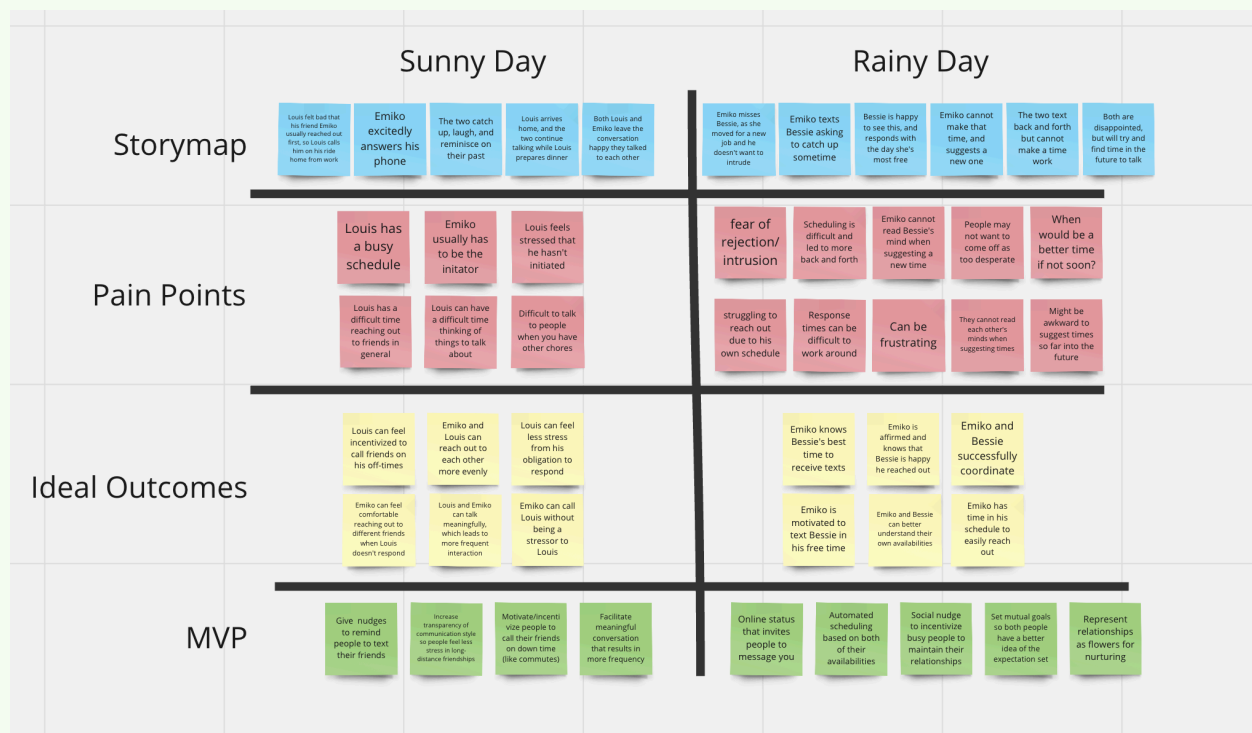


Usability Testing: Designing a Solution

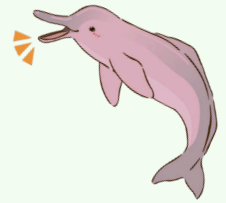
The Amazon River Dolphins have set out to improve people's ability to manage their long-distance friendships through methods that leverage accountability and convenience. Before we can take steps to design a perfect solution, however, we undertook several key design steps to investigate how users would feel about some of the core aspects of our proposed solution. With this report, we aim to showcase our design process, concluding with an intervention study that implements the key insights from our brainstorming process.

