

Heuristic Evaluation of Thundr

1. Problem

THUNDR is an app that permits users to have productive group brainstorming sessions despite barriers due to location by allowing them to collaborate remotely. By incorporating voice, this platform allows users to brainstorm ideas through speaking instead of writing, thus saving time and increasing a group's overall productivity.

2. Violations Found

1. H8 Aesthetic and minimalist design/ Severity 2/ Found by A, B

The search bar that appears on the home page seems confusing and unnecessary, considering the user can only pick between two options, (either "create new brainstorm" or "saved brainstorms.") The search bar suggests that there are more options but the rest of the home page indicates non.

Fix: Either add more options or get rid of the search bar.

2. H5 Error Prevention/ Severity 3/ Found by A, B

The "Homepage" and "Ranked Ideas" pages both have a search bar which seems to be really ambiguous of what it is supposed to search for. In case the user searches for something that is not supported by these search bars, they might get an error since we have no hint of what these search bars are doing.

Fix: Specify the purpose of the search bar.

3. H2 Match between system and the real world/ Severity 2/ Found by A

In most cases, people expect a keyboard to appear when they click on a text field. The keyboard icon that is placed right next to the text field isn't what is common or expected in the real world. Most users would click on the text field, expecting the ability to type without having to choose between the keyboard and mic buttons.

Fix: Have a keyboard appear as soon as the user clicks on the text field and have the mic button close to the keyboard, so the user knows that using voice is also an option.

4. H4 Consistency and standards/ Severity 1/ Found by A

After the user is asked whether anyone is working remotely, they are asked to add remote participants and then asked to add local participants. The difference between remote and local participants is not clear.

Fix: Clarify the difference between local and remote participants. (For example, have a brief sentence that explains each term).

5. H4 Consistency and standards/ Severity 1/ Found by A

As mentioned before, there can be a lot of confusion when adding participants. When the user answers “no” to the question that asks whether any of the participants will be working remotely, they are simply asked to “add participants. This leads to further confusion between the difference between adding “local participants” and just adding “participants”.

Fix: Clarify difference between types of participants (as mentioned earlier).

6. H1 Visibility of system status/ Severity 3/ Found by A, B and C

After an idea is submitted or deleted, there is no confirmation to indicate that it was successfully submitted. Furthermore, there is no indication of where the idea actually goes. This also applies to the voting screen.

Fix: Notify users when they successfully submit an idea or vote (for example, use a prompt that says “idea successfully submitted to current brainstorm list”).

7. H2 Match between system and the real world/ Severity 2/ Found by A

The cloud icon on the top right corner of the screen opens the menu. A cloud icon isn’t used to indicate the existence of a menu in the real world. Users may not know that they need to click on the cloud to be directed to the menu page.

Fix: use a more universal icon (for example, a hamburger menu option) or make it clear that the cloud is the icon that leads to the menu.

8. H5 Error prevention/ Severity 2/ Found by A, B and C

A user can accidentally click “save edit” or “submit” without intending to. There is currently no prompt or error message to ensure that they are not accidentally carrying out either of these unintended actions.

Fix: Present users with a confirmation option before they commit to the action.

9. H6 Recognition rather than recall/ Severity 3/ Found by A and B

When voting for ideas, there is an initial prompt that tells users what the different arrows mean. There is no guarantee that users will actually read this prompt or that they will remember what each arrow correlates to. Furthermore, the app depends on colors on the icon but this will not cater for color deficient people.

Fix: Have the meaning of each arrow right next to it. (For example, “dislike” on the left, “like” on the right etc.) or add a descriptive icon.

10. H4 Consistency and standards/ Severity 3/ Found by A and B

When sharing a brainstorm, some user profiles are green whereas the rest are grey. It is unclear what the difference between these two colors are.

Fix: Clarify the difference between users with green and grey profiles or put them in completely separate categories with titles that indicate the difference between them.

