

Heuristic Evaluation of Speak↑



Problem

We were assigned to complete a heuristic analysis for Speak↑, which is an app that aims to help create a better lecturing environment by providing lecturers with real-time student data. It is their hope that this data will help the students voice their confusion, resulting in lecturers who are better able to address the needs of their students.

Violations Found

Student Tasks

Task 1: Sign up for a class

1. [H2-2. Match between system and the real world] [Severity 1] [Found by: D]

Adding a class is an action performed a few times at the beginning of each school term. It might be better if this action is not in the main menu. The action might be put in the settings menu or the app can automatically prompt the user to add classes at the beginning of each term.

2. [H2-3. User control and freedom] [Severity 3] [Found by: B, C, D]

There is no option to remove a class once it is added. Add a “Remove” button.

3. [H2-8. Aesthetic and minimalist design] [Severity 2] [Found by: D]

When adding a class, the plus sign is a bit redundant. Tapping on the search result would be enough to confirm the addition of the class. Remove plus sign.

4. [H2-6 Recognition rather than recall] [Severity 2] [Found by: B]

When the user is attempting to add a new class, the interface for the add class page displays a plus sign next to the class information. It is unclear (except through trial and error) whether this signifies the action of adding the specified class to your class list or the action of adding another class on top of the currently specified class (ie. adding multiple classes at once). The

interface should make this much more clear, perhaps by changing the plus icon to a button that says “Add this class.” This would give the add class page much greater clarity in its design.

5. [H2-10 Help and Documentation] [Severity 2] [Found by: A]

It is unclear whether searching for “Introduction to Human-Computer Interaction” would yield the same result as “CS 147.” Perhaps this can be solved by using some ghost text in the search bar or a sentence above or below it explaining that class numbers or class titles are (or are not) valid searches.

6. [H2-4 Consistency and Standards] [Severity 1] [Found by: A]

When you click on “Add Class,” the search is center aligned rather than left aligned (where the magnifying glass is). To me, this made it appear as if CS147 wasn’t a search but rather the title of the page. To fix this, I recommend left aligning the search string as is standard on other platforms.

7. [H2-4 Consistency and Standards] [Severity 2] [Found by: A]

The little “Add Class” plus sign only works if you tap certain parts of the plus sign button; for example, the left side of the button is completely nonfunctional. This perhaps was an issue with proto.io, but just in case, the standard would be to have the entire button be tappable.

8. [H2-1 Visibility of system status] [Severity 3] [Found by: B]

After the user clicks the plus button on the add class page, they are taken back to the home screen, which now contains the newly added class. Although the user should be able to verify that the class was successfully added by looking at the list of courses and checking for presence of the newly added class, there should also be some dialogue that lets the user know that they successfully added the class. The system should implement brief feedback message on the home screen that tells the user “CS 147 has been successfully added to your class list.” The interface should make it very obvious that the user has successfully added a class, either with dialogue and feedback messages or with significantly more noticeable changes to the page.

9. [H2-3 User control and freedom] [Severity 3] [Found by: B]

After the student clicks add a class, they are taken to a page that allows them to input the class information. However, there is nothing that lets the user know where they are in the app, such as an Add Class header at the top of the app. Although there is only one step between the homepage and the add class page, a header/title would still help to ensure that the user is always clear on exactly where they are in the app. This is especially important given that the homepage and the add class page are similar in layout and design, meaning that the user could possibly experience confusion navigating between the two pages.

10. [H2-6. Recognition rather than recall] [Severity 3] [Found by: D]

Selecting a class in progress in the home screen is confusing. Perhaps adding instructions “Select current lecture” on top might be helpful.

11. [H2-2. Match between system and the real world] [Severity 3] [Found by: D]

The user does not need to select the current lecture. The app can get the schedule of the class and automatically display the options for the current lecture.

