

Think Aloud User Testing



Recap: What is design research?

Design research is about learning from people in the context of their lives.

Find Problems

Understand a Topic

Build Empathy



Introducing Think Aloud Testing

Think Aloud Testing is a method to identify areas where you can improve your design.

Think aloud testing is a way of understanding what people are thinking as they use a product or service. It provides an intimate view into their thought-process and decision making.

Observe your design being used

Instead of discussing what participants might do or might feel, observe actual and real behavior.

Prompt the user to think aloud

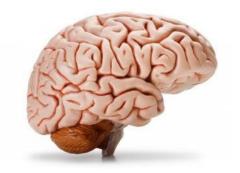
As participants use the system, instruct them to describe what they are doing as they do it.

Do not interrupt or help

As the participant uses your design, do not interrupt them with questions or comments, and do not help them when they have difficulty completing tasks.



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Working Memory Store

Central Executive (Supervision)

Loop
(Sounds of language – repetition)

Episodic Buffer (Experiential qualities related to time) Visuo-Spatial Sketchpad (Imagery, spaces, environments, mental maps)





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Working Memory Store

Your working memory store is characterized by these qualities:

- It has limited capacity, even when content is "chunked"
- Is has a fast decay time, meaning contents will be lost quickly (often as fast as seconds)
- It is generally driven by your attention, which means you can "use it" purposefully





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Long-Term Memory Store

Your long-term memory store is characterized by these qualities:

- It has "unlimited" capacity, and is "filled" over the duration of your life
- It has a slow decay time, meaning content may never be lost
- It is generally driven by associations and relationships, which means you can traverse from idea to idea with ease



Why it works

Think aloud testing works because we can verbalize the contents of working memory with a high degree of accuracy.

Working Memory Store

As long as there is no introspection, we can describe what is in working memory, and our cognitive processes around this content, without changing our ability to complete a goal.

Ways to prompt introspection (don't ask these!)

- Why are you doing that?
- How does that make you feel?
- What did you expect to happen?
- · Why do you see?
- How would you improve this?
- What's confusing about this?
- What's the best part?
- · What's the worst part?



Think aloud testing is grounded on a simple idea: asking the participant to talk out loud.

During the testing, the only thing we'll say to the participant is:



"I don't understand this."



"Am I doing this right?"



"This is the worst software I've ever used in my life."



How to do it

A think aloud test is simple to conduct with a prototype and a basic script.

To conduct a think aloud, follow these steps:

- Develop a prototype
- Identify tasks
- Identify participants
- Organize your equipment and logistics
- Explain the process
- Run the session
- Analyze and document the results



Develop a prototype

Think aloud testing works when any fidelity prototype – even sketches.

You can run a think aloud test with even the most rudimentary prototype; and, you can test digital interfaces, services, and other system designs.

No matter the fidelity and type of work, you'll need to have design a comprehensive path through the design.

- For a digital product, you'll need a representation of all of the screens a user will encounter
- For a physical product, you'll need to have produced all of the features a user will need
- For a service, you'll need to design all of the steps and touchpoints in the flow



Identify tasks

Identify the tasks a user will complete on their way to achieving their goals.

List the tasks a user will complete with your design, and prioritize these. These are example tasks:

- Identify the total number of calories in a serving of pie
- Ask customer service to refund your money for your last purchase
- Search for items that are on sale, and add them to your cart

Most think aloud testing sessions have no more than five tasks.



Identify participants

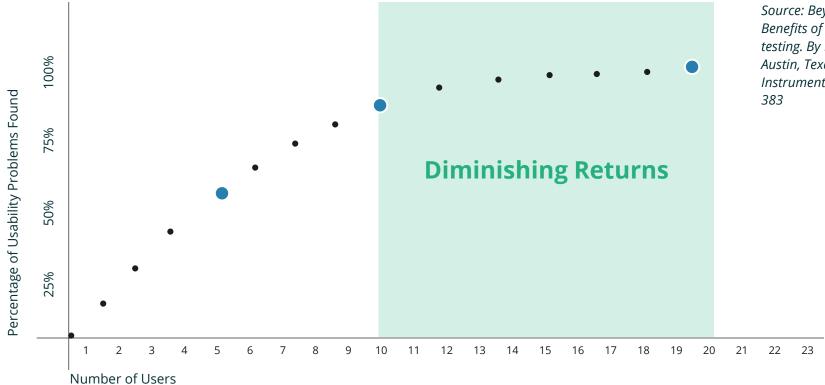
Create a participant profile that matches your target audience.

Identify the people you will have participate in the think aloud testing session. Select people based on their **behavioral** characteristics (for example, *previous experience understanding nutrition information*) vs demographic characteristics (*aged 25-30*).



Identify participants

Recruit ten users.



