT 6.S063 by David Karger & Lea Verou
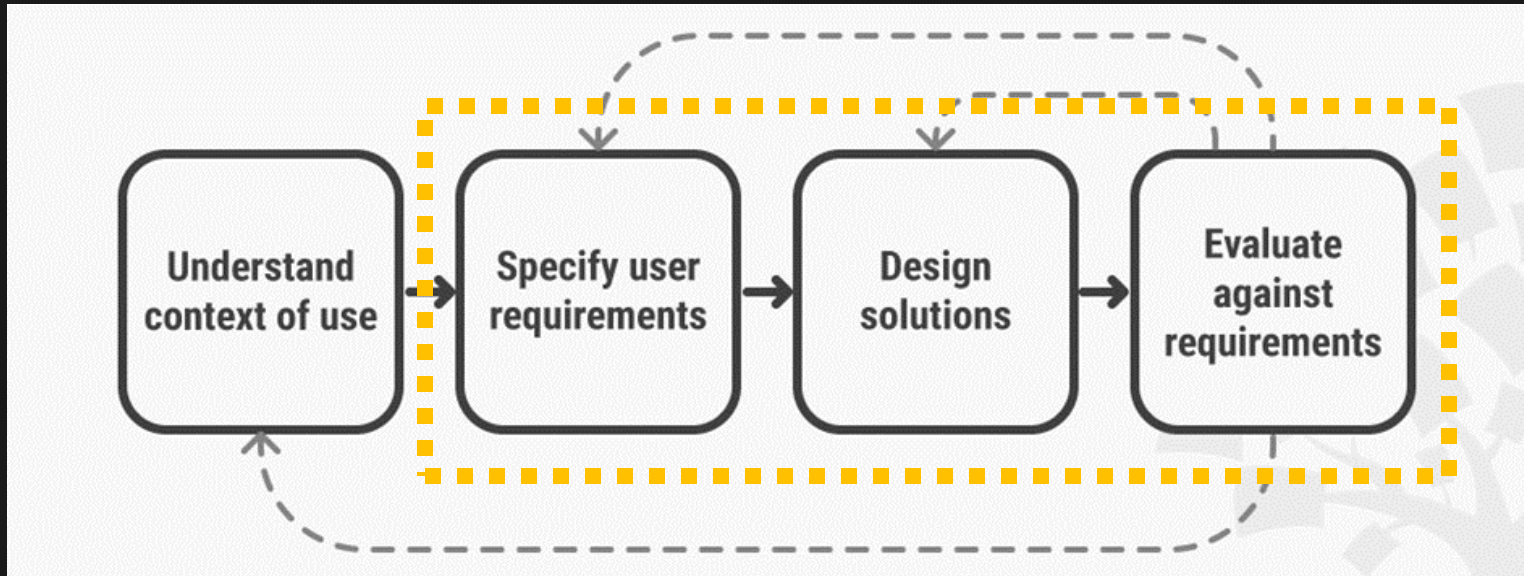
Quiz – affordances, signifiers, and other stories

What's wrong with this?
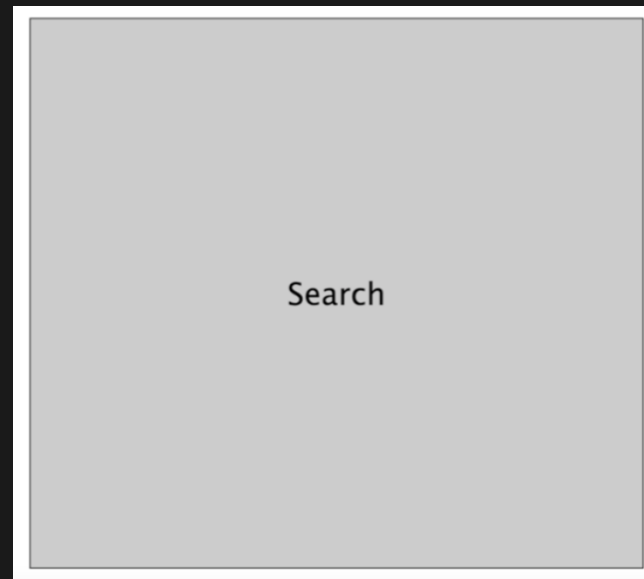
User-Centered System Design Process

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What is user evaluation?