11. H10 Help and documentation/ Severity 4/ Found by A

There is no information that helps users understand what steps need to be carried out for particular tasks. This can lead to a lot of confusion when using the app for the first time.

Fix: create a “help” section with clear instructions and information that can help new users.

12. H4 Consistency and standards/ Severity 3/ Found by A

The difference between “share brainstorm” and “export to pdf & email” are unclear. When trying to share the brainstorm, it isn’t clear through what means the brainstorm will actually be shared. If it is through email, then this option might be pointless.

Fix: Clearly differentiate between the two options and if they are similar, combine them into one.

13. H3 User control and freedom / Severity 2 / Found by C

Once you’re inside a saved brainstorm such as “Fruits,” you have to click on the Home button to “Save and Exit.” Since there was a “Back” button on the previous page, I thought it was a little tricky finding the Exit. Also, I might want to just exit, not save and exit.

Fix: Use a back button to get to the previous page and an exit button to go to the home page.

14. H1 Visibility of status / Severity 2 / Found by A B and C

In “Vote on Ideas,” it’s not entirely clear what voting does, especially the “Maybe” function. The ranked ideas list suggests to me that the app is counting everyone’s votes, but I’m not sure how the “Maybe” functions into that. A different way of displaying the top ideas besides a list might be useful.

Fix: Add a screen or explanation for how votes are counted/factored in.

15. H1 Visibility of status / Severity 2 / Found by C

In the “Email Brainstorm PDF” page, although there’s a small icon to click on that shows what the PDF looks like, I’d like to have an idea of what it looks like without having to click on the icon. Since there’s no one way to represent a brainstorm, I really don’t know what the export will look like at all, so maybe show it on a screen before going to the email page?

Fix: Have a preview of the PDF.

16. H3 User control and freedom / Severity 3 / Found by C

When you’re in any brainstorm, the Thundr icon button in the top right goes to a menu for that specific brainstorm. I think this is a bit confusing and that there should also be a general home menu, where users can quickly go to another brainstorm.

Fix: Add a home menu button.

17. H8 Aesthetic and minimalist design / Severity 1 / Found by C

The red, green, and yellow buttons on an individual Idea page (like “Banana” on a post-it) are a bit jarring.

Fix: Change color and layout.

18. H4 Consistency & Standards / Severity 2 / Found by B

The app starts out having a white background with black and grey text on its homepage, sign up page and sign in page. However, during a brainstorm, the app seems to change and have a dark theme (a dark blue background with text in blue). This might lead to eye strain especially with consistent switching from the homepage to the brainstorm menu.

Fix: offer a consistent color theme throughout the application i.e. either choose a light or a dark theme. Even better, the app can incorporate settings to give user flexibility to choose what kind of theme they would like to use throughout the app.

19. H3 User Control & Freedom Severity 3 / Found by B

In the Sign Up page, there is an option for the user to switch to the Sign In Page in case they have an account. However, this is not the same in the Sign In Page where the user has no other option but to sign up. This is a bit restricting especially if the user does not have an account or wants to create a new account to begin with.

Fix: for consistency purposes and giving the user freedom to easily switch between the Sign Up and Sign In pages, add a Signup link in the Sign In page (the same way you did for the other page).

20. H3: User Control & Freedom / Severity 2, Found by A, B, C

Once a user begins “Creating New Brainstorm” setup, there is no way for the user to get out of the setup and go back to the homepage. The user has to either click “Back” multiple times or go all the way to the end and complete setting up the brainstorm.

Fix: a button to terminate the setup and send the user back to the homepage

21. H8 Aesthetic & Minimalist Design / Severity 1, Found by B

After setting up a new brainstorm and just before beginning the brainstorm, there is a list of all users who have checked in. The width of the different rows seem not to be equal since the top one is a bit huge. Also, it would be a cleaner setup if the list separators were removed or made to be more transparent to match the iOS design of lists.