Story Map and MVP Features



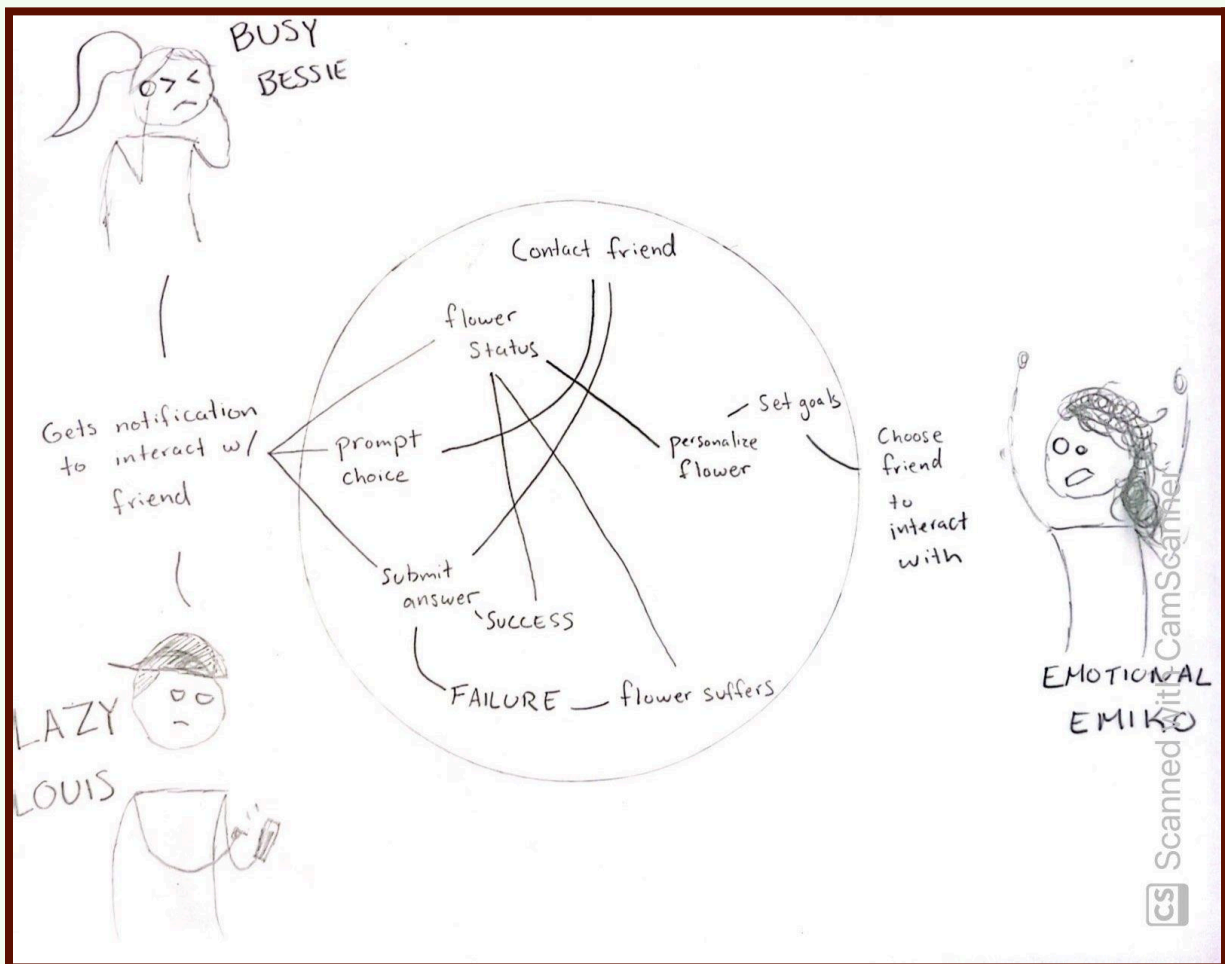
MVP Features

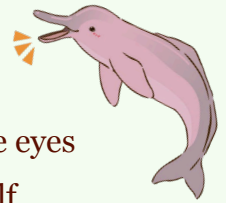
- Give **nudges** to remind people to text their friends
- **User status** to increase the transparency of communication and reduce stress



- Incentivize friends to **share free time** with their long-distance friends
- Facilitate meaningful conversations at **high frequencies**
- Online/activity status that **invites people to contact** you
- **Automated scheduling** for notifications based on availability
- Implementation of **mutual goals** to create accountability
- **Visual representation** of relationship status and health (flower)

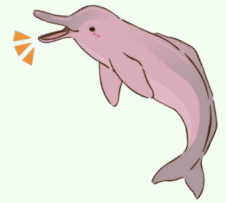
System Paths





To get a good look at our system, we tried to look at our solution through the eyes of our three personas, whose main characteristic is outlined in the system map itself. Because Busy Bessie and Lazy Louis respectively struggle with their schedule and energy levels, they approach our system through **invitation rather than self-motivation**. It is unlikely that they would take extra steps to manage a long-distance relationship out of their own volition without a push in the right direction. Ideally, they would receive some kind of reminder or notification outlining exactly what steps they should take to participate meaningfully in the app, which could involve receiving prompts or seeing a conversation prompt handed to them. From here, their actions would influence the health of the flower. Emotional Emiko is the main instigator of flower care, **setting goals and reaching out** to her friends to improve her long-distance friendships.