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- Family of methods to study if and to what extent a design satisfies user requirements.

- Often empirical and summative (as opposed to formative)

- Can be qualitative, quantitative, or mixed methods.

What is the difference between qualitative and quantitative evaluation?

What is the difference between qualitative and quantitative evaluation?

Qualitative
(interpretative, descriptive)
vs.
Quantitative
(measuring, statistical analysis)

Ethical considerations

- You *always* have a responsibility to make evaluation testing voluntary
  - Use informed consent
  - Avoid pressure to participate
  - Let them know they can stop at any time

- Let participants know that if there are problems, it is the system's fault, not their fault.

- Protect participant identity, privacy, and data.

Qualitative user evaluation

Qualitative user evaluation

We focus on discount usability

Nielsen. 1989. Usability engineering at a discount. In Proc. Intl. HCI conf. on Designing and using human-computer interfaces and knowledge based systems.

Discount usability

Nielsen. 2009. Discount Usability: 20 Years. https://www.nngroup.com/articles/discount-usability-20-years/
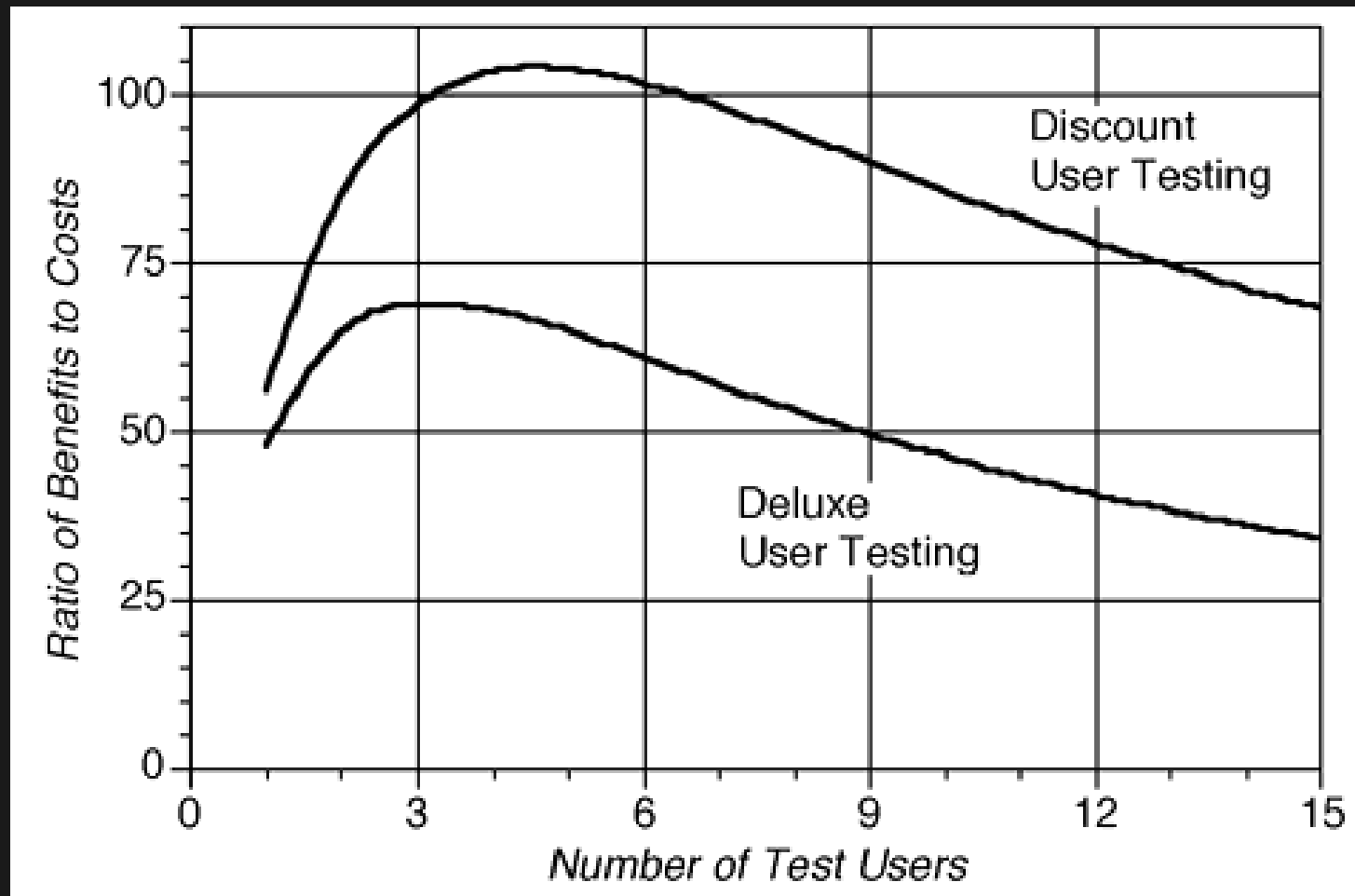
Qualitative user evaluation