Fix: make equal width rows and follow the iOS design of list separators to make it aesthetically pleasing.

22. H1 Visibility of System Status / Severity 2 / Found by B

Since we have a couple of pages while setting up a new brainstorm, it would be helpful to have a progress bar showing the user how much progress is remaining to completion. It is a bit tiring clicking through the pages without knowing the progress.

Fix: add a progress bar to show the remaining amount of work to complete the setup of a new brainstorm.

23. H6 Recognition not Recall / Severity 3 / Found by B

In both the “Ranked Ideas” page and “View Brainstorm” page, the sticky notes are color coded to represent each participant in the brainstorm. However, we depend on the user to recall what color corresponds to what user.

Fix: At the edge of every sticky note, add a small icon (such as a profile picture or name initials) to identify who the contributor is. This will eliminate the dependency on having the user recall the color and user pairing.

24. H1: Visibility of System Status / Severity 2 / Found by B

During voting, the user doesn’t know how many ideas he/she has voted for and how many are remaining. The user needs to have a progress bar to keep track of the voting and how many are remaining.

Fix: Add a progress bar or give a number e.g. (12/35) to show how many ideas the user has gone through and how many are remaining.

25. H4: Consistency & Standards / Severity 1 / Found by B

Throughout the app, we have standard and constant transitions when switching from one page to another. However, when trying to open a saved brainstorm e.g Fruits in this case, there is a flip transition which is not consistent with the other pages that the user might have encountered.

Fix: Remove the flip transition and have a consistent transition for all the pages in the application.

26. H1: Visibility of System Status / Severity 3 / Found by B

When recording a new idea, the user is expected to click to record. However, there is no visual indicator showing what is going on i.e. whether it is recording successfully or not hence, might leave the user confused.

Fix: Add a visual effect to show that there is some recording going on e.g. such as what Siri does when it is listening.

27. S2 Make system status clear/ Severity 3/ Found by A, B and C

When a VI interaction is carried out, there is no verbal confirmation that the task was carried out successfully. In particular, the “initiating brainstorm with group” task has no command that confirms to the user that the task is completed.

Fix: Use a short response to confirm when a task is completed.

28. S11 Keep feedback and prompts short/ Severity 2/ Found by A

The commands being used are very wordy and don’t sound like normal interactions. Having a voice interface that sounds machine-like instead of natural and human can steer users away from using voice.

Fix: Use short, effective and natural commands.

29. S12 Confirm input intelligently/ Severity 3/ Found by A and C

When a user asks for a certain task to be carried out, there is no confirmation prompt to ensure that the user is carrying out the task they intended. This is especially important in cases involving other people (for example, sending someone a brainstorm via email). Fix: Confirm irreversible or critical actions explicitly and even allow undo after confirmation.

30. S10 Use responses as a way to help users discover what is possible/ Severity 1/ Found by A

The unnatural nature of the VI interactions leaves little room for teaching users multiple ways of asking for the same task. This lack of personalization can lead to fewer people using voice.

Fix: Use conversational language and prompts to teach users multiple ways of asking for the same thing.

31. S9 Guide users through a conversation so they are not easily lost/ Severity 1/ Found by A

Some tasks require multiple stages (for example grouping similar ideas involves picking a category, choosing names etc). The current voice interface doesn’t naturally guide users through what they have to do and instead simply asks minimal questions.

Fix: Guide the user through the different steps and use natural sounding language to gear them to their desired outcome.

32. S6 Use spoken language characteristics/ Severity 1/ Found by A

There is no use of discourse markers, fillers or tone to make the VI sound more natural. Instead, as mentioned before, it sounds very machine like.

Fix: Leverage common human sounds and phrases (for example, “ah”, “ohh”, “got it”).

33. S10 Use responses as a way to help users discover what is possible/ Severity 1/ Found by A

The voice interface does not inquire details or go beyond simply asking what the user wants to do. This can be limiting. For example, when emailing a brainstorm, one question that could be asked is “would you like to email the brainstorm as a pdf?” This enables the users to know what their options are.