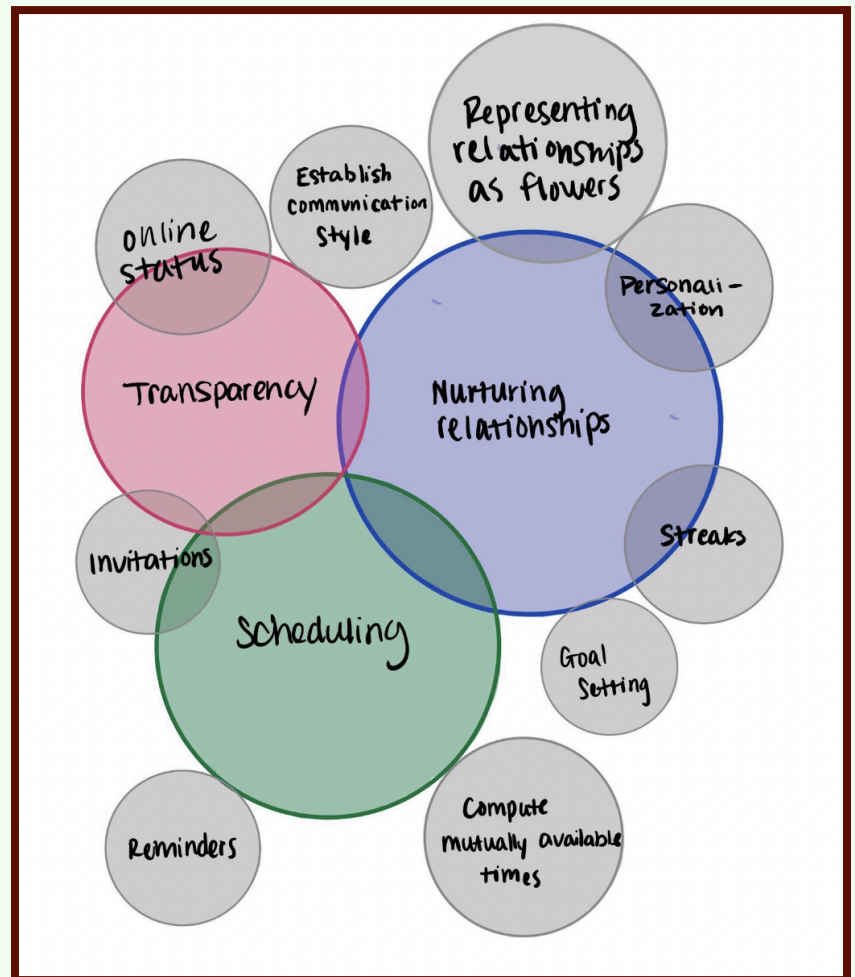
Through this system path, we found that most activities rely on the user being able to **see their flower's status** before and after most steps on the app, leading to the impression that the **status of the flower should be visible on the central page** of our solution. We've also acknowledged that **too many types of notification could be too much** for individuals like Louis and Bessie who would be dissuaded by having to complete **too many steps** to manage their friendships. Perhaps skipping the notification and having the **flower directly accessible** via a widget on their phone screen would be more effective. In this system, we've implicitly assumed that conversation would happen outside of the app, but this would require users to log in both before and after interactions with their friends, which further supports **reducing complexity** and having success and failure depend on **simple, one-click interactions** rather than submitting summaries of conversations.



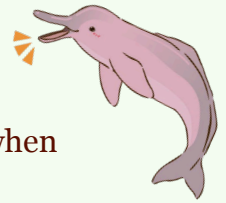
Bubble Map

When creating our bubble map, we organized our MVP features into three core functionalities that our app hopes to deliver: nurturing relationships, reducing friction around scheduling, and enhancing transparency. Nurturing relationships is the crux of our app, which lent many of our functionalities to be centered around it. Thus, we denoted this with the largest circle.

