¶ ReJournal
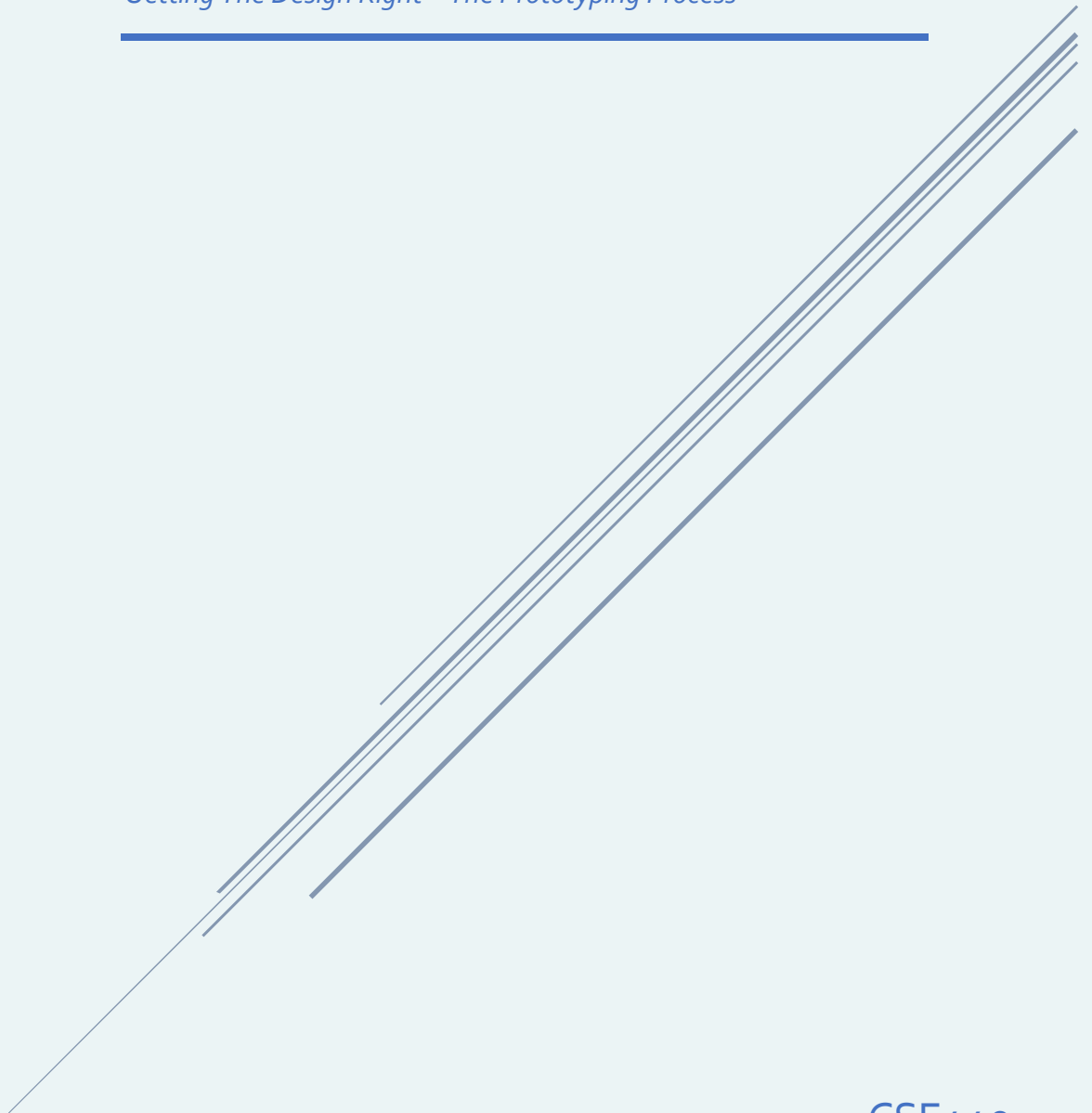
Getting The Design Right – The Prototyping Process

Team

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Problem and Solution Overview

For a person with depression, the first step to recovery is meeting with a counselor. However, outside of counseling sessions, individuals are often left to find their own between-session support. As a result, we have decided to focus on the communication aspect of recovery, particularly through self-sustainable reflection. Our solution is a device that resembles a tablet in aesthetics but is dedicated solely to journaling. The smart journal allows users to reflect on how they're feeling by providing statistics to help users reflect on their condition as well as provide communication pipelines that users can use during their time of need.