Fix: Use more responses to make sure the user is aware of all their choices.

34. S4 Start and stop conversations/ Severity 1/ Found by A

The voice interface doesn't properly end conversations when the user is done. This makes it seem as though the user needs to give a command to switch off the voice interface.

Fix: Use a short response to indicate the end of a conversation (for example, “bye”).

35. S17: Allow users to exit from errors or a mistaken conversation/ Severity 1/ Found by B

According to SUI Heuristic, when a user is recording an idea, there should be a way of them to terminate from recording in case they make an error without going through the whole process and delete the sticky note.

36. H10: Help & Documentation/ Severity 1/ Found by B

Give hints to the user that they can edit whatever text is on the sticky note by offering relevant prompts and tooltips. At the moment it is not clear that the user can draw and edit on the sticky note.

3. Summary of Violations

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
H1: Visibility of Status			4	2		6
H2: Match Sys & World			2			2
H3: User Control			2	2		4
H4: Consistency		3	1	2		6
H5: Error Prevention			1	1		2
H6: Recognition not Recall				2		2
H7: Efficiency of Use						
H8: Minimalist Design		2	1			3
H9: Help Users with Errors						
H10: Documentation		1			1	2
Total Violations by Severity		6	11	9	1	27
<i>Note: check your answer for the green box by making sure the sum of the last column is equal to the sum of the last row (not including the green box)</i>						

Speech HE

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
S1: Give agent persona through language, sounds and other styles						
S2: Make system status clear				1		1
S6: Use spoken language characteristics		1				1
S7: Make conversation a back and forth						
S9: Guide users through a conversation so they are not easily lost		1				1
S11: Keep feedback and prompts short			1			1
S12: Confirm input intelligently				1		1
S14: Use multimodal feedback when available						
S16: Use normal language in communicating errors						
S17: Allow users to exit from errors or a mistaken conversation		1				1
Total Violations by Severity		3	1	2		6
<i>Note: check your answer for the green box by making sure the sum of the last column is equal to the sum of the last row (not including the green box)</i>						

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D	Evaluator E
sev. 0		0	-		
sev. 1	7	5	1		
sev. 2	7	7	5		
sev. 3	7	8	4		
sev. 4	1	0	0		
total (sev. 3 & 4)	8	8	4		
total (all severity levels)	22	20	10		

*Note that the bottom rows are *not* calculated by adding the numbers above it.

5. Summary Recommendations

The main issues as far as user interface for this app were clustered around a lack of consistency throughout the app as well as a very unique design that didn't necessarily match what users were used to from using other apps and technologies. Some intuitive features, such as the ability to color code brainstorm were absent and as a result, this limits how many options the user has. I would suggest finding more universally accepted symbols and buttons to make navigating through the app easier as well as making sure that there is consistency throughout the app. One place where consistency is particularly important is in titles and phrases (for example, "local participants" vs "participants"). We also found that the lack of progress bars, a Home menu, and back and exit buttons made navigation in the app confusing and sometimes frustrating.

The main issues as far as the voice interface was concerned were clustered around machine-like jargon and a lack of more human like sounds and interactions. Furthermore, the voice component did the bare minimum as opposed to truly exposing the user to a variety of responses that can result in them understanding how to better use the app. I would suggest using short yet effective commands to really grab the user's attention and help the conversation feel more natural as well as finding ways to make the voice interface more interactive. Lastly, I would suggest personalizing the voice interface to each user to create a more special and unique experience.

