

Heuristic Evaluation of Memo

1. Problem/Prototype

Memo is an app designed to help patients with early onset dementia retain their identity, connection with loved ones, and lived experiences by documenting memories in various forms of sensory media to storyboard their lives.

2. Violations Found

1. H1 Visibility of System Status / Severity 3 / Found by: B, C

- a. Task: 1
- b. Problem: On the home page, it's impossible to tell whether you are viewing the home feed or a specific album.
- c. Rationale: Because the main feed & album-specific memos are both viewed from the home tab and don't have anything to differentiate them (e.g. both include tags), the user can't tell which option they're looking at. This might become confusing or frustrating.
- d. Fix: Move viewing memos from an album to a new screen in the albums tab and keep the home page only for the main feed. Make it clear when viewing albums what the current album is.

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

- a. Task: 2
- b. Problem: Once the user has selected an album, the album does not contain any indication of progress through the album.
- c. Rationale: The user may not know how long the album is and how long it will take to view, and be unsure of their progress.
- d. Fix: Add a number of memories in the album indication (e.g. saw 1/24 when viewing the first memory in the album, 2/24 when viewing the second, etc.)

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

- a. Task: 4
- b. Problem: Recording a voice comment doesn't add the user's avatar to the sidebar.
- c. Rationale: Not adding in a new avatar to represent the comment makes the process of recording a voice comment confusing. It's not clear whether the comment was successfully added and/or whether a new comment will replace the one.
- d. Fix: Add a new avatar to the sidebar for each new comment + make it clear (maybe through popups/errors) if it's not possible to add multiple voice comments by the same user.

4. H1 Visibility of System Status / Severity 3 / Found by: A, C, D

- a. Task: 2
- b. Problem: The “create” action on the Create A Memo page lacks indication of the user’s state of success.
- c. Rationale: The slides state that users will be brought directly back to the homepage after they press “create” with their new memo at the top of the feed. In the current implementation, however, after creating a memo users are brought back to the home feed featuring the original (not new) memo, so they have no instantaneous way to verify whether their upload was successful.
- d. Fix: In the prototype, give users visual confirmation once a memo has been successfully created.

5. H1 Visibility of System Status / Severity 2 / Found by: D

- a. Task: 2
- b. Problem: The “create” action on the Create A Memo page lacks indication of the user’s progress.
- c. Rationale: As stated in the slides, success of an upload should be indicated by the user being brought back to the home feed with their new upload at the top. Even if this happens, there appears to be no indicators for the uploading process itself, when the memo is being uploaded, which may take time (especially for videos). Users may be uncertain if their memo is in the process of uploading if they are stuck on a static page during the process.
- d. Fix: Display some sort of loading bar/message when a memo is being uploaded.

6. H1 Visibility of System Status / Severity 3 / Found by: D

- a. Task: 3
- b. Problem: The Reminders screen displays past and upcoming reminders for current week, but does not provide information beyond or before that.
- c. Rationale: Users may want to be able to see their reminders that occurred before the current week or the reminders that will occur in the future. They would especially need this feature if they are creating a new reminder that occurs beyond the current week, because otherwise they have no way to confirm whether it was successfully created and may be confused.
- d. Fix: Make the calendar view navigable from week to week so users can access reminders beyond the current week

7. H2 Match Between System and the Real World / Severity 1 / Found by: D

- a. Task: 2
- b. Problem: The icon used to navigate to the memory tab is a photo album with a person’s silhouette on the top, which is similar to the user profile silhouette
- c. Rationale: in most apps, the profile page is the only screen represented by a silhouette icon. Users may be confused by both the album page and the user profile being

represented by similar looking silhouettes—especially since the photo album is on the bottom right, where user profiles often are in apps.

- d. Fix: Change the display image of the album icon to be something other than a silhouette; for example, the mountains on the memory album page for consistency.