Initial Paper Prototype

For the initial prototype, we focused on the software of the device with particular attention to what main features we wanted to include and, consequently, how to present those features in the interface. We ultimately decided that the interface would be divided into three main sections or categories-- analytics, journaling and settings--keeping in mind that we wanted users to be able to be able to monitor their progress and reach out to others.

Our first primary task is to reflect on one's thoughts and feelings. In regard to this, the critical aspect of our design including the journaling and analytic sections. The journaling was critical because it is based on the user's input that the interface provides statistics for the user to reflect upon. The idea here was that upon creating an entry, a user would rate their mood and physical wellbeing on a 1-10 scale based on how they felt at that time. Then users would proceed to write an entry and the
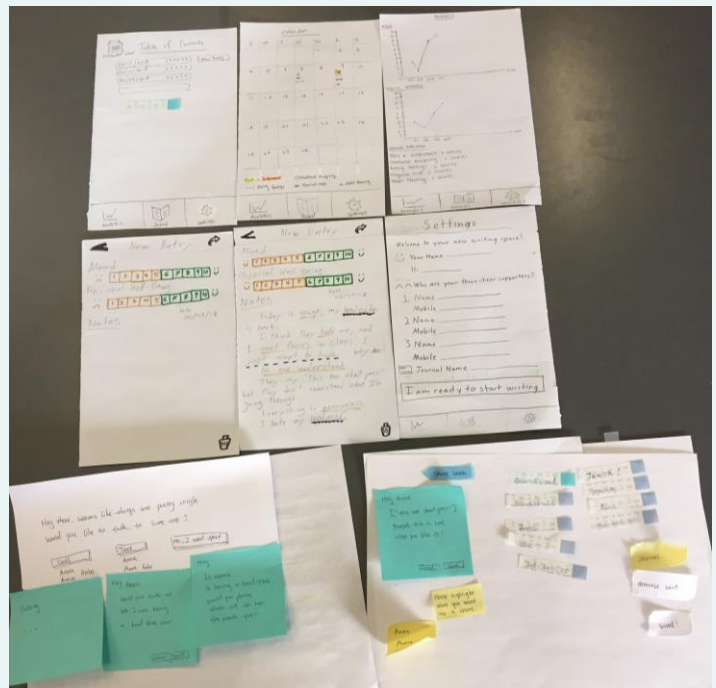
interface would track what the user wrote and categorize keywords or phrases into reflection categories. Users could then go to the analytics section in the interface and there they would see how their mood and physical wellbeing has changed over time in line graphs. Users would also see a list of the reflection categories and how many entries they've written fall into each category.

The second primary task is to reach out to others. For this, the settings and journal sections were critical aspects. Settings was where users would input contacts who they could share their entries with and, in emergencies, the device could initiate contact with. In the journaling section, users could pick an entry and choose a snippet from the entry to share with a contact. More importantly, when the interface detects that users have been experiencing a downward trend--based on the users' mood and physical well being ratings and the content of their entries--it will prompt users to get in touch with a contact. Over time, if users refuse to follow through, the interface will send automatic texts to users' contacts to ask them to check in on users.

Testing Process

Heuristic Evaluation

We created the initial prototype based on our understanding of how the main tasks should be performed in a journal format. We conducted heuristic evaluations with two other groups. The process consisted of the allowing the other group to explore the interface to find usability bugs which were then noted on index cards with a severity rating and given to us. In some cases, groups, left us suggestions on a potential fix.

Usability Tests

We conducted, in total, three usability tests. We selected one general UW student representing the larger student population, one student who majored in psychology representing individuals with more insight and clarity in cognitive psychology, and one student newly diagnosed with depression representing patients at the beginning of their recovery journey. These students were selected in this manner, in order to get a wider range of feedback and to ensure the product feature is scalable in the future.

Usability Test 1 - The first test was conducted with the general UW student at Odegaard Library for the user's convenience. We first introduced ourselves and provided basic background information about our device and project. We then gave an overview of what the user would be doing (i.e. completing given tasks) and emphasized that the user was doing the testing, not being tested. We proceeded to ask the user to complete tasks that explored various features such as: (1) setting up the interface for the first time, (2) creating a journal entry, (3)

reviewing entries, (4) deleting an entry, (5) sharing content, and (6) changing a contact's information. We then asked the user to freely explore the interface. At the end, we debriefed by asking the user to share with us any confusion they encountered while performing the tasks as well as any other feedback they wanted to share. We wrapped up by asking the user if they had any questions for us and thanked them for their time.