Features such as personalization (naming, decorating, etc), streaks, and goal setting are all ideas we hope to incorporate to sustain the relationship. The other core functionalities of our app are less prominent, but we gathered ideas that were pain points to solve from our user research.



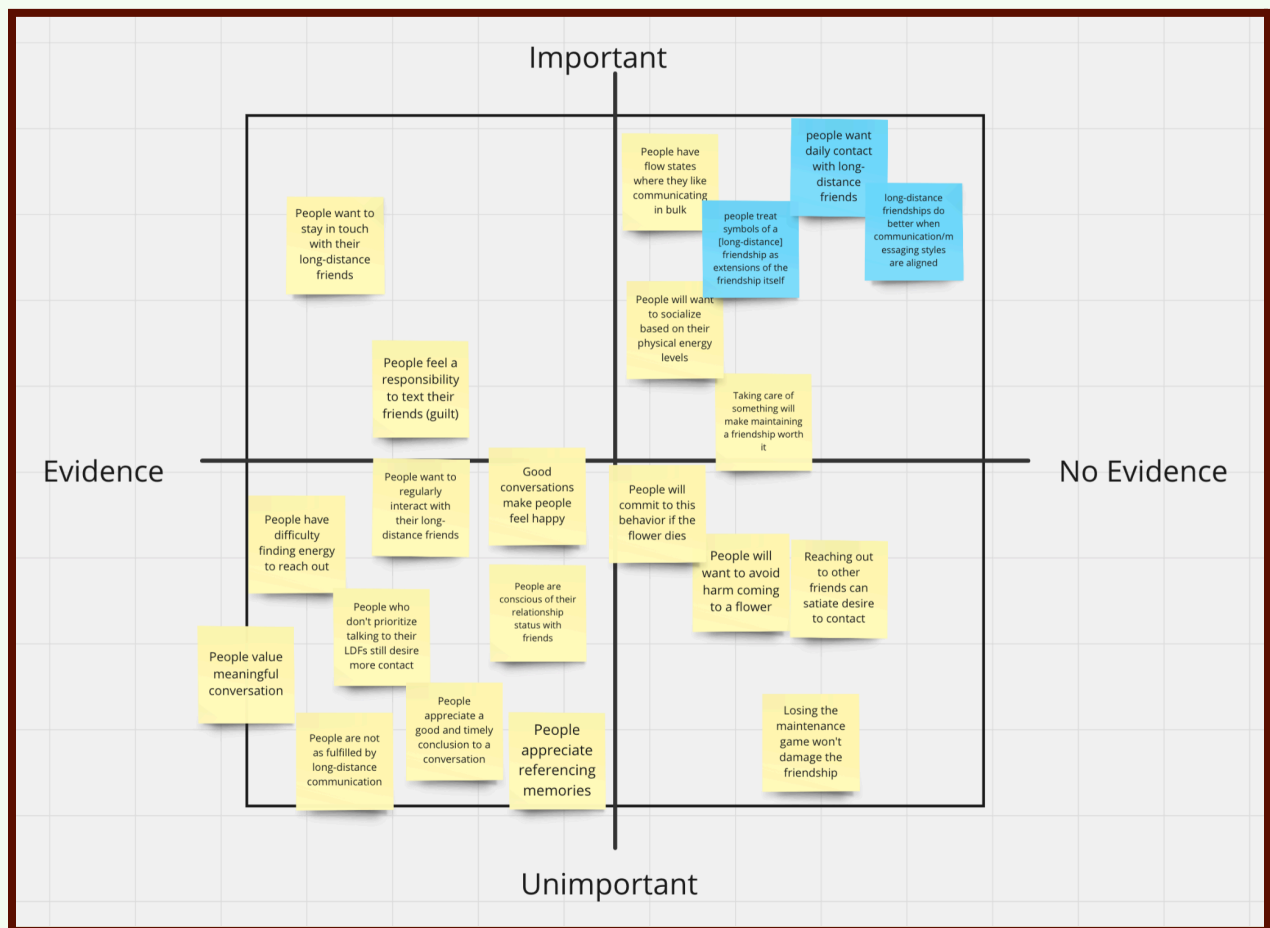
We found transparency to be important to establish because we found that different communication styles may distort the expectations people have around receiving responses. Some ideas we had to establish this were to set an online status that more explicitly invites users to chat (possibly represented by gestures with the flower) or by being able to display what your communication styles and preferences are. Regarding scheduling, we hope to compute times for people based on their availability to



streamline coordination and provide reminders for people to reach out to friends when they can (like if you are on a commute and trying to pass the time.)