8. H2 Match between system and real world / Severity 1 / Found by: C

- a. Task: 3
- b. Problem: It's unintuitive to turn repeats on or off (if that's what the toggle on the reminders screen does).
- c. Rationale: In most mobile apps, the user profile is located in the upper left corner while reminders/notifications are located on the right side. The order is flipped here, which may be confusing.
- d. Fix: Remove the toggle and have "repeat" set to "never" by default.

9. H2 Match between system and the real world / Severity 1 / Found by: A

- a. Task: 2
- b. Problem: The app uses a cloud icon to indicate upload memo.
- c. Rationale: Since the cloud design is no longer used throughout the app, it is confusing that the icon to upload a memo is still a cloud. For non-technical user, the cloud may not make sense (they may not understand the upload to a cloud reference)
- d. Fix: Change the cloud icon to a plus sign or a similar icon that has a clearer meaning to all users.

10. H2 Match between system and real world / Severity 1 / Found by: C

- a. Task: 3
- b. Problem: Photo and video uploads are separate.
- c. Rationale: In most mobile apps, photo and video uploads are combined into one upload button, and media are selected from the user's camera roll. There's no clear reason to keep them separate since photos & videos are usually stored in the same place on the user's phone (ie both are in camera roll, as opposed to audio recordings which are usually in voice memos).
- d. Fix: Combine photo and video uploads into one button.

11. H2 Match between system and real world / Severity 1 / Found by: C

- a. Task: General
- b. Problem: The profile button is in the upper right corner.
- c. Rationale: In most mobile apps, the user profile is located in the upper left corner while reminders/notifications are located on the right side. The order is flipped here, which may be confusing.
- d. Fix: Switch the order of the profile & reminders buttons.

12. H2 Match Between System and the Real World / Severity 1 / Found by: D

- a. Task: 4

- b. Problem: The “memo’s [user] is part of” table shows empty squares when a user is not part of sufficient memories (for example, Patricia Buffy has a table with 6 blank squares).
- c. Rationale: Seeing empty squares representing a lack of memos is confusing to the patient when they are trying to find which memos a person is part of.
- d. Fix: Only show the memos that a user is part of. If a user is not in any memos, be sure to display a clear message such as “this user is not in any memos yet!” if they aren’t in any memos yet.

13. H2 Match Between System and the Real World / Severity 4 / Found by: A, B, C, D

- a. Task: 4
- b. Problem: Tapping on loved ones icons brings the user to their profile page.
- c. Rationale: Tapping on loved ones’ icons would intuitively play the voice recording (as described in the README), but it brings the user to loved ones’ profiles instead. It is unclear what tapping on the icon does.
- d. Fix: Implement alternative ways to either play voice comments or view profile.

14. H3 User Control and Freedom / Severity 3 / Found by: B, C, D

- a. Task: 1, 2
- b. Problem: Memos and albums appear to not be editable or deletable after creation.
- c. Rationale: Users should be able to delete and edit their memos/albums to correct any mistakes or add new, relevant information.
- d. Fix: Make memos and albums editable.

15. H3 User Control and Freedom / Severity 2 / Found by: C, D

- a. Task: 3
- b. Problem: There is no ability to edit reminders without completely deleting and recreating them.
- c. Rationale: Users may want to edit a reminder they have already created by modifying the time and/or the task. However, there appears to be no way to do this beyond deleting the item and creating a new one, which is tedious.
- d. Fix: Make each reminder on the calendar editable by adding an edit button.

16. H3 User Control and Freedom / Severity 2 / Found by: D

- a. Task: 3
- b. Problem: There is no ability to delete reminders that are not in the “Your next reminder” or “upcoming reminders” category.
- c. Rationale: Users may want to delete reminders that are further out in their schedule than the next ~2 days, and lack a way to do so.
- d. Fix: Make reminders scheduled further out in time deletable, perhaps by making them deletable on the calendar instead of just in the upcoming reminders the preview or

could consider making the upcoming reminders scrollable to be able to view more of them.

17. H3: User control & freedom / Severity 1 / Found by: B

- a. Task: 1
- b. Problem: No way to personalize how memos are presented.
- c. Rationale: Experienced users may have particular favorite memos they want to see first. Would be nice for users to personalize memo feed.
- d. Fix: Add functionality to personalize memo feed.