Task 2: Respond to a “clicker” question posted by instructor

12. [H2-5. Error prevention] [Severity 4] [Found by: B, D]

It is easy to not notice the “Answer” section of the menu when the instructor has asked a question. Make “Answer” section more noticeable when active or alert the user every time a question is asked.

13. [H2-2. Match between system and the real world] [Severity 1] [Found by: D]

The screen confirming that an answer has been submitted is redundant. Since the general expectation is that a submission is successful, it might make more sense to alert the user when there was a problem with submission. Or if a successful submission status should be confirmed, haptic feedback or an alert box imposed on the questions screen might work better.

14. [H2-3. User control and freedom] [Severity 3] [Found by: D]

It is impossible to skip a question. Sometimes a wrong answer is penalized and not being able to skip a question can harm the user’s grade. Add a “Skip” button.

15. [H2-1 Visibility of system status] [Severity 1] [Found by: D]

After the user selects a class on the homepage, the user remains on the same page. The selected class is highlighted with a blue outline and the menu bar options become visible. Since the user is not taken to a different page and since the changes to the interface are somewhat subtle, it may not be apparent to users that they have properly selected a course. The interface should make it abundantly clear that the user has selected a course, either with dialogue or more noticeable changes to the page, or by taking the user to another screen entirely.

16. [H2-3. User control and freedom] [Severity 3] [Found by: B, D]

The student cannot re-answer a question. The user might accidentally click the wrong button or decide to change her answer. The app should allow multiple submissions while there is still time left to answer a question. Keep current question active until time is up.

17. [H2-3. User control and freedom] [Severity 1] [Found by: D]

Cannot look through previous questions that might contain hints to current one. Keep a list with the questions from the current session.

18. [H2-4 Consistency and Standards] [Severity 1] [Found by: A]

For the “Respond to a question” task, it is confusing that there is no “Submit” button where the multiple choice options are displayed. Initially, when doing this task, I thought that clicking on an answer would automatically submit it, which made me afraid to click on anything without

thinking about it a lot first. Then, once I did click, a submit button appeared. Perhaps this could be avoided by following the standard form submission process of providing either a grayed out “Submit” button or not allowing the button to be clickable until after selecting an answer.

Task 3: Provide feedback on lecture

19. [H2-8. Aesthetic and minimalist design] [Severity 1] [Found by: D]

Text under “Pace” options too hard to read. Increase font.

20. [H2-4 Consistency and Standards] [Severity 1] [Found by: A]

For the “Provide feedback on a lecture” task, while clarity is represented by a thumbs up or a thumbs down, too fast and too slow are written in plain text. Ideally, this should be kept consistent by either writing “clear” and “unclear” in text or representing “slow” and “fast” with icons (maybe a turtle and a hare as we’ve seen in class?).

21. [H2-4 Consistency and Standards] [Severity 1] [Found by: A]

For the “Provide feedback on a lecture” task, there is an indicator and a bar to show how clear something is/how fast or slow the lecturer is going. Again, this may just be a proto.io problem, but I can only move the indicator if I click/tap on a tiny piece of the indicator line. The standard would be to allow that entire region of the box to be clickable and the indicator to slide to the correct spot based on where I clicked in the box. Otherwise, this is an awfully tiny target to hit on a small phone screen. So, making more of the region click/tap responsive would be a good fix to this problem.

22. [H2-5] Error prevention [Severity 1] [Found by: C]

In the student UI, after there is a confirmation page after submitting feedback, submitting an answer, and submitting a new question, there is an option reading “Back.” We can’t tell exactly what this button would do in this specific UI, but a typical back button goes to the previous page and undoes the action. Since we were just redirected to a new confirmation page, this would theoretically un-submit whatever you submitted, which can cause errors especially when other people are looking at a shared database. Remove the “Back” option on the top right of the confirmation pages and instead make them use the “Go back to [page name]” option.

