

Heuristic Evaluation of Annote

1. Problem

Annote is a mobile application for the iPad and aims to digitize collaborative annotation, allowing students to offer their thoughts on readings and educators to track student engagements.

2. Violations Found

1. **H2-1: Visibility and Status / Severity 0 / Found by: B, C**

In the reading screen, the stack of notes on the right side only appears when users tap on that side of the screen. This is confusing and may not be discoverable to users who do not actively interact with the reading screen. All annotations and note icons should appear when the top and bottom toolbar appears so users can have access to all the information on the page with only a single click. **This violation was ranked with severity rating 0 because it was specific to the medium-fi prototype.*

2. **H2-1: Visibility and Status / Severity 3 / Found by: A, B, D**

There is no indication of whether a comment or a reaction was successfully published. Without instant feedback, users may not realize if there was an error posting a reaction/comment (i.e. due to poor network connections/other system failure). Should find a way to focus user's attention to the increased number of comments to the right of the text.

3. **H2-1: Visibility and Status / Severity 4 / Found by: A, D**

There are five different tab controls (All, Voice Memos, Comments, Reactions, and Highlighted Text) at the top of the Reactions list, but it is unclear which tab is currently selected. Selected tab controls should be highlighted, bolded, or be in a different color to easily indicate that users are currently on that specific tab.

4. **H2-1: Visibility of System Status / Severity 3 / Found by: B, C**

There is no specificity what part of a line other users have reacted to in the action flow (i.e.: Jen made a highlight: was it because of a specific word or phrase?) This violates the heuristic because the user may be confused without specific information on what part of the text is getting which reactions. I would suggest adding the option of an explanation for icon or highlight reactions.

- 5. H2-1: Visibility of System Status / Severity 3 / Found by: A, B**

There is no indication as to whether a line has been commented on already. For example, when I published a comment, nothing signaled to me that that line had been tackled already. This violates the heuristic because the user may lose track of whether they have already addressed and annotated a part of the literature. I would suggest that the line should be highlighted or underlined as indication that it has already been interacted with.
- 6. H2-1: Visibility and Status / Severity 3 / Found by: B, D**

The group info screen should have higher color contrast text for users with low vision. The light grey text on white or grey background is very difficult to read. Should use darker text color for better contrast.
- 7. H2-1: Visibility of System Status / Severity 2 / Found by: B**

There is no indication of what “smiley” a user has currently chosen for a line. This violates the heuristic because the user should be able to see and easily review what reactions they have made to the line(s) of the text. I would suggest having a light highlight over the smiley currently selected.
- 8. H2-1: Visibility and Status / Severity 4 / Found by: B, D**

Inside a group (in the reading list screen) there is no indication whether the user is an admin or not. This status will probably affect a user’s ability to add files into the group. Should have a section to indicate the user’s status in the group.
- 9. H2-2: Match Sys & World / Severity 2 / Found by: D**

Currently, user annotations are called “comments.” However this is a confusing word choice because users can also reply (or comment) on other user’s comments. Should not call annotations “comments” but rather “annotations,” “notes,” or “thoughts” instead.
- 10. H2-2: Match Sys & World / Severity 2 / Found by: A**

It’s difficult to differentiate between class readings and study groups, because the name might be misleading. Is there a way to address this? Maybe allow for filters, or mark with different colors which one is a group and which one is a class.
- 11. H2-2: Match Sys & World / Severity 3 / Found by C**

On the Group Info screen, readings or stats come after members. Since I assume classes are relatively static but the readings or stats are not, the latter should take a priority and first read of the screen since those would be things most checked on.
- 12. H2-2: Match Sys & World / Severity 2 / Found by: A, C**

It’d be nice to see reactions as they appear on the document and not necessarily a timeline, as that’s usually how people view annotations. Include a view for annotations on the page itself.
- 13. H2-3: User Control & Freedom / Severity 1 / Found by: A**

Note: Severity 1 because this was not yet implemented in the mid-fi prototype

What happens when members accidentally change admin status for themselves, or another person, and don't want to? Include checking to verify if the user is making changes that they might not necessarily want to make.

14. H2-3: User Control & Freedom / Severity 4 / Found by A, C, D

There is no way for users to search a group or leave a group they are already in. Users need control of their group activity within the app. Should include an option in the group info screen to leave that group if they wish to.

15. H2-4: Consistency and Standards / Severity 1 / Found by: A

Would love to have the same wording for different group names. Instead of just names of classes versus "Study Group", perhaps there can be titles such as 'Class: History of South Africa' and 'Study Group: History of South Africa.'

16. H2-4: Consistency and Standards / Severity 1 / Found by: B, D

The Add New Group and Add New Reading screens have back arrows at the top left corner to indicate a "close" action. However, all other close action icons in the app have been a "X" on the top right corner. There is a difference between going back and closing. Should stay consistent with the "X" in the top right corner to clarify to the user that they are closing the window to make a new group or to upload a new file.

17. H2-4: Consistency and standards / Severity 3 / Found by C

For the Group Info screen, the Stats screen shows how the most read is "I, too" and the most active member is Jenn, leading me to believe Jenn was the active member on that reading. However it is actually Paul is the largest contributor to that reading. Stats should be grouped in which related records are put physically together on the screen.