18. H3 User Control and Freedom / Severity 4 / Found by: A, B, C, D

- a. Task: 1, 2, 3, 4
- b. Problem: No back/cancel button anywhere in the app.
- c. Rationale: This is mostly a problem in the album creation flow because it doesn't allow users to go back to picking memos once they're customizing the album (in other places you can use the tab bar buttons to leave), but it's still confusing to not be able to go back directly to the screen you were on previously. It also appears in other pages such as the inability to cancel a reminder, voice memo, etc that are in the process of being created.
- d. Fix: Add a back/cancel button to all screens that are reached from a different screen (picking memos for album, customizing album, creating reminder, loved one profile, etc).

19. H3 User Control and Freedom / Severity 3 / Found by: C

- a. Task: 1
- b. Problem: No clear way to go back to the main feed after viewing an album.
- c. Rationale: Because viewing an album happens on the home page, it's not clear how to get back to the main feed that doesn't consist of only that album.
- d. Fix: Separate album-viewing and main feed (see violation #1).

20. H3 User Control and Freedom / Severity 3 / Found by: B, C, D

- a. Task: 4
- b. Problem: There is no way to remove or re-record a voice recording.
- c. Rationale: Users may want to remove or re-record a voice recording that they have already recorded, and there is currently no way to do so.
- d. Fix: Make voice recordings removable and re-recordable (perhaps by adding a button).

21. H4 Consistency and Standards / Severity 4 / Found by: B, C, D

- a. Task: 2
- b. Problem: Tags underneath memos are not consistent with other places within the app in naming & color; unclear whether they are supposed to represent albums or something else.

- c. Rationale: Users may be confused by the color coding of tags in the memo feed since it is not reflected elsewhere in the app; in particular, they cannot discern the color coding of the albums from the albums screen itself. Furthermore, there are inconsistencies in naming such “Comfort memory playlist” vs. “Comfort album”. With no centralized place to make this connection, the inconsistency may lead to confusion about what albums each tag represents.
- d. Fix: Make tag meaning more clear (possibly replace tag icon with album icon), also make album naming & coloring consistent across the whole app.

22. H4 Consistency and Standards / Severity 1 / Found by: C, D

- a. Task: 2
- b. Problem: The plus icon to add a new memo on the “create a memo” page is in the top right corner for video and image, but in the center for voice.
- c. Rationale: The plus icon should be in the same position for all forms of media to maintain consistency and allow users to familiarize themselves with a fixed location of the icon.
- d. Fix: Move the plus sign on the voice memo to the top right corner.

23. H4 Consistency and Standards / Severity 1 / Found by: D

- a. Task: 2
- b. Problem: The plus icon in “who else is in this memo” is black and to the left of the main icon (the person silhouette). However, the plus icon in the “where did this take place” is white and placed in the middle of the main icon (the location pin).
- c. Rationale: The plus icon should be in the same position for both icons to maintain consistency. The current placement may confuse users due to the lack of consistency, and also gives the page a lopsided appearance.
- d. Fix: Move both plus signs to either the center or left of the main icon, and match their coloring accordingly.

24. H4 Consistency and standards / Severity 1 / Found by: A

- a. Task: 1
- b. Problem: On the home screen, the left icons are all people’s memo pages except for the bottom most microphone icon.
- c. Rationale: This icon is out-of-place and would be better if it is one of the places where the user will already go to create + upload a new memory.
- d. Fix: Switch the location of the microphone icon and add it to the flow of creating + uploading a new memory instead.

25. H4 Consistency and Standards / Severity 1 / Found by: D

- a. Task: 2

- b. Problem: the “comfort memory playlist” tag has different saturations of blue on the first and second memos.
- c. Rationale: The color coding of the different album tags should remain consistent across different screens so users can easily recognize the association.
- d. Fix: Make sure the saturation of each type of tag color matches on each page. Consider lightening the saturation of the blue tag on the second page to match the one on the first, as saturated colors are more straining (maybe consider desaturating the other tag colors for this reason as well).