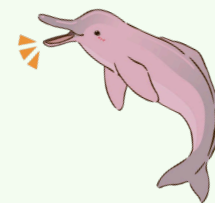
Assumption Map

We created the below assumption map, ranking assumptions based on the amount of evidence and importance. Later, we chose to focus on three assumptions (blue) that were very important but lacked evidence to back them up.



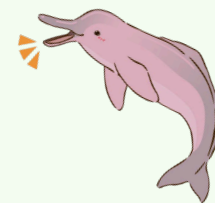
We found several key insights from this:

1. We have quite a few assumptions that **have evidence yet are unimportant**



(see bottom left quadrant).

2. The two most populated quadrants are **evidence/unimportant and important/no evidence**.
3. The two least populated quadrants are evidence/important and unimportant/no evidence.
4. Unimportant/no evidence mainly deals with specific flower interactions, but the most important thing is whether that flower symbolizes anything, so we placed that in important/no evidence. The rest will follow from that.
5. In evidence/important, we know that people want to stay in touch with LDFs and often feel a responsibility to text them mainly resulting from guilt. We learned these from our interviews and needfinding. A common theme of evidence is that, when we had it, it was from interviews and needfinding.
6. There are several assumptions in the no evidence/important quadrant that would be good to figure out. We highlighted these in blue. Specifically, they are that people want daily contact, and treat symbols of a friendship as extensions of it, and the best LDF dynamics are ones where communication styles are aligned. These are all important for the solution space we are looking at, and many of these things we had overlooked previously.
7. Overall, we found three assumptions we want to focus on moving forward. It's good that there wasn't an overwhelming number of assumptions in the upper right quadrant.



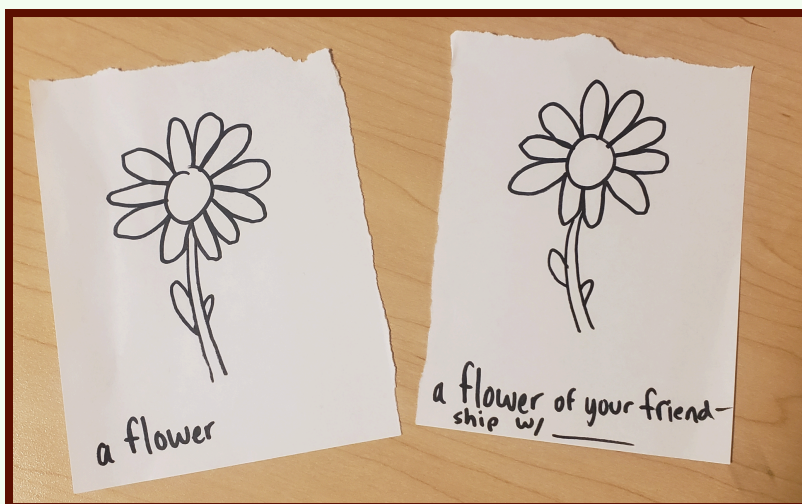
Assumption Tests

We created three assumption tests for three important yet untested/unknown assumptions.

Assumption Test #1: Symbols

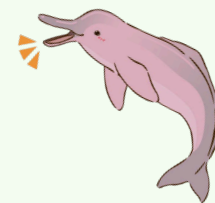
We believe that people treat symbols of a [long-distance] friendship as extensions of the friendship itself. This is critical to analyze given that we have been looking at using flowers as symbols to motivate long-distance connections in our intervention study and are considering using symbols in our project.

To verify that people treat symbols as extensions of friendship, we will first ask them to name a long-distance friend who is important to them. Then, we will have them draw two identical flowers on two different sheets of paper. After this, we will use a marker to label one as “a flower” and the other as “a flower representing your friendship with [x].” Then, we’ll ask them to recycle one of the papers and keep the other to bring home.



