# SCR|BE

## DESIGN REPORT

Keeping track of mood states is especially important in helping those with mood disorders improve their mental health. Lack of awareness can lead to frustration and a sense of an uncontrollable self. Our design will analyze one's journal content via word and handwriting analysis to provide personalized feedback on mood states.

Yinqiu Chen, Group Manager
Nina Dang, Documentation
Ki Yeung, Fieldwork and Testing
Oscar Wong, Design

# CONTEXTUAL INQUIRY

PARTICIPANTS

With the target audience of mood disorders in mind, our first inquiry was conducted with Sophia, a junior at UW who is double majoring in Microbiology and Psychology. We wanted to interview her because she has studied topics such as abnormal psychology and human color vision, both of which could help us understand behaviors people with mood disorders might have. She informed us that journaling is a therapeutic way people track their behaviors when they might have problems with their mood. Additionally, many existing applications out in the market right now rely on users to self-evaluate themselves, which introduces bias through things like color and iconography. When it comes to controlling mood Sophia believes, "Awareness is powerful."

We now looked to find people who journal to learn about their techniques and habits. Four people were interviewed. They all reported journaling multiple times a week, more if a notable event occurred, and one reported that they will journal more if they are under stress. When asked about the emotional state they are in when deciding to journal, each person chose moods over a range of positive, neutral, and negative emotions. The topics people wrote included decision making, stress, new ideas, conversations, past revelations, and future aspirations. We asked if they use their journal to keep track of anything. One was goal-oriented while another said, "The one thing I constantly write about are my emotions and state of mind."

As for how journaling affects peoples' lives, one participant said it helped him take control of his life, while another used it to simply review and observe his. One said, "I find that journaling helps me process what is happening in my life, and helps me figure out the next step I should take. But it's also just a good way to relieve stress for me, and I find it also helps me to be more honest with myself." Another participant made a point that journaling allowed him to be accountable when tracking bad habits he wanted to stop. In his journals, he would log the progress of his habit he was trying to get rid of.

# CONTEXTUAL INQUIRY THEMES

THEMES

**Journaling is a reflective tool.** The act of writing allows participants to reflect on their past and see how much they have developed and changed.

**Mood is complex and unique.** Emotional states that trigger journaling were different for everyone and we cannot directly correlate positive or negative moods with one's decision to journal.

**Self-reflection leads to awareness and understanding.** Multiple participants reported that they use journaling to learn more about themselves.

**Journaling is not limited to people with mental disorders.** It can help anyone who wants to learn, understand their feelings and grow as a person.

PROBLEMS

**Spontaneous thoughts can be hard to keep track of.** Since most participants reported using a paper notebook as their way of journaling, there is a dependency on carrying it with them when they want to write. If the notebook is left at home while they are somewhere else, they will have to remember their thought and are likely to forget or not recall it as accurately.

**Lack of self-motivation to write and reflect.** Engaging in behavior that is aimed at self-improvement requires motivation and efficacy. Without it, people won't get anything beneficial out of journaling.

**Interpreting journal entries is prone to subjectivity.** It can be difficult for people to accurately pull findings from their writings since they might be biased or dishonest with themselves.

COMMON PRACTICES

**Alone time.** Most participants write in their journals when they are alone and in a quiet place where they can think deeply without distraction.

**Reflection.** Looking back at the past to review and understand what needs to improve or change. Figuring out what the next steps are in life.

**Night activity.** Journaling is done at night mostly, writing and reflecting on the day's activity.

# TASK ANALYSIS

**1. Who is going to use the design?**

People with mood disorders, people who want to relieve stress or people who would like to learn about their mood behaviors. Additionally, people who want to keep track of their thoughts, change, and record what happens in their life.

**2. What tasks do they now perform?**

They use journaling to express their thoughts and life events in written form. They may keep their journal in private, or some of them are willing to post the journals online (in blog) and share them with friends and family.

**3. What tasks are desired?**

People desire the ability to analyze one's self for reflection, interest, and mood control. While journaling, they desire having a writing space to collect their entries and thoughts.

**4. How are the tasks learned?**

Self-analysis is learned by recognizing behavioral patterns and correlating them with certain moods, triggers, and events. Journaling is usually introduced in our early ages. When we first learn how to read and write, we have the capability of journaling. People learn more about their thoughts and mood through journal, and get a better understanding of what they are going to do in the future.

**5. Where are the tasks performed?**

Since self-reflection and journaling might happen at anytime of the day, tasks are performed in all different kinds of environments. Some participants adhered to a consistent schedule of writing at a certain time—for example, before going to bed.

**6. What is the relationship between the person and data?**

People interact with their entries by reflecting upon their previous writing. As stated previously, people can also utilize their journals as personal logs that they keep to diminish bad habits or start new ones.