Usability Test 2 - The second test was done with the psychology major in very much the same manner as the first. The test took place at the user's home for comfort, and to stimulate the environment where a typical user would use the journal. However the user was more proactive in asking the researcher questions and engaged with the journal as an actual journal. Feedback was given right away unlike the feedback from the first usability test, which was given after all tasks were completed. The second user also actively explored the journal and casually performed a quality assurance test without us asking her to do so. This provided us a lot insight in terms of interface flow, which was later incorporated in the digital mock up.

Usability Test 3 - The final test was done in far less structured manner, in order to minimize stress level of the user and since the individual had a open and trusting relationship with the researcher, we conducted the test at the researcher's apartment to facilitate a trustful environment. The user was very engaged with the journal. We provided guidance to start, but ultimately allowed her to fully explore the journal on her own while we observed the process. We discovered the sequences she took to perform the "tasks" were different from all other users, and different from our original design.

Testing Results

Overall the testing results have been highly insightful. We were able to discover a wide range of feedback from three very unique but representative users as we observed their interaction with the journal.

Heuristic Evaluation

Most feedback received from the evaluations revolved around vague wording and unnoticeable or confusing icons. Namely that the back and share icons were too similar which caused confusion in their functions. Additionally, some of the flow's steps did not prompt users to confirm or submit. These changes were incorporated for usability testing.

Usability Tests

Usability Test 1 - The first user liked the simplicity of the interface and that it provided insight for reflection. She did point out that she wasn't sure what the insight categories like "fact vs judgement" meant. The user also tried to access a non-existent entry (deleted in a previous task) from the calendar view which the team had not anticipated; therefore the team decided to make a pop-up showing this particular entry did not exist. She also mentioned that she wished the calendar would more clearly show which dates had entries; then she noticed that was shown through the reflection category icons.

The major design changes between the first and the second test was to make the delete function more complete and consistent throughout the journal.

Usability Test 2 - The user noted her preference of the calendar view over the table of contents, and wanted that as a separate feature. She also noted the importance of the SOS feature, but mentioned to also have the emergency helpline option available. She offered her opinion as a psychology major in that having the option to view or hide the markings would help the user to focus while journaling and have more effective reflection afterwards.

Usability Test 3 - This individual was unique compared to other participants, in that while handling treatment she refrained from writing personal information down, and mentally made notes about what she discussed with her therapist. The user noted her tendency to not want to reach out but prefer to process and reflect internally. However she did note the importance of talking to someone anonymously. Which was a major change to our design. She also provided visualization and education feedback regarding analytics and markings features.

The second and third tests led to us bring out the calendar page as one of the main pages. As requested by users, we updated the settings page to ask for consent to reach out on their behalf to supporters and therapists. We changed the visualization from line graphs to bar charts and to let user select their own time frame. An educational page was added to provide more information about what the markings in the entries meant.

Design Critique

A major point of our critique was differentiating our design. What made our device different from the services that other journaling apps offered? While we felt tracking the entries according to reflection categories did differentiate our design, we continued to think about what else we could offer. This coupled with the feedback from the second and third usability tests led us to incorporate the anonymous therapist chat room.