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Simplified User Testing

&

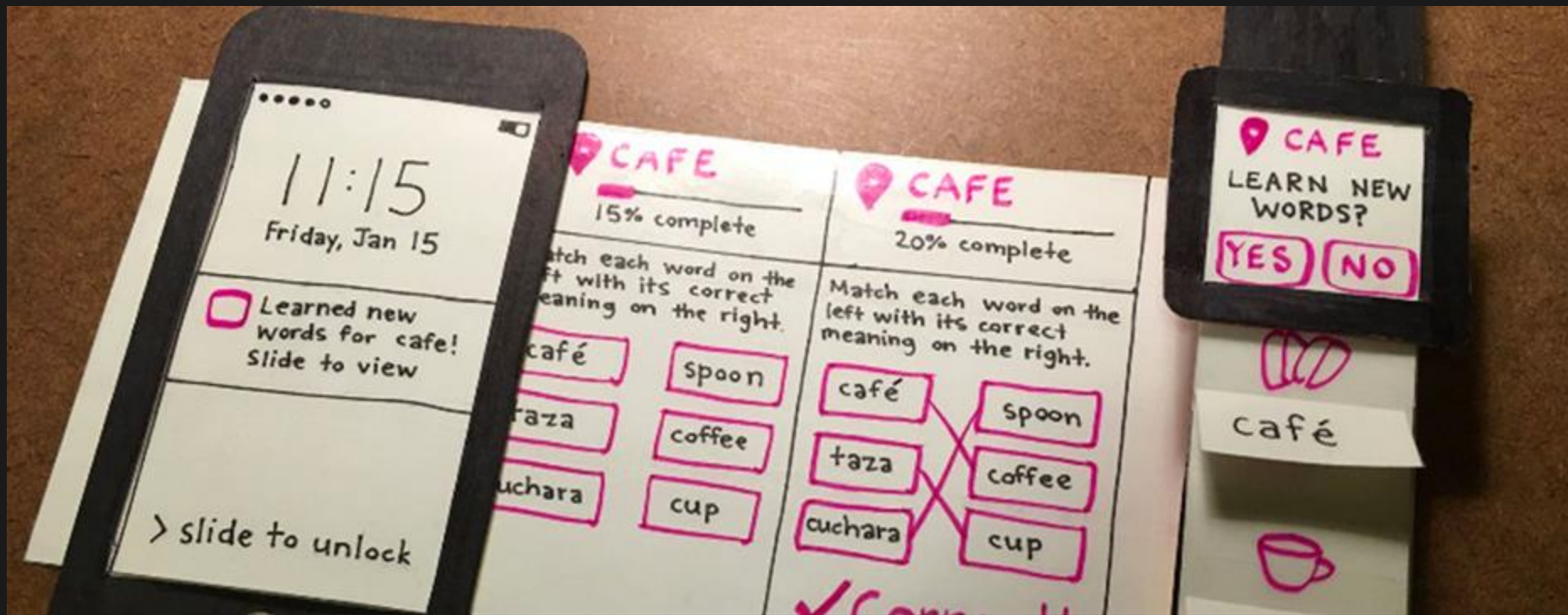Heuristic Evaluation

on narrow-down (often low-fidelity) prototypes

Nielsen. 1989. Usability engineering at a discount. In Proc. Intl. HCI conf. on Designing and