23. [H2-10] Help and documentation [Severity 2] [Found by: C]

On the student’s feedback page, there should be a little more explanation of what is going on so the student is aware of the information that he/she is sending to the professor. There should be a little blurb on the top of the page, including something saying that the data is constantly being sent to the professor. This would help prevent a student from just forgetting to update the slider for a long time during lecture.

24. [H2-4 Consistency and standards] [Severity 1] [Found by: B]

When the user lands on the Feedback page, both the Clarity and Pace sliders are automatically set to about two-thirds of the way up on the scale. For consistency, both of the sliders should be default set at the middle. This also helps to emphasize that the middle represents a neutral point for both sliding scales. If the user sees that a slider is default set on one side of the scale, this may effect how they perceive the system to work and how they perceive that they should respond on the sliders. Setting the sliders to the same default position will thus maximize both consistency and clarity.

25. [H2-2] Match between system and the real world [Severity 3] [Found by: B]

The feedback icon for the student is the same as that of the teacher (ie. the graph icon). Although it makes sense to have this as the icon for teachers (since the feedback page displays line graphs similar to the icon), this is a much less intuitive icon for the student feedback page. The sliders and text input on the feedback page do not correspond the line graph icon, which should be changed in favor of a symbol more directly related to the content of the page.

Lecturer Tasks

Task 1: View feedback on lecture

26. [H2-6] Recognition rather than recall [Severity 1] [Found by: D]

Since the “Add Lecture” button is so visible, it appears that the whole “Home” screen is dedicated to creating new lectures. Thus the functionality of selecting the current lecture is not intuitively clear. Add instructions “Select current lecture” on top.

27. [H2-3] User control and freedom [Severity 3] [Found by: A, C, D]

No option to remove or alter lecture. Add “Remove” and “Alter” options.

28. [H2-8] Aesthetic and Minimalist Design [Severity 2] [Found by: B]

For the teacher feedback task, I was unable to read what the feedback chart said until I had zoomed in by 150%. I know this was mentioned in the readme, but I was thinking that perhaps the pace and clarity chart should receive its own page so it can be displayed bigger (or maybe it could even be displayed horizontally?). Alternatively, perhaps there is a better way to display this same information (for instance-- do teachers necessarily need to know all the times everything was going fine? Perhaps just highlighting the areas of improvement could save space). Maybe a graph isn't necessary at all.

29. [H2-1 Visibility of system status] [Severity 2] [Found by: B, D]

After the user selects a class on the Lectures page, the user remains on the same page. The selected lecture is highlighted with a blue outline and the menu bar options become visible.

Since the user is not taken to a different page and since the changes to the interface are somewhat subtle, it may not be apparent to users that they have properly selected a lecture. The interface should make it very obvious that the user has selected a lecture, either with dialogue or more noticeable changes to the page, or by taking the user to another screen entirely. The user may be confused about what they are supposed to do after selecting a lecture, or confused about what options are available to them from that point in the interface. Perhaps taking the user to a summary of the lecture (feedback, questions, answers) might be useful. Or if the lecture has not already happened, the app might prompt the user to create questions.

30. [H2-8] Aesthetic and minimalist design [Severity: 1] [Found by: C]

For the lecturer UI, the “Lectures” page should show a more compact screen showing all of the lectures. Right now it shows a screen of all the lectures from Lecture 1 until the most recent lecture, but later on in the quarter there will be many more lectures and the user would always have to scroll a lot to find the most recent lecture. Instead, the designers could organize the lectures by week to reduce the amount of material that the user would have to sort through on the page.

31. [H2-10 Help and documentation] [Severity: 2] [Found by: B]

The graph on the feedback page displays complex information and the user may be confused about what the graph is displaying or how these calculations were made. The interface lacks “help” or “more info” feature on the Feedback page that could provide the user with a help window displaying information about the graph features.

Task 2: Read and answer student questions

32. [H2-6] Recognition rather than recall [Severity 2] [Found by: D]

“Resolve” does not allow the user to type a response. Allow the user to type the answer of a question.