Final Paper Prototype

From our initial paper prototype and the feedback we received during usability testing, we arrived at several revisions for our paper prototype: making calendar view a main feature, including a chat room, and general usability and UI improvements. Similar to the original, this prototype is designed to facilitate two primary tasks: self-reflection and assessment, as well as outreach and communication.
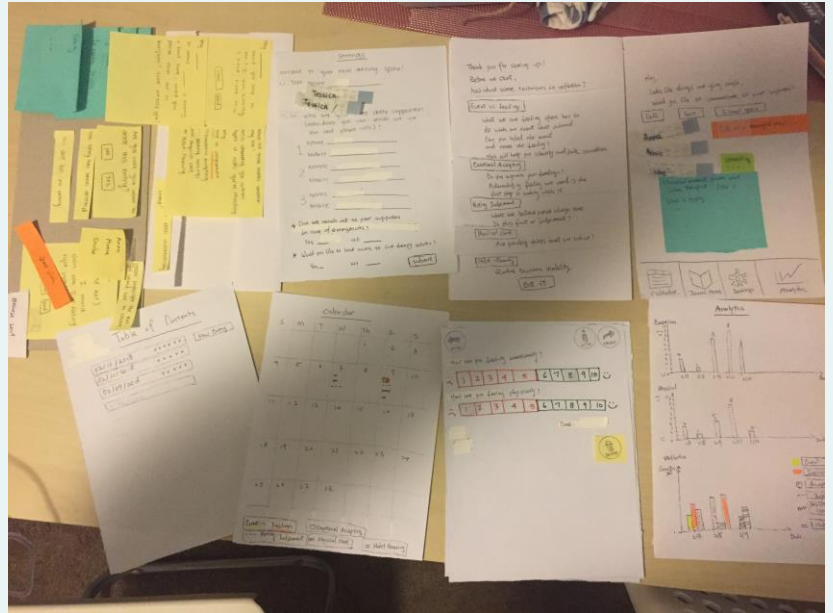
Stepping through the workflow for self-reflection, users would access their journal from the journal or calendar views in order to write a log in their journal or review old ones. As time goes on, the smart journal collects data and analytics that can be viewed in the analytics pane. Here, there is data about the user's emotional and physical health over time as well as statistics about the types of issues they are writing most about. Using this data, the user can guide their own self-reflection or share with a supporter to come up with a plan for improvement together. The major change here was in how we presented the data. In the original, we used line graphs and a list but in the final paper prototype, we switched to presenting all data in bar graphs.

The second task, outreach and communication, is a bit less obvious. There are several times a user of this smart journal may want to reach out to others; for example, they may be severely depressed and need a lifeline, they may be struggling and would like to ask a professional questions about their treatment, or they may just be excited about one of their journal entries and wanting to share. With these differing motives in mind, we tried to create outlets for each of these communication modes.

If a user is writing an entry in their journal and would like to share part of it, they can click on the share/link button in the top right of their journal page and highlight what text they want to send. They can then edit the message and choose any recipients who they would like to send it to. This remained largely the same from the initial prototype.

Additionally, if the user shows symptoms of worsening condition or critical health (as tracked by the journal), they will be prompted to reach out to someone who can help. When receiving this prompt, the user can choose to

reach out to a anonymous professional therapist via a therapist chat room. It's worth noting that for our communication flow, this was the major change from our initial prototype.Alternatively, they can also opt to call or text one of their "cheer supporters" for a more personal conversation. From there they can call one of their contacts directly or even edit and send a message from a pop-up window.

The user can also dismiss the prompt but if dismissal becomes a trend, automatic texts are sent to the user's contacts. Due to privacy concerns, the change we implemented was to first seek the user's permission (in the settings page) to send these automatic texts.

Digital Mockup

Summary

We originally envisioned ReJournal to be a whiteboard but due to the need of internet and cellular for our communication features, we shifted our design to a tablet-esque device when creating our digital mockup. We also tried to be more visual as opposed to text-based. For example, our education page originally had blurbs for each reflection category in our paper prototype but we changed it to explanatory videos in the digital mockup.
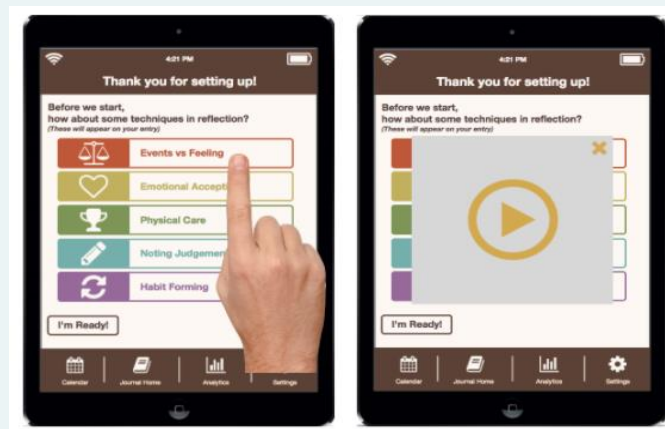
Application Launch and Settings

ReJournal's most important feature is helping the user reflect on thoughts and feelings. When ReJournal is launched for the very first time, the user inputs personal information and settings, and is then redirected to the "Table of Contents" page. Journal entries and reflections can be accessed here as well as through the calendar page. We made a change to only ask for supporters' contact information if the user allows the device to contact users' supporters.