26. H4 Consistency and Standards / Severity 1 / Found by: D

- a. Task: 4
- b. Problem: the majority of the prototype uses a blue (for titles) and black (for content) text coloring scheme, with grey for unfilled content/placeholders (such as “your album title”). However, the user profile page for loved ones uses a blue (for titles) and grey (for content) text coloring scheme.
- c. Rationale: Text should be colored consistently so users can easily associate colors of text with their status, such as associating grey with editable text. The current discrepancy is confusing because on other pages, only editable content is grey, but the grey content on this page (person’s relation to user and memos they are part of) does not appear editable.
- d. Change the color of the text on the loved one’s profile page to be black to match the color of content text on all of the other pages.

27. H4 Consistency & Standards / Severity 1 / Found by: C

- a. Task: 4
- b. Problem: User profiles refer to people in the third person.
- c. Rationale: If my name is David Buffy, then it would make more sense for Patricia to be “my niece” instead of “David’s niece”. This would also make the app feel more personal.
- d. Fix: Refer to people as “my ...” instead of “David’s ...”

28. H4 Consistency and Standards / Severity 1 / Found by: D

- a. Task: 2, 4
- b. Problem: There is inconsistent capitalization on different pages. “who else is in this memo?” and “where did this take place?” are uncapitalized, as is “memos Patricia is a part of”. However sentences appear to be capitalized in all other parts of the app.
- c. Rationale: There appears to be no logical rationale for the inconsistent capitalization, and therefore the lack of consistency may be confusing and irritating to the reader.
- d. Make rules for capitalization consistent across the whole app.

29. H4 Consistency & Standards / Severity 1 / Found by: C

- a. Task: 2
- b. Problem: Text input is inconsistent across memo & album creation.

- c. Rationale: Entering the memo description looks the same as the memo description in the gallery, not the same as the text input box in album creation. This may be confusing to users as it's not clear what is editable and what is not.
- d. Fix: Change text input in memo creation to match the boxes in album creation.

30. H4 Consistency and standards / Severity 1 / Found by: A

- a. Task: 3
- b. Problem: There are two different calendars that are shown when the user is creating a reminder.
- c. Rationale: Both calendars are different styles and colors. This may be confusing for the user.
- d. Fix: Making the different calendars shown consistent in format, styles, and colors.

31. H4 Consistency & Standards / Severity 2 / Found by: B, C

- a. Task: 2
- b. Problem: It is unclear where album image, description, & trigger warning will be used. Similarly, it is unclear where memo location will be used.
- c. Rationale: This information is entered when creating a new album, but the "my albums" screen only displays the album name. Viewing memos doesn't seem to provide any location information.
- d. Fix: Display more information about each album/memo when viewing and/or remove some info from the creation flow if it's unneeded.

32. H5 Error Prevention / Severity 2 / Found by: C, D

- a. Task: General
- b. Problem: The large phone icon on the profile page is unlabeled and not intuitively recognizable as a button to call for help. Therefore users may accidentally press it, which takes them directly to a call.
- c. Rationale: As I recall from your previous presentation, the phone is intended for patients to be able to easily access help from their caregiver. However, given that this function is just presented as a large icon with no further context, patients may be confused by why exactly it is there—for example, they could think it will take them to contact information. Therefore, they are likely to try pressing it, which will take them immediately to a call when they didn't actually intend to make one.
- d. Fix: Add a caption to the phone button that says something like "call [caregiver] for help" so it is made explicit what the button's functionality is. You could also add a confirmation screen in between the user pressing the phone and the actual phone call being made.

33. H5 Error prevention / Severity 2 / Found by: A

- a. Task: 2
- b. Problem: The album description box lacks information about the maximum number of words that can be written.

- c. Rationale: This may cause unnecessary errors that are not currently accounted for by the app.
- d. Fix: Let the user know the maximum number of words.