We’ll measure if people are more likely to dispose of the drawings of flowers that do not represent friendship.

We are right if people are more likely to throw away the non-friendship flowers (and more likely to keep the friendship ones).



Assumption Test #2: Contact Frequency

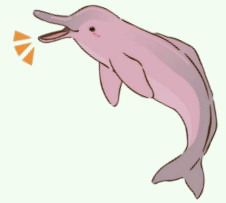
We believe that people want daily contact with long-distance friends. This is critical to analyze, given that we have been assuming that people want this level of contact; for any possible solution we work on, we need to know the ideal level of contact.

To verify that people want daily contact with long-distance friends, we have them write down a list of their long-distance friends. For each friend, they'll list how often they would ideally contact them. Then, they'll list how often they want to contact long-distance friends in general.

friend a	-	3x/WK
friend b	-	weekly
friend c	-	monthly
friend d	-	daily

This will help us measure their desire for contact, whether daily or otherwise.

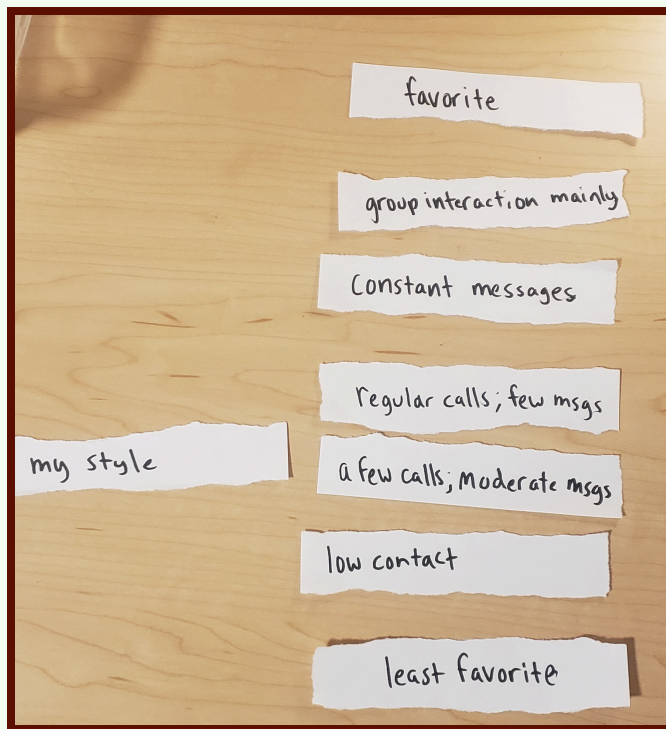
We are right if their desire for contact with long-distance friends is daily.



Assumption Test #3: Communication Style

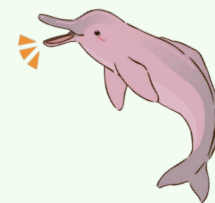
We believe long-distance friendships improve when communication/messaging styles are aligned. This is critical to analyze given that we are building for people with different types of messaging styles (i.e., throughout the day v.s. during one larger session), and we should know how different communication styles mesh together.

To verify that long-distance friendships do better when communication/messaging styles are aligned, we will first ask them about their style. Then, we'll give them sheets of paper representing a few prominent styles and ask them to rank them based on how ideal they are for one of their long-distance friends to have. After this, we'll probe their thoughts behind the ranking.



This will help us measure people's stated preferred methods of communication with their friends, in addition to their communication styles.

We are right if people tend to rank communication styles similar to their own as ideal, regardless of what their communication styles are.



Intervention Study

The intervention study was valuable in helping us develop various insights and new approaches for the next step in our solution design.

Our intervention study focused on leveraging a living representation of a user's long-distance relationship to motivate them to reach out to a long-distance friend. In our study, we used live flowers, which each participant named, to create an emotional attachment between them and a visual depiction of their long-distance relationships.