Task 1: Reflecting on Thoughts and Feelings

Creating Entries: Users can click "New Entry" and are brought to a blank "Entry" page. Users use scales to record their mood and physical wellbeing and write text to record a journal entry. As users write, the backend will track parts of the entry based on the reflection categories explained at set-up. Based on usability testing feedback, we added a "Show Markings" feature, which will underline critical keywords, and identify reflection categories. The patterns based on this information will be tracked on the Analytics page, allowing the user to reflect and observe long term trends. Also based on feedback, we can adjust certain ranges for analytics.

Reading and Reflecting on Entries: Journal entries and reflections can be accessed here and through the calendar page.

Task 2: Reaching Out to Others

There are three methods for reaching out to others: sharing a journal entry, journal entry SOS, and analytics SOS. The major change from paper to digital was that we now had two circumstances where an SOS could be triggered.

Sharing a Journal Entry: On an entry page, the user clicks the share button and then highlights text to share. Afterwards, a prompt of the user's contacts appears for the user to choose who to share the snippet with. The user selects a contact and a text box containing the shared information will be displayed. The user can edit this info, and then hit send. The text will then be sent to the contact, with a pop-up for confirmation.

Journal Entry SOS - While creating journal entries, if ReJournal detects risky behaviors being described, an SOS box will appear, asking the user if they needs assistance. The user can then call or text a contact, giving the user the opportunity to initiate communication but if dismissed, the device will send an automatic text to the user's contacts to ask them to check on the user.

Analytics SOS: The Analytics page will prompt the user to reach out when it detects a 2-week downward trend. A red icon will appear in the "Analytics" tab to indicate to the user that action needs to be taken. Once on the "Analytics" page, users will be shown a prompt with similar options to Journal Entry SOS. In this case, an automatic text will be sent only if the user has repeatedly dismissed the prompt.

Discussion

Depression and mental health as a whole is a highly active field of research, yet today it is still poorly understood. So when we decided to tackle mental health recovery as a problem statement, we knew we would have a lot of learning to do. What we did not expect were all of the ups and downs of the design process, and the myriad of skills it required; such as following the design process and receiving critical feedback. And most importantly, the iterative process taught us to be flexible and receptive to feedback in order to improve our design.

The research -> review -> redesign process continually guided us to our final design. For example, after determining our target audience, we started with an idea of an app that would help people with depressions and their therapists track treatment plans. Upon conducting user research, we realized that a lot of our original ideas, such as surveys, and actual treatment plan step trackers, were not practical due to the vastly different symptoms of depression and treatment methods. This led us to find common denominators, such as reflection and analytics features in ReJournal. After paper prototyping, our users identified features we did not imagine, such as the ability to reach out to others anonymously. Finally, designing the digital mockup helped us focus on how to present the design to users such as minimizing text when possible.

Based on data from our usability tests, our two main tasks (reflecting on thoughts/feelings, and reaching out to others) remained the same. However, based on critical feedback, we made changes to settings, analytics, navigation, and documentation to help the user complete these tasks. For a design centered around reaching out to others, we received heavy feedback regarding the lack of privacy options and communication settings available. Our users liked the usefulness of the calendar for finding entries and being able to reflect over a period of time, but failed to notice it in our original prototype. Therefore, we made it a separate category in the toolbar. Some of our users were confused about the number scales for recording both physical and mental health, and asked for a prompt or question rather than a label to guide them. Finally, we changed the analytics page from using line graphs to bar graphs, since users indicated it would be easier to understand the data. Besides these changes, the biggest features we added were for our communication feature such as the ability to contact a therapist or emergency services. Emergency services was essential when the user was in a highly vulnerable state, and one of our users indicated the desire to talk to a therapist anonymously for times when users would be more comfortable speaking to someone they don't know than someone close to them.

If we had the luxury, we could definitely use more time to iterate on our design. One followup of our original design could be to perform additional usability testing on the contacting and sharing features in order to determine when users tend to reach out to someone, and under what circumstances. We would have also spent time on design aesthetic, helping to create an app that both felt warm and meditative as well as secure and private. Finally, we could have looked at AI and Machine Learning technologies so as to create more sophisticated mood tracking software such as AI-driven reflection evaluations and therapy advising.