using human-computer interfaces and knowledge based systems.

Simplified user-testing

Nielsen & Landauer 1993. A mathematical model of the finding of usability problems.
In *Proc. ACM INTERCHI'93*.

Narrow-down prototyping
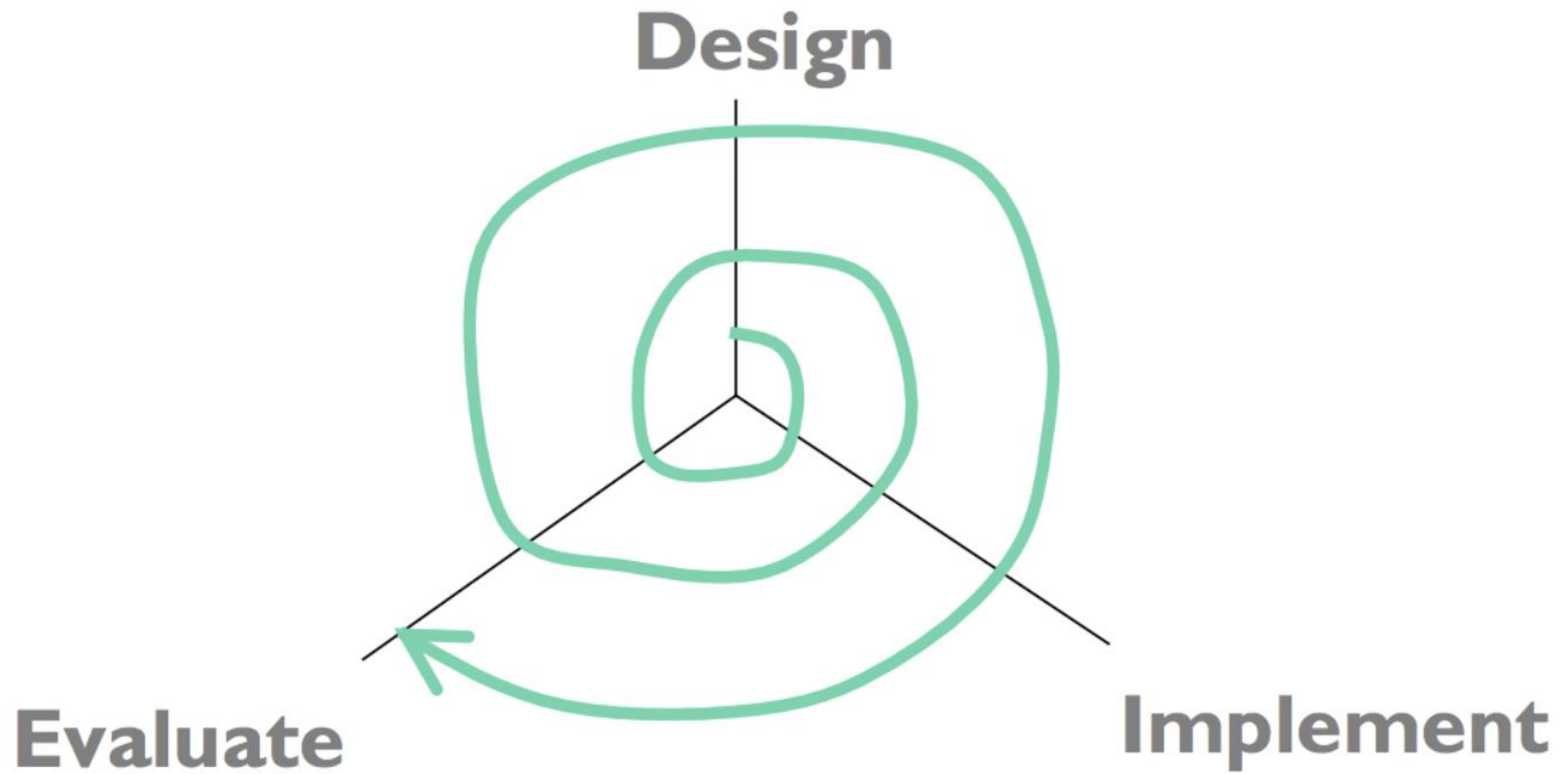
Narrow-down prototyping

