REDESIGNING SMART INTERFACES:
FACEBOOK MESSENGER
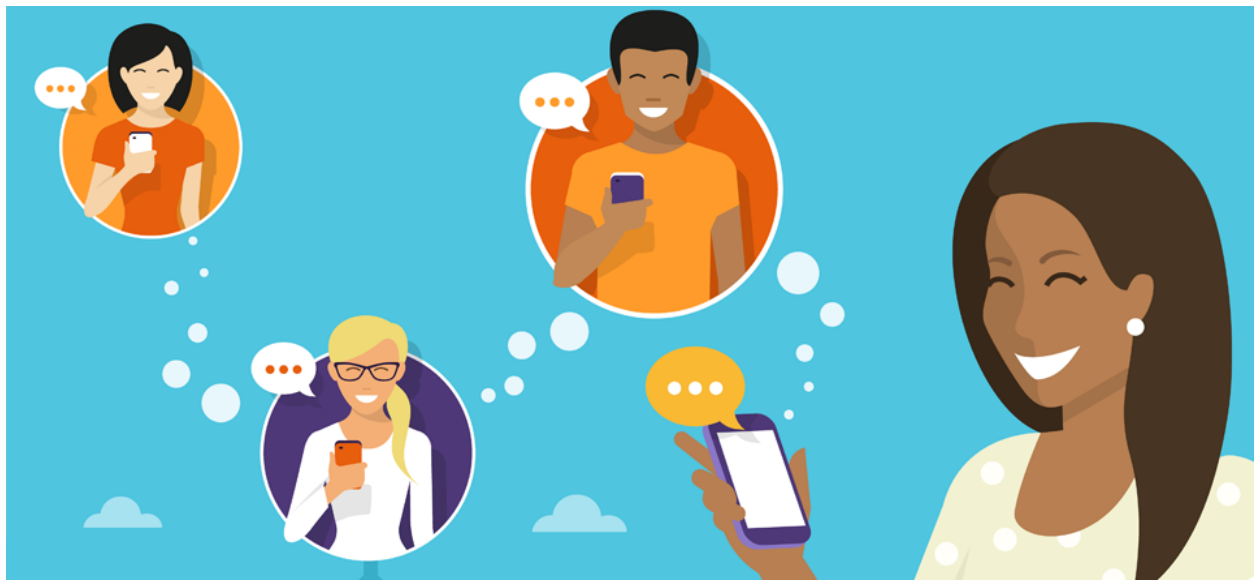
Liam Schmidt, Minjian Liu, Natalie Martinez

Table of Contents

INTRODUCTION

Design Focus

When considering which smart interfaces/interactions to design, we wanted to target something that is integral to daily life - communication. With this in mind, we decided to improve the existing user interface of the Facebook Messenger app for smartphones, specifically IOS, as well as introduce new interactions that would improve the overall user experience.

Problem Space

The primary purpose of Messenger is to facilitate communication between Facebook friends. However, this simple task is complicated by the inclusion of many largely irrelevant features that clutter the app's interface, and make it difficult to find actual features of interest. We felt that the interface could be simplified and condensed down to features that users would actually want.

One of the most commonly used features is the Messenger app group chats. However, even while creating our group message for this project we ran into difficulties. It seemed that there were an unnecessary number of steps we had to take to create a message between three people. We felt that this process could be simplified, and that the organization and experience of having multiple group chats could also be improved.
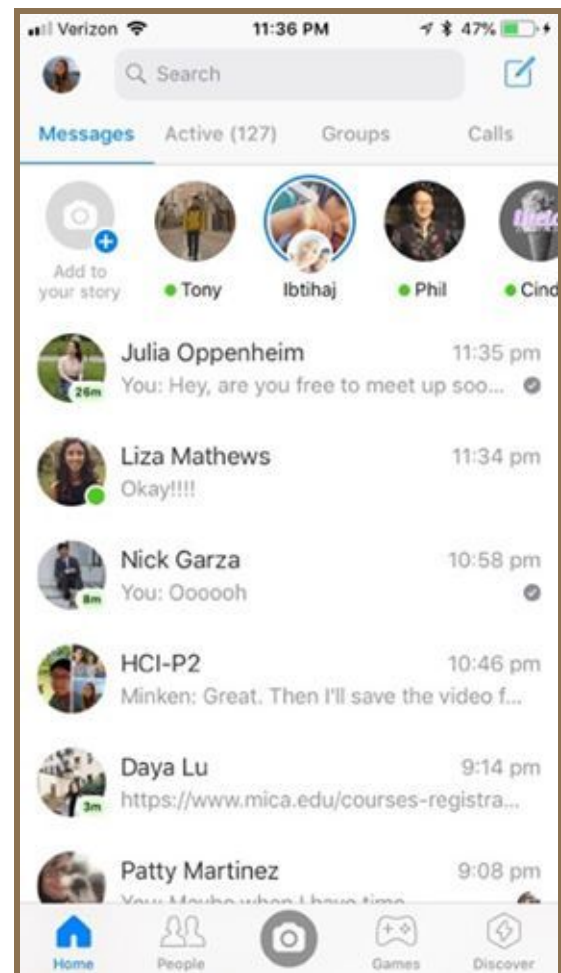
Current Facebook Messenger Interface