Appendix

Paper Prototype Usability Test Protocol

Introduction:

1. Introduce yourself and give brief background information on the design and project.
2. Let user know
   a. their identity will be kept anonymous.
   b. they can stop at any time.
   c. (emphasize this point) they are testing the design, not being tested.
3. Give them an overview of what is going to happen (i.e. we will be giving them different tasks to perform using our design).
4. Tell them to think aloud as they perform the tasks and let them know that we may prompt them to keep talking if they stop during the process.
5. Let them know, we will not be answering questions (or very few questions) as the user tests the design to simulate real world usage. Ask if they have any questions before starting.
6. Because our design requires inputting personal information, let them know they can use our place holders for name and phone numbers for the device set-up and make up content for the entries.

Tasks:

1. The device is now on and you are using the device for the very first time. Please setup the device. (start on the settings page)
2. Now go ahead and proceed to creating an entry.
3. Now let's say you have been using this device for a while now and have made multiple entries. Go ahead and try to find statistics/information about your entries and your progress so far.
   a. Once on Analytics page, ask if the information presented is clear if the user does not provide any automatic feedback.
4. Now pick an entry and try to share a snippet of that entry with a friend.
   a. At this point, if the user has not said anything about the marking on the page, ask if they notice the markings and if they know what the markings mean.
      i. If no, ask them to see if they can find out what it means (info button).
      ii. If yes, ask them what the markings mean if they do not elaborate on their own.
5. Now try to delete the entry.
6. Now say you decide you want to change a contact. Please do so.

7. Now go back to where you can see all your past entries. Is there another way to view your entries? If so, display your entries in a different view. (testing calendar view)

8. SOS Demonstration - Now say you've had multiple bad days in a row (give them sample entry), here is what shows up (SOS prompt). Then have them pick each option and show them what would happen. Allow them to explore the others options if they would like to do so.

Debrief:

1. Ask if there were points of confusion while performing the tasks.

2. Ask if they have any other feedback for us about our design.
   a. What parts were most useful? Are there features you wish were presented differently or that we should add?
   b. What do you think about the design, would it be helpful?
   c. Is there anything like it that you've used?

3. Tell them what we were trying to discover with the test.
   a. Features that may cause confusion.
   b. How easy it is to perform certain tasks.

4. Ask if they have any other questions for us.

5. Thank them for their time.

Usability Test - Critical Incidents

Issue	Severity
User went to calendar and clicked on blank date to access an entry that didn't exist. (test 1)	2
Users need to be informed that an SOS text may be sent without their knowledge and must give consent for that to happen. (test 2) Lack of ability privacy and flexibility. (test 3) User suggests having a feature to share information to someone she doesn't know to maintain her image with personal relations and receive blunt, honest, and unbiased feedback or support.	4
User thought the info button on the entry page would bring up analytics which it did not. She did	3

eventually find it afterwards. (test 2)	
Users did not notice the calendar button on the tables of content page. (test 3)	2
User was unsure of what the categories (seen on calendar) meant (test 3)	4
User were unsure of what mood and physical wellbeing meant (test 2)	3
User found line graph on analytics page to be hard to process and preferred bars, and the entries information to be confusing. (test 2)	3
User noted the device's lack of ability to adjust analytics settings, such as period of when to track and report certain things. (test 3)	3
Before you say 1-10, try to create a definition between 1-10, and maybe lower the scale to 1-5. (test 3)	2

Usability Test - Other Feedback

We noted down other design feedback from the users that are not implemented at this time due to scope but important to understanding the user's perspective.

Issue	Severity
User suggested having a pin code to prevent others from accessing user's device. (test 1/2)	2
User was unsure of the definition of "share" and meaning in this context. (test 3)	2
User mentioned she wasn't sure of the usefulness of sharing feature, since the moment she would ask for support would be most likely right after a major incident, not after writing in a journal. (test 3)	1
User is worried that about sending an exact copy of a journal entry because due to formatting	4

and lack of organization, it could be described as "nonsense" to someone else reading it. When personal information is usually shared to others, it is shared "in context" to the relationship with the other person, rather than raw uncensored / filtered information. It can also affect the user's personal image. (test 3)	
Text support might, might work, but "cheer supporters" must never reveal to her that she received this message. (test 3)	N/A
"I need space" Is the most likely response to a suggestion that the user talk to someone. (test 3)	N/A
User wants more focus on triggers, She wants knowledge about abnormal stuff, which is a lot more interesting than the stuff I have currently been doing. (test 3)	N/A
In the right situation user is actually be willing to use and press the call button (trusts the feature in the app). (test 3)	N/A
For emotional supporters, importance of parents should be emphasized because they are usually the most important supports. (test 3)	1