Part 1: Potting & Planting

The first component of our study involved users interacting with the flowers. After naming the flower, participants would receive daily pictures of their flower in the morning and night, asking them to complete an interaction task by the end of the day. If participants were successful, their flowers would receive water, sunlight, and attention, while participants received praise from their flowery friends. However, if a participant failed the task, the flower would have petals removed to represent their deteriorating long-distance friendships. The response to the flower ranged from apathy to endearment, with some users reporting that they forgot the flower was even a part of the task and others requesting to see their flowers if they didn't receive a picture on a given day. **Those significantly attached to their flower reported higher enjoyment in completing the task**, while those who did not connect to the flower reported the intervention study as more of a chore.

This variability could result from the medium, given that a flower in a participant's care may have allowed for a greater emotional attachment. Differences in how participants interacted with their flowers could have also contributed to their degree of emotional attachment to a plant they only saw in pictures once or twice a day.



From this, we gather that there's variety in how people interact with a third-party "character" that depends on their actions. While no one was explicitly resentful towards their flower companion, we **generally expected more attachment** from the participants. Those who self-reported a high attachment to their flower reported contacting a friend near midnight just so their flower wouldn't be hurt. The **visual reminder was a motivator to reach out to friends through accountability**. In future iterations of intervention studies, we have three ideas to improve the emotional connection between users and their flowers in our solution:

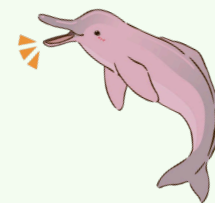
(1) We would like to **personify the flower further**, using emotional appeals to connect the user to a being rather than an image.

(2) Flowers could serve as a more direct representation of a relationship by having participants maintain **one flower per long-distance friendship** – if one relationship is maintained, only one flower thrives.

(3) The care of a flower could be **levied upon both parties** in these long-distance friendships, where participation from both parties is required to maintain a single flower. This would encourage participation from both friends while making care of the flower a bonding activity.

Part 2: Conversation Prompts

The second part of our study design required participants to report the answer to one of three conversation prompts about their long-distance friend. Every morning, participants would receive their daily prompts, an image of the flower, and instructions to choose a prompt and answer it by the end of the day. Their response, or lack thereof, would result in care or harm to their flowery friend, which would then be made available through a picture. For example, if a user had successfully reached out and answered one of the given prompts, they would receive a photo or video of their flower having their water replaced and thriving.



We found that users were receptive to the conversation prompts, with some reporting that the prompts were **open-ended enough** to provide an answer without asking their friend anything too specific explicitly. Other users considered the prompts **awkward**, feeling that there were times when they would reach out to their friends only to get an answer to the given question; it is important to note, however, that these prompts did **improve the frequency of communication**, which occasionally led to a longer interaction with **positive emotional outcomes**. We found that some participants chose to respond to a prompt about negative emotions (i.e., “What is something your friend is stressed about?”) whenever it was offered. From this and the information we gathered in our literature review, we can tentatively conclude that these decisions to talk to their friends about more negative emotions support the notion that our participants and their friends **preferred conversations with higher emotional valence**.

Part 3: Reflection

Our intervention study concluded with the participant's choice of an interview or Google form, which aimed to investigate why the participants behaved the way they did. Apart from the section-specific insights, we found several takeaways from the intervention study that were worth exploring further.

First, it was **rare for the participants to fail their tasks on a given study day**. Most of our sample users seemed committed to at least attempting to receive an answer to one of the prompts daily. However, we cannot assume this is due to the flower's influence or the efficacy of the prompts. The frequency of communication may have only spiked because they were being **held accountable by another human** being conducting a study. **Subject bias** likely has a strong effect on any study of this nature.



None of the participants lied to protect their flowers from harm. Despite the days when they did not have answers to any of the provided prompts, participants were still honest about their failure despite the harm that would come to their flower. The significance of this fact is twofold. Participants were **willing to approach the study in good faith** to provide positive results for our study, but this also means that **participants were not invested in the well-being of their flower enough to tell a non-falsifiable lie**. It is also uncertain if participants would lie to a digital app over an acquaintance asking them for the truth.

Finally, a few participants highlighted the **difficulty of reaching out to a friend daily**, with some expressing that having to talk to a long-distance friend on a day-to-day basis was “unrealistic.” For our solution, we propose that users be able to introduce some self-accountability, where they decide **how often they want to communicate** with their long-distance friends. Striking a **balance between encouraging a high frequency of communication and making speaking to friends an unwelcome chore is paramount for our solution**, as we may end up introducing more **friction to developing** a good habit.