Example: https://www.youtube.com/watch?v=y20E3qBmHpg

Simplified user testing via narrow-down prototyping

- Pick one or more user goals (or sub-goals)

Simplified user testing via narrow-down prototyping

Pick one or more user goals (or sub-goals)

Recruit 3 to 5 participants

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Ask them to use your design prototype to accomplish the goal and ask them to perform a think-aloud

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If low-fidelity: have a team member be the "backend"; otherwise have functional high-fidelity prototype do its thing

Simplified User Testing via Narrow-Down Prototyping

Pick one or more user goals (or sub-goals)

Recruit 3 to 5 participants

Ask them to use your design prototype to accomplish the goal
(ask them to perform think-aloud)

If low-fidelity: have a team member be the "backend"; otherwise
have functional high-fidelity prototype do its thing

Take notes: note the tasks they perform, note the difficulties they
face, note the errors they make

Picking the tasks

- Should reflect what real tasks will be like

- Use goals that you identified when studying and understanding the context of use

- Avoid bending tasks in direction of what your design best supports

- Concrete task (create a playlist using a music app)

The Think-Aloud Protocol

- Main evaluation technique when you need to know what users are thinking, not just what they are doing

- Ask users to talk while performing tasks and verbalize their thoughts as they move through the user interface.

- You as observer
    - Make sure you can tell what they are doing
    - Prompt them to talk if necessary

- Widely used in research and industry settings

The Think-Aloud Protocol

- Use this video in your simplified user testing!

https://www.nngroup.com/articles/thinking-aloud-demo-video/

The Think-Aloud Protocol

- Prompt the user "Please keep talking"

- If there are questions, leave until the end, don't interrupt the user

- Do not ask the user to explain during the think-aloud (introduces extra cognitive load).

The Think-Aloud Protocol

- Watch for:
  - Errors
  - Long stalls (indicating confusion or indecision)
  - Confusion
  - Unexpected paths
  - Statements of distress
  - Unexpected events and use

Simplified User-Testing: advantages

- Fast, Cheap
  - Can be scaled up or down depending on needs/resources
- Tends to find most severe issues
  - Good for use in early phases of rapid iterative design
- Feedback from actual users

Simplified User-Testing: disadvantages

- Cannot quantify interaction (e.g., time to complete a task, error rate)

What is simplified user testing good for? Select all that apply.

❑ Evaluating low-fidelity prototypes.
❑ Evaluating high-fidelity prototypes.
❑ Evaluating qualitative requirements.
❑ Evaluating quantitative requirements.
❑ Evaluating usability requirements.

You have 120 seconds…

DONE!

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❑ Evaluating high-fidelity prototypes.
❑ Evaluating qualitative requirements.
❑ Evaluating quantitative requirements.
❑ Evaluating usability requirements.

Questions, comments, and/or concerns?

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