18. H2-4: Consistency and Standards / Severity 2 / Found by: B, C

"Add Reading" and "Add New Group" and "Group Info" pages are inconsistent with the rest of the interface. These should be titles written on the screen, not replacements for the logo. This violates the heuristic because it leads to misalignment of interface buttons as well as general confusion because of the disparate layout between these pages and the rest of the implementation. I would suggest having the icon in its normal placement and instead having the title within the body of the screen.

19. H2-4: Consistency and Standards / Severity 1 / Found by: D

Every list in the app should be consistent. The groups and reading list are a list of buttons, while the statistics in the group info page are in a table row. Should have all lists in a table grid format. This also allows for easy scrolling in groups and reading list once users add multiple entries.

20. H2-4: Consistency and Standards / Severity 1 / Found by: B, D

The group info page does not have the menu icon on the top right corner. To stay consistent with the rest of the UI, there should also be a menu icon.

21. H2-4: Consistency and Standards / Severity 1 / Found by: D

The label texts on the left hand side alternate colors depending on the background color.

Since the background color changes to easily identify table rows, there is no need to also alter text color. All the text labels should be in a single color.

22. H2-4: Consistency and Standards / Severity 3 / Found by: B

There is ambiguity between highlight and comment icons. The “T” for highlighting can easily be mistaken for typing a comment. This violates the heuristic because it may confuse the user as to the difference in functionality between the two icons. I would suggest using an image of a highlighter instead of the “T” for the highlight option.

23. H2-4: Consistency and standards / Severity 3 / Found by: B, C

There's no button to add new members into a group on the group info page. It'd be maybe more intuitive to have ways to delete (permanently) and add members on that page rather than only when you first create a group.

24. H2-5: Error Prevention / Severity 2/ Found by: A

What happens when a group or a text document has the same name as an already existing group/document? Add an option to overwrite, or prevent this from happening altogether (which can be obnoxious, since names can be similar).

25. H2-5: Error Prevention / Severity 3 / Found by: B, D

The administrator toggle switch in the group info page is solely indicated by green and red. This is bad for color deficient users. Should have alternate symbols like a checkbox to indicate administrators.

26. H2-5: Error Prevention / Severity 4 / Found by: B, C, D

There is no way to delete/undo an annotation. Should have a separate tab under the Reactions list called “My Reactions” where users can manage their comments and reactions.

27. H2-5: Error Prevention / Severity 2 / Found by B

The upload file button is active even when there is no file selected. This violates the heuristic because an error may arise from trying to upload an empty field or file. I would suggest deactivating the button if the file is invalid or not selected.

28. H2-5: Error Prevention / Severity 4 / Found by: B

Users seem to be able to access administrator assignment privileges without necessarily being administrators themselves through the “Group Info” button. This violates the heuristic because arbitrary assignment makes the whole principle of administrators redundant and can also lead to user errors since people will be able to edit files without owning the group. I would suggest restricting access (both editing and viewing) to these options if the user is not an administrator himself.

29. H2-6: Recognition, not Recall / Severity 3 / Found by D

In the reading screen, not clear on how to actually make an annotation. Should have explicit instructions on how to use the annotation interface.

30. H2-6: Recognition, not Recall / Severity 2 / Found by A

Instead of guessing which reading is which (because that can be difficult sometimes to remember which one you just highlighted, or which reading contained which passage), it'd be great to have a preview, either of the page or the cover of the document to read.

31. H2-7: Flexibility & Efficiency of Use / Severity 4 / Found by B, C, D

In the Reactions screen, there is no way to read a full comment without clicking the reply button. Users should be able to read full comments before choosing to like or reply to them. Should either make the reaction tables larger to fit an entire comment, or have users be able to tap on a comment to expand the table cell to view the entire comment.

32. H2-7: Flexibility & Efficiency of Use / Severity 4 / Found by C, D

There is no way to view the replies to comments in the Reactions screen. Each comment should indicate how many replies it has received and there should be a way to show all the replies to a specific comment. Similar to Violation #3, users should be able to click on a comment to "expand" the table cell where they can have access to the entire comment as well as the ability to scroll through all the replies.

33. H2-7: Flexibility and Efficiency of Use / Severity 4 / Found by: B

There is no way to filter reactions to a single user's (i.e.: or even the current user.) This violates the heuristic because it impairs the ease of usage since if a user wants to see his or her own reactions for example, he or she would have to scroll through the entire reaction action flow. I would suggest adding a user search function for reactions, or a "my reactions" tab.

34. H2-7: Flexibility and Efficiency of Use / Severity 1 / Found by: A

There is currently no way for users to find other readings and classes on their own, without knowing that certain classes exist. Would love to see recommendations for classes and readings in the future!

35. H2-7: Flexibility and Efficiency of Use / Severity 3 / Found by: A

When adding group members, there's no way to change their admin permissions (or set them in the first place). Include an option to be able to have their admin permissions be set.