**7. What other tools does the person have?**

They might rely on social media or verbal communication with friends and family to express these same thoughts that are in their journals. If a person feels depressed,

they can also consult medical professionals and take medication. They may also engage in activities such as listening to music, eating, shopping or exercising.

## 8. How do people communicate with each other?

People might share this information with their friends, family, or counselors by showing them entries or communicating it verbally. If the journals are posted online, writers can communicate with not only other writers, but also with any one who might read and comment on their journals. However, our participants reported that they keep their journals private.

## 9. How often are the tasks performed?

It varies from person to person. Most journal multiple times a week but moods and events can be spontaneous, causing an increase or decrease in frequency.

## 10. What are the time constraints on the tasks?

As completely voluntary tasks, people can spend as much or as little time on reflection and journaling depending on their desires and schedules.

## 11. What happens when things go wrong?

Due to the nature of journaling, it is only effective if the writer is honest. Writing dishonest thoughts could result in false perceptions of one's self, and hinders them from having accurate self-reflections.

# TASKS

**1. Inspiration and motivation to track mood states**
At times, one can feel unmotivated or disengaged from the recording process. Without a clear vision or inspiration, tracking mood states can sometimes feel more so of a chore than a way to keep track of a day's activities. For example, in the context of journaling, having a prompt or topic to focus on assisted several of our contextual inquiry participants in initiating the writing process. Inspiration can come in many different forms—inspirational quotes, imagery, or interactions with others can encourage users to participate in their particular tracking activity.

**2. Sharing with others and seeking help (when needed)**
Sharing can be a great task for those who want to receive feedback and publicly share their inner thoughts. Putting content into different networks can serve as a healing tool as well from seeing that others can relate, and reading their advice. Sharing with family and friends is a great way for people who know them personally to participate in feedback. For those who don't feel inclined to share their personal thoughts with the people in their lives, anonymously sharing this information with people they might not know can be helpful too.

**3. Tracking and detecting of life events and mood triggers**
Unusual and interesting moments in life are difficult to remember. The feelings and emotions within these moments are sometimes hard to put into words and therefore difficult to remember. One of our interviewees stated that tracking significant events allowed them to reflect back and live in the moment. If we are not able to record a specific event immediately afterwards, we sometimes may miss the small details that highlight the event. In addition, being able to see what events trigger what feelings may give more insight into moods. For example, one may realize after reflecting on journal entries that a specific event always triggers a bad mood.

**4. Analyzing personal information and being aware of mood variations**
To benefit from mood tracking beyond just the awareness of the information itself, one can engage in a deeper synthesis of their data collection to learn about themselves. Since mood is brought about by multiple factors and is unique for every person, self-analysis is important in knowing what individuals are responsive to. This would require much from the user--an ability to be open and honest, and engage in the act of judging his or herself. Looking for these patterns and finding them accurately can turn mood tracking into a heuristic activity of self-development.

**5. Education on the benefits of mood awareness and journaling**
Mental wellness is something that people aren't commonly aware of because the nature of it is intangible. Understanding how mood can impact oneself long term and guide people in making decisions that could impact their quality of life. For example, someone prone to anger management issues may release their temper in an unhealthy method. If this person were to learn about the many benefits of journaling and see the positive benefits, it may persuade them to take this approach and adopt a habit of keeping a journal.

**6. Balancing and controlling mood**
A number of different, complex factors can affect someone's mood at any moment. Things like activities, weather, food, relationships, and life events can affect one's mood, at different intensities and frequencies. Knowing where these mood sources are coming from can be important in understanding how to actively control one's desired mood. Additionally, being able to achieve a balance of these variables to reach an ideal mood is a goal that users might have when trying to improve their mood.

# PROPOSED DESIGNS

DESIGN #1: Smart Journaling (Tasks 1, 3, 4)

Our first design focuses on journaling and offers ways to enhance the typical journaling experience. There are many input methods available depending on the user's preferences, making tracking (of words, thoughts, etc.) a personalized experience. For example, one feature involves using a smart pen (fig 1.1) to write on regular paper while transferring electronic notes onto a tablet or computer will allow the application to do a handwriting analysis (fig 1.2) and provide mood feedback to the user **(task 3,4)**. There will also suggestions to help one find inspiration, through things like imagery and quotes **(task 1)**.
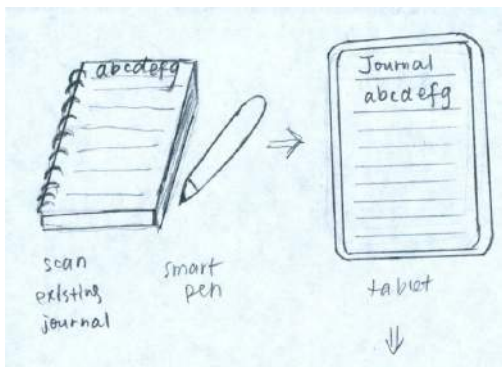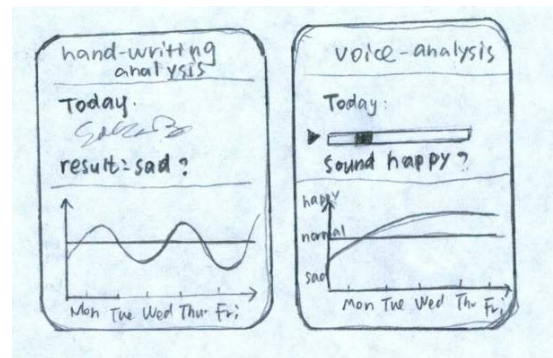