33. [H2-3] User control and freedom [Severity 3] [Found by: B, C, D]

Cannot undo a single “Resolve” or “Resolve All”. It is easy to accidentally press a button and currently there is no way to recover from such a mistake. Add “Undo”.

34. [H2-5] Error prevention [Severity 3] [Found by: B, C]

As mentioned above, mistakenly selecting Resolve All on the Answer page is a critical error that would be a significant mishap for the user during lecture. To prevent the user from accidentally removing all feedback from the answer page, the system should implement some dialogue along the lines of: “Are you sure you want to resolve all current feedback?”, after which the user can select either yes or no. This would be an effective way to prevent the user from making the critical mistake of deleting all feedback by accident.

35. [H2-6] Recognition rather than recall [Severity 2] [Found by: B, D]

Although the readme and report did not make this completely clear, it seems that the most popular questions/comments appear at the top of the Answer page and that the popularity of a question/comment affects its position within this list of top questions. As was the case with the list of student feedback on the Feedback interface, there is nothing to signify this hierarchy to the user. Again, it seems that the interface should make use of icons or color gradation to make it obvious that the most popular/important questions are at the top. Without these cues, the user may have difficulty making appropriate choices when it comes to the task of reading and answering student questions.

Task 3: Create and ask a “clicker” question

36. [H2-8] Aesthetic and minimalist design [Severity 1] [Found by: D]

There is no need to display the empty pie chart before publishing a question. Remove empty pie chart from Ask screen.

37. [H2-4] Consistency and standards [Severity 3] [Found by: B]

After the user inputs her new clicker question, she is taken to a page where she can view her question and then publish it so that the students can begin responding. After clicking Publish, a button labeled Close becomes active. It is not immediately clear if the Close button signifies the action of closing the current question screen or the action of closing the active question so that students can no longer respond. The interface should make it obvious what this button is referring to, either by adding additional text to the button (ie. Close Question Session), or by adding a clarifying icon to the button.

38. [H2-8] Aesthetic and Minimalist Design [Severity 2] [Found by: A]

After submitting a clicker question, a tiny pie chart pops up in the bottom left hand corner of the screen. This pie chart is far too small to be readable. Given how important clicker question results are, I would recommend creating a separate screen to display the pie chart (or the more common way to display this data would often be in a bar graph) and perhaps including a “Results” or “Statistics” button to get to said screen. This way, information regarding question results can more clearly be displayed.

39. [H2-3] User control and freedom [Severity 3] [Found by: D]

No option to delete a question. Add a “Remove” option.

40. [H2-8] Aesthetic and minimalist design [Severity 3] [Found by: D]

Once a question is published, the lecturer is interested in the students’ answers. Currently the question and answers unnecessary occupy the majority of the screen. Display only results once a question is submitted.

41. [H2-2] Match between system and the real world [Severity 2] [Found by: D]

Clicker questions are almost always timed. Add timing feature.

42. [H2-1] Visibility of system status [Severity 1] [Found by: C]

When the lecturer publishes a new question, we should be updated that the action was successful. We should be forwarded to a confirmation page or back to the original “Ask” page and show the new question right away. This way, we will be informed of exactly what is going on at an appropriate time.

43. [H2-4] Consistency and standards [Severity 3] [Found by: B]

After the user inputs a new clicker question, she arrives at another Ask page where she can view and publish here question. This ask page contains a Back button, which the user likely expects would take her to the previous screen where she input the question information. However this back button takes the user back to the list of clicker questions. This interface is likely to confuse the user, given that for all other screens in the app, the Back button takes you to the immediately preceding screen. It should be abundantly clear where the Back button is taking the user, and the interface should be changed either to make the Back button match the behavior of the rest of the app, or replace the text of the button to something that makes it more clear that the user will be taken to the list of questions. Either of these changes will add greater consistency in the design and prevent the user from becoming confused or making mistakes.