Source: Beyond the five-user assumption: Benefits of increased sample sizes in usability testing. By Laura Faulkner, University of Texas, Austin, Texas. In Behavior Research Methods, Instruments, & Computers. 2003, 35 (3), 379-



Organize equipment and logistics

Identify appropriate equipment to run and document the testing session.

You will typically need:

- An audio recorder
- Batteries
- A digital camera
- Storage
- Tasks for the session, printed one per page
- A quiet room

Additionally, you may want to video record the session. While more cumbersome to setup, video findings are often very persuasive in helping people believe in the findings and results.



The initial instructions for think aloud testing are critical to the success of the study.

People aren't familiar with the idea of thinking out loud; they need explicit instructions on what to do. Explain to the user:

- 1. Who you are & what you are doing

 Describe the purpose of the usability study, and be sure to mention compensation and the duration of the study
- 2. You are testing your interface, and not testing them
 People are intimidated by the word "test"; reinforce that you are
 performing the test on the product, not on them
- **3. They can quit at any time**Be sure that your participant understands that their participation in the test is voluntary

4. They must think out loud as they complete the tasks

Describe that you require them to continue talking, and you will remind them to "please keep talking" if they fall silent. Articulate that you want them to simply verbalize what it is they are doing, as they are doing it.

5. You won't be able to help them

Tell the participant that, no matter how much trouble they have, you won't be able to help them complete the task – even if they explicit ask you for help

Verify that the user understands the tasks (have them read the tasks aloud too, and ask if there are any questions).



When you run the session, avoid the temptation to talk—stay silent, except to say:



When you run the session, avoid the temptation to talk—stay silent!

It's very tempting to explain things, help the user, or ask interstitial clarifying questions. Don't do it – remain silent, only speaking to remind the user to "please keep talking."

- If the user falls silent for more than three seconds, prompt them "please keep talking"
- Do not help the user complete a task (if the user asks for help, explain that you cannot help, and prompt them to try what they think is correct)
- Don't defend your designs! This is not a critique of your design skills; don't even mention that they are your designs.



When you run the session, avoid the temptation to talk—stay silent!

While the session is running, do not say things like:

- Please explain what you are doing
- · Note any design problems you see
- Tell us if you have any suggestions
- Why are you doing what you are doing



Identify the critical incidents

Problems that you find during a think aloud test are called Critical Incidents.

A critical incident indicates that there is a problem with your design. Some criteria used to identify a critical incident include:

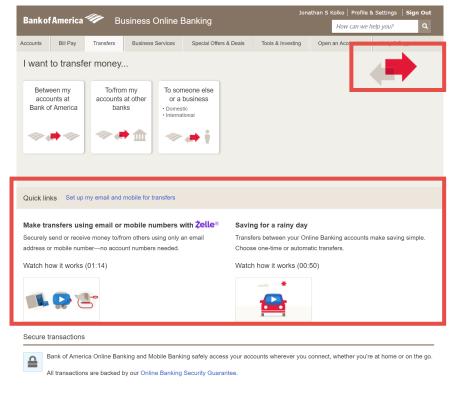
- The user articulates a goal and cannot succeed in attaining that goal within approximately thirty seconds
- The user articulates a goal, tries several things and explicitly gives up
- The user articulated a goal and has to try three or more things before finding a solution
- The user does not succeed in the task
- The user expresses surprise
- The user expresses some negative sentiment, either about the interface or about their own skills
- The user makes a design decision or recommendation



Present the findings

Use screenshots and user quotes to show the critical incidents you've found.

When you present think aloud testing results to an audience, it's important for them to understand what the problems are, and how you identified them.



Main problems found: Transfer – Unclear / non-functional visual elements

"I'm clicking on this arrow to start the transfer, but nothing's happening. I'll refresh the page, but I don't understand why it isn't working..."

- Aesthetic elements that are decorative are distracting from actual functionality
- The distinction between elements on the screen are confusing
- There are too many choices, at the expense of the "right" choice

Recommendation:

- Remove distracting information that serves no purpose
- Remove advertisements for alternative services
- Use traditional button forms to indicate what areas are clickable



When to use Think Aloud Testing

Think aloud testing can be used at any time in the creative process.

Leverage think aloud testing to understand if your design makes sense – if it's usable to people, and if they see how it works and how it provides value to them.

Conducting think aloud testing earlier in your iterative process can save you money and time – it's easier to make design changes when you are still working a low level of fidelity, where changes are less expensive and less time consuming.



Applicability

Think aloud testing becomes the backbone in the process for evaluating usability and value.

Find Problems

During think aloud testing, problem will become overt and you'll develop defensible evidence to make a case for design changes.

Understand a Topic

Think aloud testing uncovers disconnects between tacit knowledge, system language, work flows, and other key parts of a service or product.

Build Empathy

As you watch a user engage with your designs, their emotions become clear. You'll see the world through their eyes, and when they feel proud of accomplishments – or frustrated with the process – you'll know.



Thank you!