fig 1.1, Smart Pen                                        fig 1.2, Hand-Writing Analysis

DESIGN #2: Mood Wearables (Tasks 1, 3, 4, 5)

This design focuses on external monitoring wearable sensors to detect the user's mood and behaviors without self-entry—unlike other mood tracking apps **(task 3)**. The design uses a bracelet to monitor exercises, activities, and sleep patterns. Additionally, the user can choose to wear a headband or glasses, which utilizes sensors to read brain waves and detect mood (fig. 2.1). The tangibility of these devices are reminders for the user to think about why they are wearing it, resulting in inspiration for mood awareness **(task 1)**. The application next analyzes this information in order to give users suggestions of how to enhance their mood **(task 4)** (fig 2.2). The difference between this analysis and our first design's is that this has a capacity for physical personal informatics, since it involves detecting bodily functions. Thus, a user is able to apply this information in a health-centric context, allowing for long-term habits to be learned through guiding suggestions **(task 5)**.
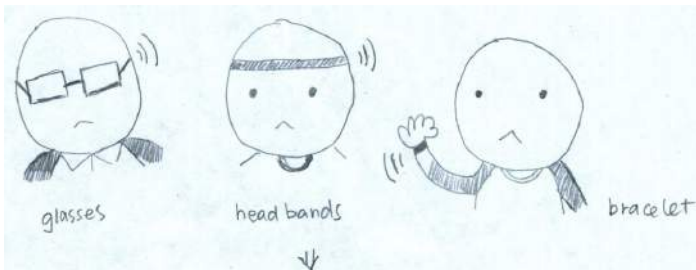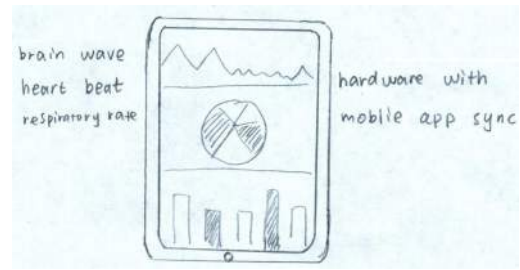
fig 2.1, Wearables



fig 2.2, Health Analysis

DESIGN #3: Social Mood Sharing (Tasks 2, 3, 6)

This design focuses on sharing, connecting to other people, and getting feedback to assist with desired mood states. It offers a social platform based on the user's current GPS location as well as their personal activities and interests (fig 3.1). In this design, we are tracking the user's mood based on the activities they have done **(task 3)** (fig 3.2). According to an initial questionnaire of user-selected metrics, the activities will correlate to a certain mood. Users will have ability to share their thoughts about certain events anonymously to express their feelings without being judged (3.3). This gives our users the opportunity to seek help or give support to others who might also be trying to balance their mood **(task 2)**. A mood analysis will track the kinds of activities users have done, how much time they spend in a certain activity, and generate the mood balance state for individual **(task 6)** (fig 3.4).
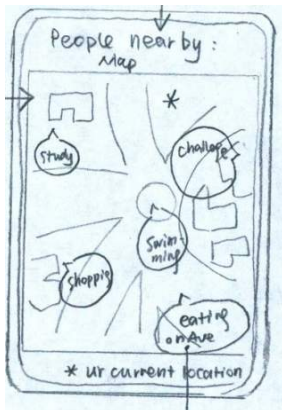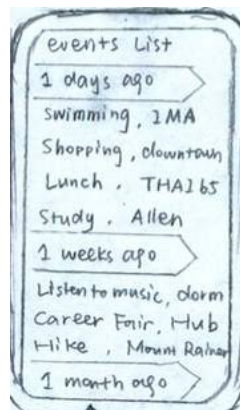