34. H5 Error Prevention / Severity 2 / Found by: C, D

- a. Task: 2, 3, 4
- b. Problem: Reminders without any text in the reminder description/memos with no media uploaded/albums with no memos added can be created.
- c. Rationale: A user appears to be able to create an empty reminder/memo/album, as the create button is always tappable in these flows, so users may accidentally create something blank. This serves no logistical purpose and may cause confusion.
- d. Fix: Disable/hide the create button until all required information is filled out.

35. H6 Recognition not Recall / Severity 3 / Found by: D

- a. Task: General
- b. Problem: The help/call button only appears on one page, the profile page, which the patient has to navigate to in order to access.
- c. Rationale: Dementia patients are more likely to forget about the existence of certain features in the app. Because the call for help button should be accessible even in emergencies, there should be a way for the patient to recognize its existence in the app at all times so they know it is a tool they have at their disposal.
- d. Fix: Make the call/help button visible and accessible in all screens of the app.

36. H6 Recognition not Recall / Severity 2 / Found by: B

- a. Task: 2
- b. Problem: When selecting which memos to add to a new album, can't tell whether or not the memo has already been added to an existing album.
- c. Rationale: Users should be able to see which albums memos are already part of, instead of having to remember that info. For example, some people may want to add the same memo to multiple albums, others may want to avoid repeats.
- d. Fix: Specify which albums each memo is already part of.

37. H6 Recognition not Recall / Severity 2 / Found by: D

- a. Task: 2
- b. Problem: Tapping on the album tag on a memo in the memo feed brings the user to the albums screen, not the album itself.
- c. Rationale: After they tap on a tag and are brought to the album screen, users have to recall which album they had originally selected and find it on the screen. However, this may cause inconvenience because users could forget which album they had tapped on—when users tap on an album, they are likely expecting to be brought directly to it, instead of having to remember it.
- d. Fix: Make tapping on album tags bring users directly to the album they intended to access.

38. H6 Recognition not Recall / Severity 2 / Found by: C

- a. Task: 2
- b. Problem: No way to access selected memos while customizing an album.
- c. Rationale: The current order forces users to pick memos first and then remember what memos they picked while customizing the album. The more logical flow would be to name the album first (since users will likely have a theme in mind already) and then pick the memos for the album.
- d. Fix: Change the album creation flow so that users customize the album first, then display the name of the album while the user chooses memos.

39. H6 Recognition not Recall / Severity 1 / Found by: D

- a. Task: 3
- b. Problem: The add a reminder button/bell icon is not easily noticeable.
- c. Rationale: The add a reminder button is small and blends into the noisy screen. Thus, patients might have difficulty recognizing it and will have to search for it each time.
- d. Fix: Consider increasing the size of the add a reminder bell button, or using color to highlight it and draw attention to it.

40. H6 Recognition not Recall / Severity 3 / Found by: B, C

- a. Task: 1
- b. Problem: Viewing a specific memo requires users to recall what album it's located in.
- c. Rationale: It seems difficult to view a single, specific memo because users have to remember what album it's added to. This also prohibits users from viewing specific memos that haven't been added to an album yet.
- d. Fix: Add a gallery view (similar to a camera roll or the memo picking step of album creation) for users to be able to browse through all of their memos. Add a search bar so that users can search for specific memos.

41. H6 Recognition not Recall / Severity 1 / Found by: D

- a. Task: 4
- b. Problem: The patient's loved ones' roles are not labeled on the memo they appear on; the patient has to separately click on each loved one to find their role.
- c. Rationale: Dementia patients are more likely to forget loved ones' roles, and it may be inconvenient for them to have to tap on each person to be brought to a separate page to locate their relation. They also have to recall the role of the loved one after they return from the profile page back to the memo.
- d. Fix: Add a role caption for the role of each loved one listed in a memo.

42. H6 Recognition not Recall / Severity 2 / Found by: A

- a. Task: 3

- b. Problem: When a user is setting a reminder, they are shown a calendar screen and then shown the screen where they set the reminder.
- c. Rationale: This means that the user will have to recall the information that they were shown on the prior calendar screen when setting the reminder.
- d. Fix: Let the user see the calendar while setting the reminder.