PROBLEM UNDERSTANDING – CULTURAL PROBE

Design of the Cultural Probe

When designing the cultural probe, we had to keep in mind that with an app used as frequently as Messenger, it would not make sense to require our participants to interact with our cultural probe every single time they used the app. At that point, it would become overly invasive to the user's everyday experience. Instead, we opted to have a survey that participants filled out at the end of each day. The survey was composed of the following questions, which were of the "check all that apply" and short answer variety:

1. What is your name
2. What is today's date
3. What icons did you click today?
4. What time of day did you use Messenger?
5. Did you send pictures or take pictures using Messenger today?
6. How did you interact with "Stories" today?
    a. If you did not interact with stories, explain why.
7. Did you send voice messages today?
8. Did you use video call today?
9. How many groups/individuals did you send messages to today?
10. How many groups/individuals did you receive messages from today?
11. Any additional thoughts?

From our questions, we hoped to gather a range of information on which features were most and least used, and more generally how our participants interacted with Messenger.

We recruited two participants. One participant was an avid Messenger user, and cited it as his primary means of text-based communication. The other participant was a casual user that mostly utilized Messenger for group projects and clubs. The cultural probe was used for one week, with check-ins from our group members to ensure that the survey was completed and the responses were of good quality. Participants also completed exit interviews with more extensive questions about their experience.

Findings

Summary

Over the course of the cultural probe, we collected valuable data that we later used to shape our redesign of the Messenger app. Exact figures can be viewed in the appendix. A summary of some statistics are as follows:

- The "Home" and "Messages" tabs were most frequently clicked, with all other tabs, Groups, People, clicked on less than 30% of days. The "Games", "Discover", "Active", and "Calls" tabs were not clicked at all.
- The Messenger app was used at all times of day, but was used every single night in the range of 6PM - 12AM by both users.
- Participants rarely interacted with "Stories". The one time a user uploaded a story, it received 39 views from 617 friends (~6% interaction) compared to Instagram, where he received 156 views from 489 friends (~32% interaction).
- There were 0 voice messages sent, and 1 intentional video call throughout the entire week.

Interview 1: Anand Koshy

The first participant we interviewed was Anand Koshy. Anand described his Messenger use as a mixture of class project group chats and personal messages, with a heavier emphasis on the groups for projects. He has 3-5 active group messages, and many archived group chats from past projects. He also explained that he prefers to use Apple's internal iMessage

platform for most of his messaging, only using Messenger for group projects, people he doesn't know well from class, and international friends. This is primarily due to the ease of use - iMessage integrates well between his phone and Macbook without requiring him to open a website in browser to continue conversations from his phone. He also is not a heavy social media user, so he was not a frequent Facebook user in the first place.

Anand's primary use of messenger is for group chats relating to class projects. We inquired about improvements that could be made in how Messenger displays groups, specifically the organization and ease of locating groups. He noted that, "It would be helpful.. A way to separate group and individual messages... something more convenient and with better visualization". We also asked about the ease of creating groups. He mentioned that he usually creates groups on the web browser, since it is easier than using the app directly. He stated, "I usually actually do it through the facebook website rather than the messenger app...its a matter of convenience, especially because sometimes, like when I need to create a group chat it's usually for people that I don't know that well, so I might not be friends with them on facebook already, so I might have to friend them first and then make the chat". He responded positively to the idea of an "add nearby" feature, especially for creating groups with classmates he is not already friends with on Facebook.

 Based on his use of the Messenger app at night (from 6:00PM to midnight) we asked if he would be interested in a "dark mode" for Messenger. Dark mode changes the color of the interface to make the display easier to read and less harsh on the eyes in limited lighting. Anand replied that, "It's more customizable. Usually when apps have an option for dark mode I use that as a default because I just prefer it more".

"Usually when apps have an option for dark mode I use that as a default because I just prefer it more."

We then asked about why certain features of messenger, such as "Games", "Discover", "Active", "Stories", and "Calls" were not utilized during the week of the cultural probe. He commented, "I had no need to interact with other tabs... I've never really found the need to explore messenger. To me it's just like the only purpose it has is messaging other people, like I don't really care that much about like the games or seeing what other people are active". While he did make a video call during the week, he still prefers the Facetime app

internal to Apple: "I would probably typically use facetime, just using messenger that one time was kind of an outlier... I think it's useful to have, I've used it before in the past for group stuff, especially over the summer when we couldn't meet in person". He did not use voice calls at all.