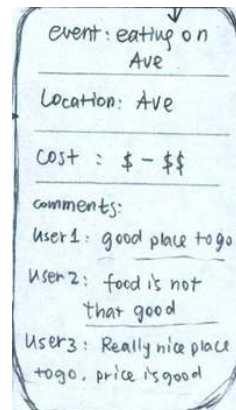fig 3.1, GPS Activities



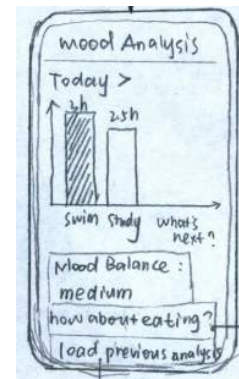fig 3.2, Track Activities



fig 3.3, Anonymous Comments



fig 3.4, Mood Balance

# SELECTED DESIGN

We have selected our first design of journaling and word-analysis to further refine.  We chose this design because the act of journaling is already something that our target audience engages in, so our design would be familiar to them and help expand upon the capabilities of the current activity. Although, journaling does require self-input (through words and entries), we were drawn to it because it doesn't require the user to assess themselves through mood scales or ratings. We believed that these kinds of assessments were problematic in honesty and suffered from a lack of interest to perform them.

The first task we will focus on is tracking and detecting life events, which will be the platform for self-input mentioned above. Our second task focuses on analysis of personal information and being aware of mood variation, which will be our app's word-analysis capabilities. These tasks we chose to focus on are more compelling than the others because they are more actionable. For example, a couple of our other tasks were based on intangible thought such as finding inspiration and becoming educated. The long-term effects of those tasks might fade, whereas the act of tracking and analyzing can provide personalized results to the user and foster a longer use of the application.

# STORYBOARDS & SCENARIOS

**Story #1**
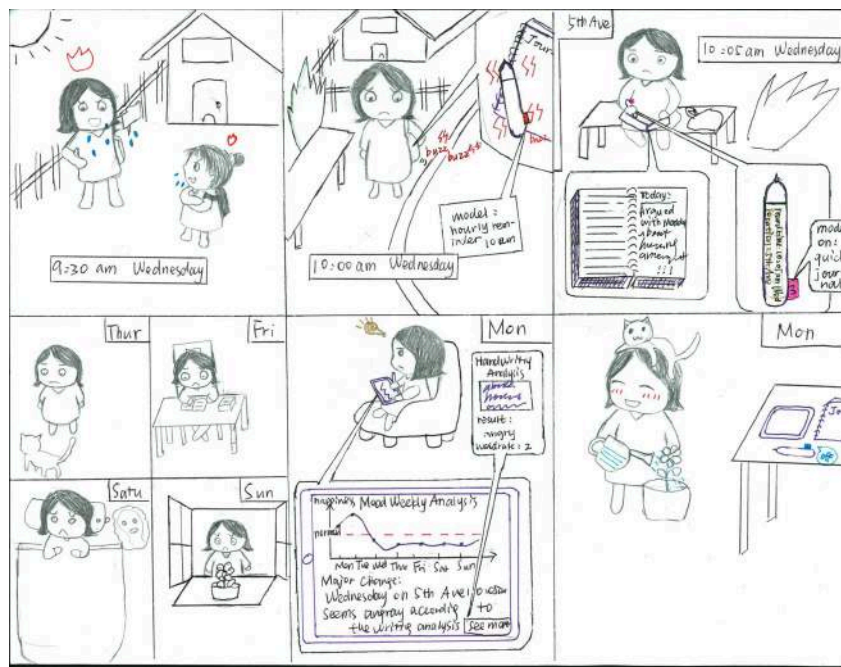
Allison is a 45 year-old-woman living with bipolar disorder. Following her therapist's instructions, she keeps a log of her daily activities and mood. Her Scribe enables her to quickly write an entry in her log by first flipping a switch to indicate an activity log entry, then writing a quick log. She recently got into an argument with a friend, and a little while later Scribe's hourly reminder vibrated and notified Allison to write in her activity log. Allison then wrote, "Argued with Maddy about housing arrangements". Scribe also tracks the location and time when she wrote the entry. The following week, Allison feels depressed and is not sure why. She looks back over last week's log entries on her tablet and realizes her mood started declining after the arguments, which triggered other negative events. After identifying that arguing with her friend was a trigger, the next time she found herself in an argument, she proceeded differently since she was aware of what the future affects might be.

**Story #2**



George, a 20-year-old college student with a part time job, doesn't know he has a mood disorder. After reading an article online explaining the benefits of journaling, he decides to give it a try since he has been feeling really down lately. However, since George has never journaled before, he doesn't know how to self-reflect on his writing. When using Scribe to write journal entries at night, he usually just free writes about his thoughts and feelings. The Mood Analysis Tool (MAT) analyzes his words and parses his handwriting to detect overall emotions and mood variations. Every week MAT aggregates this data and forms a mood chart for George to read. MAT detected a severe depression level and alerted George to seek help. George used the chart's export feature to print out his mood charts. George's counselor later diagnosed him with major depressive disorder, or MDD.