43. H7 Flexibility and Efficiency of Use / Severity 2 / Found by: C

- a. Task: 2
- b. Problem: The position of the create new album button depends on the number of albums created.
- c. Rationale: I think the position of the button makes sense given the number of albums in the prototype, but if a user creates many albums, the create button will be hard to access.
- d. Fix: Move the create new album button to the first album position instead of the last one, or move it to the upper right like in the reminders page.

44. H7 Flexibility and Efficiency of User / Severity 4 / Found by: B, C, D

- a. Task: 2
- b. Problem: Requirements for what is needed to create a “memo” are unclear.
- c. Rationale: Is a memo a single image, video, or voice recording, or can it contain any number of any type of media? From what I saw in the “create album” task, I’m guessing a memo is a single item, it is not specified in “create memo,”. Users may want to upload multiple media. Allowing multiple file upload would make it easier to group media by event (e.g. multiple photos from one birthday party).
- d. Fix: Specify in “add memo” task what is required to create a memo, would be nice to allow uploads of multiple files.

45. H7 Flexibility and efficiency of use / Severity 1 / Found by: A

- a. Task: 1
- b. Problem: The home screen does not seem to contain a way to adjust the order that a user’s friends are displayed.
- c. Rationale: A frequent user may want their favorite friends or family members’ icons to appear first.
- d. Fix: Include an option where the order of friends can be customized or changed.

46. H7 Flexibility and Efficiency of Use / Severity 2 / Found by: A, C

- a. Task: 2
- b. Problem: Typing in people & location repeatedly will take a long time.
- c. Rationale: I am not 100% sure whether these are meant to be typed in because the prototype is unclear, but typing seems like an inefficient way to input this information when most of it will probably be similar from memo to memo.

- d. Fix: Allow users to save commonly used locations/names and select from a list, or type in new ones (like tags).

47. H7 Flexibility and efficiency of use / Severity 2 / Found by: A

- a. Task: 2
- b. Problem: When the user is creating a memo, all the different format options appear on the same screen (e.g. upload audio recording, upload video, still frame picture, etc.).
- c. Rationale: For a frequent user, they may repeatedly primarily use a single format (e.g. most commonly audio recording).
- d. Fix: Add the option to go straight to uploading the most common format (e.g. audio recording) or display the upload options in a way that reflects how commonly they are used.

48. H7 Flexibility and Efficiency of Use / Severity 2 / Found by: A, C

- a. Task: 2
- b. Problem: Adding memos to albums quickly becomes unwieldy if there are a lot of memos.
- c. Rationale: If the user has created a lot of memos, they will have to scroll through many memos to find the ones they want to add.
- d. Fix: Fit more memos in a single screen, or potentially add a way to filter memos (this could also be done by the app/AI based on the album they're creating).

49. H7 Flexibility and Efficiency of User / Severity 2 / Found by: D

- a. Task: 3
- b. Problem: Only one album can be linked to a reminder in the "Create a Reminder" screen.
- c. Rationale: Users may want to add a reminder that covers multiple albums at the same time, and currently they would have to create separate reminders for each of them. This is tedious and repetitive for the user.
- d. Fix: Enable users to select multiple albums to link to a single reminder.

50. H8 Aesthetic and Minimalist Design / Severity 2 / Found by: C

- a. Task: 3
- b. Problem: The calendar on the reminders screen takes up too much space.
- c. Rationale: The calendar view doesn't actually add that much useful information since some of the reminders have already passed, there's no real way to tell the time, and it seems unnecessary to see an entire week's worth of reminders at once. It also competes with the actual relevant information on the screen (the next and upcoming reminders, their times, and actual reminder text).
- d. Fix: Get rid of the calendar completely and just have the reminders in text form like they are now. Alternatively, make the calendar screen more useful by adding more context for times & tasks, and making it clearer what the current date & time is (it took me a few run-throughs to notice the line marking the current time).