36. H2-7: Flexibility and Efficiency of Use / Severity 3 / Found by: A

There is currently no way for users to automatically join groups or classes without brute-force writing down the name word for word. It would be ideal to provide a way for users to find class names more efficiently.

37. H2-7: Flexibility and Efficiency of Use / Severity 1 / Found by: A

Not sure how efficient it is to click through the highlight bar to get to the stickers, since stickers are supposed to be used for fast reactions. Maybe add a reaction to this based on the time the option is held, or add another task flow to get to the other reactions

38. H2-7: Flexibility and Efficiency of Use / Severity 3 / Found by: C

The stats of each reading can only be accessed through a different flow than that of viewing the actual reading. I want to be able to check the stats freely while I'm reading the text without having to backtrack through several screens. The reading screen should be able to directly access the stats screen.

39. H2-8: Aesthetic & Minimalist Design / Severity 2 / Found by D

In the group screen, the "group info" button should be separated from the list of readings. users may be confused and accidentally click on the "group info" when they are looking for a specific reading. Also, because the list of readings are the most important information on this page, the group info button should not take focus away from the list.

40. H2-8: Aesthetic & Minimalist Design / Severity 1 / Found by: B, D

In the reading screen, the comments icon on the right is difficult to match to a specific line in the page due to a big gap of white space. This may be a problem if there are many comment icons in the page and users cannot quickly associate comment icons to their matching lines. Should have a dotted line connecting annotated line of text to the appropriate comment icon or have the comment icon be much closer to the line of text.

41. H2-8: Aesthetic & Minimalist Design / Severity 1 / Found by: B, D

The "See More" button in the group member list is unnecessary and clutters up space in the Members box. Users should be able to simply scroll through the members list.

42. H2-9: Help Users Recognize, Diagnose, and Recover from Errors / Severity 3 / Found by: B

Highlight disappears after looking at reactions screen (not sure if actual bug or just forgot to not link reaction screen if text is highlighted.) This violates the heuristic because it seems like an error that his or her highlight disappeared, but there is no indication or fix supplied. I would suggest an alert telling the user if their action is invalid or failed to register.

3. 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	1	0	1	4	2	8
H2-2: Match Sys & World	0	0	3	1	0	4
H2-3: User Control	0	1	0	0	1	2
H2-4: Consistency	0	5	1	2	1	9
H2-5: Error Prevention	0	0	2	1	2	5
H2-6: Recognition not Recall	0	0	0	1	1	2
H2-7: Efficiency of Use	0	2	0	2	4	8
H2-8: Minimalist Design	0	2	1	0	0	3
H2-9: Help Users with Errors	0	0	0	1	0	1
H2-10: Documentation	0	0	0	0	0	0
Total Violations by Severity	1	9	5	12	11	42

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D
sev. 0	0%	100%	100%	0%
sev. 1	44%	33%	11%	67%
sev. 2	60%	60%	20%	40%
sev. 3	33%	67%	42%	33%
sev. 4	9%	45%	36%	55%
total (sev. 3 & 4)	23%	52%	39 %	43%
total (all severity levels)	29%	48%	26%	43%

5. Summary Recommendations

The app overall is very intuitive to navigate, but has some issues regarding visibility and consistency.

The annotation flow as well as viewing and replying to comments could be much improved upon after more user tests. Although this prototype was only to give a sample of the Annote's interface and functionality, key features such as knowing that an action was registered or consistent toolbar layout were lacking. There were also features that were prone to error such as universal access to the administrator assignment panel, which as stated previously, can be fixed by restricting such privileges.

After observing more users interact with the text, the designers could get a better understanding of certain features to prioritize. Also, there could be a better way to display annotations. As of now, users can only view one annotation at a time, but it might be worth exploring having a screen where all the annotations are displayed and users have control over some display filter options. In terms of overall layout of the user interface, there is a lack of alignment in several features such as the back arrows, or even the user icons in the administrator page. Although these are small problems, they can significantly detract the aesthetic, but fortunately are easy fixes.

Furthermore, designers should explore the idea of having personal profiles where users can view and track all annotations made by a specific individual. Next, there should be a more distinct separation between the administrators and the non-administrators. Annotate is for both students as well as educators so the UI should target those different user cases.

As a learning tool, Annotate should offer the chance to see real-time engagement with the material, and more opportunities to find new material. Since Annotate aims to make students and groups more comfortable with offering input in a discussion (offline), it'd be great to focus on task flows that might cause those people to avoid actually annotating and commenting on the documents. Essentially, Annotate has great potential to impact classroom environments, and with an interface that is more approachable can really engage a wide range of users.

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

H2-1: Visibility of System Status

- Keep users informed about what is going on

H2-2: Match Between System & Real World

- Speak the users' language
- Follow real world conventions

H2-3: User Control & Freedom

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

H2-4: Consistency & Standards

H2-5: Error Prevention

H2-6: Recognition Rather Than Recall

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

H2-7: Flexibility & Efficiency of Use

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

H2-8: Aesthetic & Minimalist Design

- No irrelevant information in dialogues

H2-9: Help Users Recognize, Diagnose, & Recover from Errors

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

H2-10: Help & Documentation

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