44. [H2-1] Visibility of system status [Severity 1] [Found by: D]

When user arrives at page where she can publish her recently added question, there is no difference in heading or title between the previous page where she input the question information. The user may be confused about whether or not she can edit the questions from this page. Especially given that the `Question` and `Choices` are formatted in the style of text input fields, as they were on the previous screen, it seems possible that the user may not understand the difference between the features of the publish screen and the features of the question input screen. Reformatting the styling of the question and answer choices so that they do not resembled the text input fields of the previous screen would help address this issue.

General:

45. [H2-8. Aesthetic and minimalist design] [Severity 1] [Found by: D]

Redundancy at confirmation screens: Back button and link under confirmation text both lead back to the previous page. Either remove one of the back-leading buttons or modify the way confirmations are presented.

46. [H2-8. Aesthetic and minimalist design] [Severity 1] [Found by: A]

With age, the ability to perceive both tonal and color contrast diminishes. Because of this some of your users might encounter difficulties navigating the bar menu at the bottom. Increase the contrast between the background and the icons.

Bar menu at the bottom might be hard to navigate by older people

47. [H2-8 Aesthetic and Minimalist Design] [Severity 1] [Found by: A]

The bottom navigation bar is too small to read the text under each icon clearly. On many

screens, there is extra space at the bottom, so I would encourage making the bottom navigation bar a little larger and making the text larger and thicker.

48. [H2-1 Visibility of System Status] [Severity 3] [Found by: A, C]

With the current navigation, when I click into CS147, I can navigate to different tasks with the lower navigation bar. This is problematic because when I go to these different screens, there is no longer any indication that I am in the CS147 class options. What if I'm in the ME 80 feedback page but believe I am looking at the CS147 feedback page? This also appears to be an issue for the teacher's UI. Perhaps this problem could be solved by giving better visibility indicating where a user is in the app. Perhaps the navigation system (which is new, and a good step as it seemed based on feedback from low-fi interviews) still needs some tweaking, or maybe there should be more labels on a page reminding users that they are looking at, for instance, the CS147 Feedback page.

49. [H2-8 Aesthetic and Minimalist Design] [Severity 1] [Found by: A]

There are a lot of different font types and sizes, and I find it rather distracting when too many different looking pieces of text are near one another. I suggest choosing a font and going with thicker versions of that same font instead of switching fonts entirely for different pieces of information.

Summary of Violations

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
[H2-1: Visibility of Status]	0	3	1	2	0	6
[H2-2: Match Sys & World]	0	2	1	2	0	5
[H2-3: User Control]	0	1	0	7	0	8
[H2-4: Consistency]	0	5	1	2	0	8
[H2-5: Error Prevention]	0	1	0	1	1	3
[H2-6: Recognition not Recall]	0	1	3	1	0	5
[H2-7: Efficiency of Use]	0	0	0	0	0	0
[H2-8: Minimalist Design]	0	7	3	1	0	11
[H2-9: Help Users with Errors]	0	0	0	0	0	0
[H2-10: Documentation]	0	0	3	0	0	3
Total Violations by Severity	0	20	12	16	1	49

Evaluation Statistics

severity	evaluator A	evaluator B	evaluator C	evaluator D
level 0	0%	0%	0%	0%
level 1	35%	5%	15%	45%
level 2	25%	42%	8%	42%
level 3	13%	56%	31%	56%
level 4	0	100%	0	100%
total (levels 3 & 4)	12%	59%	30%	59%
total (all levels)	25%	33%	18%	49%

evaluator #	# problems found	# unique
A	12	10 unique (5, 6, 7, 18, 20, 21, 38, 46, 47, 49) 1 shared with D (12) -> 11 unique
B	16	10 unique (4, 8, 9, 24, 25, 28, 31, 34, 37, 43) 6 shared with D & A (2, 33, 12, 16, 29, 35), -> 10 unique
C	8	4 unique (22, 23, 30, 42) 4 shared with A, B, D (27, 48, 2, 33) -> 4 unique
D	24	24 (most found)

Graph