51. H8 Aesthetic and Minimalist Design / Severity 1 / Found by: C, D

- a. Task: 1
- b. Problem: The colorful and saturated loved ones icons displayed by default on the memo feed are distracting and noisy on the page.
- c. Rationale: The brightly and differently colored icons distract the user from the memo itself, which is supposed to be the main focus of the page. It also gives the memo page a cluttered appearance, as the voice comment section could get crowded quickly if many loved ones add comments.
- d. Fix: Consider adding a button to display voice comments (such as the chat icon), and keep them hidden by default. Otherwise, consider decreasing the saturation of the loved ones icons so they don't stand out/clash as much against the memo itself.

52. H8 Aesthetic and Minimalist Design / Severity 1 / Found by: B, C, D

- a. Task: 1
- b. Problem: The speech bubbles above the loved ones icons in the memo feed are ambiguous and distracting.
- c. Rationale: The speech bubbles are another contributor to the cluttered look of the main page and draw the user's attention away from the memo itself. They appear to serve no apparent purpose and even might serve to confuse the user further.
- d. Fix: Consider removing the speech bubbles—the microphone icon already indicates that there exist voice comments from loved ones (if the microphone does not appear in patient view, consider replacing the speech bubbles with it). Or, consider turning the speech bubbles into a button to display comments (see #25).

53. H8 Aesthetic and minimalist design / Severity 1 / Found by: A

- a. Task: 2
- b. Problem: When the user is creating a memo, the entire screen feels cluttered.
- c. Rationale: The creating a memo, describing it, adding who is in it, and adding the location seems like too much to do all on one screen.
- a. Fix: Break up the process of creating a memo into multiple screens. For example, the first screen could be creating the memo, the second describing it, and the third adding who is in it and where it was.

54. H8 Aesthetic and Minimalist Design / Severity 1 / Found by: C, D

- a. Task: 3
- b. Problem: Reminders appear to be arbitrarily colored and have no noticeable pattern. This creates a cluttered/noisy environment in the reminders tab.
- c. Rationale: Coloring should be used with intention: users may be confused by why reminders are inconsistently colored, as they don't appear to be coded by any category.

- d. Fix: Remove the use of different colors to lessen the cluttered appearance, or change coloring so that it is coded by some rule, such as task category.

55. H8 Aesthetic and minimalist design / Severity 1 / Found by: A

- a. Task: 2
- b. Problem: The Comfort Memory Playlist option on the left of the home screen is unclear for the user.
- c. Rationale: There is a lot of information going on in the home screen and this button is easily lost.
- d. Fix: Move the location of the Comfort Memory Playlist or make it more visible on the home screen.

56. H10 Help and Documentation / Severity 1 / Found by: B, C

- a. Task: 2
- b. Problem: It is unclear what the yellow button & red squiggle on the “create a memo” screen do.
- c. Rationale: The purple box has an icon indicating what type of upload it’s for (video), but the yellow (photo?) and red ones (we’re guessing voice, but it also looks like a heartbeat) don’t. It’s not clear what they’re for.
- d. Fix: Add icons to yellow and red buttons.

57. H10 Help and Documentation / Severity 3 / Found by: A, C

- a. Task: 1, 2, 3, 4
- b. Problem: Creating memos/albums/reminders missing guidance.
- c. Rationale: The tutorial does not cover this concept, and the idea of creating memos/albums may be unfamiliar to users and they may require help understanding what each of the buttons do/where to tap (e.g. where do I tap to add people/location? do I type in the date for a reminder or pick from the calendar?).
- d. Fix: Add a walkthrough tutorial similar to the one at the beginning of the app for each of the screens and/or a question mark button that users can tap to get help.

58. H10 Help and Documentation / Severity 4 / Found by: A, B, D

- a. Task: General
- b. Problem: After the initial onboarding, users are never able to access the step by step walkthrough again.
- c. Rationale: Users—especially those in more advanced stages of dementia—may need frequent refreshers on how the app works, and need to access the tutorial again.
- d. Fix: Add a help button so users can access the tutorial after they have finished it for the first time.