Severity Ratings

- 0 - don't agree that this is a usability problem
- 1 - cosmetic problem
- 2 - minor usability problem
- 3 - major usability problem; important to fix
- 4 - usability catastrophe; imperative to fix

Heuristics

H1: Visibility of System Status

- Keep users informed about what is going on

H2: Match Between System & Real World

- Speak the users' language
- Follow real world conventions

H3: User Control & Freedom

- "Exits" for mistaken choices, undo, redo
- Don't force down fixed paths

H4: Consistency & Standards

H5: Error Prevention

H6: Recognition Rather Than Recall

- Make objects, actions, options, & directions visible or easily retrievable

H7: Flexibility & Efficiency of Use

- Accelerators for experts (e.g., gestures, kb shortcuts)
- Allow users to tailor frequent actions (e.g., macros)

H8: Aesthetic & Minimalist Design

- No irrelevant information in dialogues

H9: Help Users Recognize, Diagnose, & Recover from Errors

- Error messages in plain language
- Precisely indicate the problem
- Constructively suggest a solution

H10: Help & Documentation

- Easy to search
- Focused on the user's task
- List concrete steps to carry out
- Not too large

CS 147 Autumn 2018: Assignment 9 (Heuristic Evaluation Group Template)

Instructor: James Landay

Voice Heuristics

S1: Give agent persona through language, sounds and other styles

- Create an illusion by being consistent.
- Make sure to do this without being distracting.

S2: Make system status clear

- Use verbal, sound, or multimodal feedback.
- Communicate delays immediately and give feedback while “busy”.

S6: Use spoken language characteristics

- Use discourse markers as part of confirmations and prompts to make conversation more natural (e.g., “next”, “and”, “so”, “actually”, “sure”, “ok”, “got it”).
- Leverage prosody, including rhythm, tone, pauses, emphasis, discourse fillers (e.g., “uh”, “uhm”, “hmm”, “ah”, “like”).

S7: Make conversation a back and forth

- Don’t always prompt for everything all at once.
- Take turns and don’t let instructions get in the way.
- Give users a chance before jumping in.

S9: Guide users through a conversation so they are not easily lost

- Users prefer agents that have conversational style similar to their own — match it.
- Guide subtly using natural affordances rather than explicitly.
User: “Check my email.”
Agent: “You have two new emails. The first email is ...”
Agent: “Repeat, reply or go to the next one?”
- Guide user towards desired response and cue the user what type of response is desired.
User: “Trivia Game”
Agent: “Choose from the following: capitals of the world, sports stars, or inventors”
- Allow data to be naturally given in response to single or multiple prompts.
User: “Get a reservation at Ding Tai Fang for tonight.”
Agent: “For what time at Ding Tai Fang?”
User: “7PM.”
Agent: “How many people tonight at 7?”
User: “Three.”
Agent: “Ok, I made a reservation for John Smith for 3 people at Ding Tai Fang tonight at 7.”

S11: Keep feedback and prompts short

- Clear but succinct.
- Keep lists of items short (3-5 max.), and let people ask if they want to hear more.
- Let experienced users have faster and shorter prompts.

S12: Confirm input intelligently

- Confirm input implicitly through results or next prompt.
User: "What time is the Lakers game on tonight?"
Agent: "The Lakers game is at 7:30PM tonight on NBC."
- Confirm irreversible or critical actions explicitly and even allow undo after confirmation.
 - Actions involving other people (e.g., sending a text message or email)
 - Actions that can be seen publicly (e.g., posting on public social media)
 - Actions involving financial transactions (e.g., transferring funds or buying something)

S14: Use multimodal feedback when available

- Lights
- Graphic displays
- Sounds

S16: Use normal language in communicating errors

- Vary (error) prompt wording on re-prompts.
- Don't blame the user for errors (don't say: "that was not a valid response").
- Don't show mock concern (don't say: "I'm sorry. I did not understand the response I heard.").

S17: Allow users to exit from errors or a mistaken conversation

- Use a special escape word globally (e.g., "Stop").
User: "What's the weather in San Francisco?"
Agent: "Movies playing today in San Francisco include Titanic, The Godfather..."
User: "Stop."
- Use non-speech methods when speech fails (e.g., push a physical button).