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	0	0	2	4	0	6
H2: Match Sys & World	0	6	0	0	1	7
H3: User Control	0	1	2	3	1	7
H4: Consistency	0	9	1	0	1	11
H5: Error Prevention	0	0	3	0	0	3
H6: Recognition not Recall	0	2	4	2	0	8
H7: Efficiency of Use	0	1	5	0	1	7
H8: Minimalist Design	0	5	1	0	0	6
H9: Help Users with Errors	0	0	0	0	0	0
H10: Documentation	0	1	0	1	1	3
Total Violations by Severity	0	25	18	10	5	58
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)						

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D
sev. 0	-	-	-	-
sev. 1 (25)	35% (6)	27% (4)	40% (10)	48% (12)
sev. 2 (18)	35% (6)	13% (2)	50% (9)	39% (7)
sev. 3 (10)	12% (2)	27% (4)	80% (8)	50% (5)
sev. 4 (5)	18% (3)	33% (5)	80% (4)	100% (5)
total (sev. 3 & 4)	30% (5)	60% (9)	80% (12)	67% (10)
total (all severity levels)	29% (17)	26% (15)	53% (31)	50% (29)

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

5. Summary Recommendations

This was a great medium-fi prototype, and it was especially nice to see the ways you all incorporated the feedback from the low-fi prototype. We love the concept of turning memories into tangible files you can see and review anytime. After conducting this heuristic evaluation, the main areas to focus on include H3: User Control and Freedom, H8: Aesthetic and Minimalist Design, and H10: Help and Documentation. Related to all three of these heuristics, there were a few places in the app where we all experienced a lot of confusion and uncertainty. We found the home screen especially confusing and cluttered. It seems like there is a lot of information and different icons on the home screen. For example, there is the playlist button at the bottom, a way to record, and several friend's profiles. All of these different features can become lost amidst the home page. We would suggest: a) narrowing down and prioritizing what the most essential elements for the home screen are; and b) making the design reflect that through size and color.

Further, throughout the entire app, there were no ways to edit and no back buttons or cancel buttons. For example, when someone is creating a voice memo, there is no way to cancel or go back in the process. This was also the case for setting reminders, creating albums, etc. More generally, we would recommend incorporating more user control by allowing editing & deletion of existing albums and memos. We were also confused by the interaction between albums and screens, like how viewing the album takes the user to the home screen. We would recommend clarifying the difference between viewing the main feed and viewing a specific album. It may also be helpful to think about scalability. For example, what happens if there are lots of memos, comments, and/or albums? Many of the current designs are not set up to facilitate scalability. The process of setting up reminders was also confusing. The user is shown a calendar, then another screen to set up the reminder, and finally shown the calendar again. It would be nice to a) consolidate the process so the user can see the screen when they make the reminder or b) get rid of the calendar entirely. None of us were sure what information the calendar was conveying and how it was integrated into the system.

Another important piece of advice is to make sure the design and experience are specifically catered for your target user. Because your app is for typically older caretakers and typically elderly people with dementia, it is important that using the app reflects this. For example, all of the text is really small throughout the app. Further, some of the text that was blue- like the Comfort Playlist- was especially hard to see. Since many people who use the app will have cognitive impairments that will likely continue to worsen as their disease progresses and as they continue to use the app, having instruction screens or ways to walk the user through processes like creating memos and creating albums is critical. It is important that these instructions be easily available every time they use the app and not merely the first time. Since the users have cognitive impairment, it is important to make sure that every time someone uses the app the experience and design of the app is like they are a first-time user (since there is no guarantee the user will remember anything between uses). However, the key challenge will be to do this in a way where the user can still feel autonomous, independent, and respected.

Overall, we think that more transparency/clarification around how the app works, more user control, and UI design are important to consider as you continue working on Memo. This is a great start for your high-fi prototype and we're looking forward to seeing the final product!

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