> *"To me it's just like the only purpose [Messenger] has is messaging other people, like I don't really care that much about like the games or seeing what other people are active."*

As far as stories, Anand only saw one story uploaded over the duration of the cultural probe. He stated that, "When I did view stories, it was like one story... I would say it causes clutter because usually when there is a story it's only one or two... it's just kind of taking up space" He thought it was not intuitive that the story did not disappear after viewing, and was confused as to why people appeared at the top of the app even when they did not post a story.

Interview 2: Tony Yang

Our second participant was Tony Yang. Tony's primary means of text communication is through messenger. He also uses GroupMe, Instagram Direct Messages, and occasionally his phone's text message platform. He noted that, "I like messenger because it's easy, I don't have to remember everyone's number". He is part of a few groups, and has 6-8 active individual messages as well. The groups he interacts with over Messenger are largely for class projects, where he receives many short messages.

> *"I noticed that when I want to message a group, I'll tend to do it on the website and then continue my conversation on my phone, just to look for it which is pretty bad."*

Tony's use for Messenger groups, similar to Anand, is for class projects. He also primarily uses group chats on the web browser. Tony expressed some frustration: "My biggest qualm with group chats is that they're not named by default... it's really hard to find". This becomes confusing because he may have several groups with overlapping members, and

since he is not automatically required to name the group, it is hard to distinguish them in a search. He continued on to say, "I noticed that when I want to message a group, I'll tend to do it on the website and then continue my conversation on my phone, just to look for it which is pretty bad". One solution he mentioned for sorting these groups and making them easier to find in general was the idea of "tagging" groups to categorize them. Then, using a search for the "tag" a group is under would display every group of a certain category. Tony was not as interested in the idea of an "add nearby" feature, mostly because he did not want his location to be tracked by Facebook at all times. He liked the idea of a QR code to scan for creating messages with people, but was surprised to find that it already existed, and was underutilized.

Over the course of the cultural probe, Tony uploaded a story. We asked him about this experience, since it was not generally popular between our two participants. He uploaded the story and found that it lacked some of the interactive abilities that other platforms such as Instagram had (ie. polls, question replies). As noted in the summary of our findings, the Facebook story received 39 views from 617 friends (~6% interaction) compared to Instagram, where he received 156 views from 489 friends (~32% interaction). Overall, Tony noted that Instagram is the ideal app both in its ability for users to create content, and the publicity to his friends/followers. He also stated, "I don't associate messages with stories, I associate feeds with stories"

"The thing about facebook is that it has so much functionality, it's easy to get overwhelmed by it… you only use 20% of its functionality, if even that."

We then asked about which tabs Tony did not interact with, and his reasoning for this behavior. He said that tabs were nice to have, but definitely not necessary. He remarked that, "The thing about facebook is that it has so much functionality, it's easy to get overwhelmed by it… you only use 20% of its functionality, if even that. " He prefers a streamlined app with not too many features, citing Instagram as a good example.

The features/feedback we want to focus on leading into our persona and implementation can be consolidated from the interviews and cultural probe data as follows:

1. The current messenger app is too cluttered. Features such as "games", "stories", "active", and "discover" can either be consolidated or removed completely
2. Messenger group chats are often created for classmates to communicate while working on projects together. These classmates might not already know each other or be friends on Facebook, making the creation of such group chats difficult
3. It is difficult to find groups users are looking for based only on the "search" feature, especially if the user has many groups they are actively involved in.
4. The Messenger app is used at all times of day, but especially at night (from 6:00 PM to 12:00 AM)

Moving forward in the design process, we decided to see how we could improve user interactions with the Messenger app, with a strong focus on the above problem areas.

PROBLEM UNDERSTANDING - PERSONA

MAIA JONES

"MY ME-TIME IS MY 7AM PRACTICES. CAN'T STOP SWIMMING OR YOU'LL DROWN!"

MOST USED APPS

PERSONALITY

MOTIVATED
FRIENDLY
OUTGOING
BUSY
HARWORKING

BIO

Maia is a junior at Johns Hopkins University majoring in computer science. She is on the varsity water polo team, and is involved in many clubs on campus. She sleeps from exactly 11:00 pm - 6:00 am before waking up and going to the pool for practice. Maia wants an app that makes communicating with her various groups simple and hassle-free.

ACTIVITIES & INVOLVEMENT

- Women in Computer Science
- Varsity Water Polo
- Hopkins Ceramics Club
- Computer Animation Club
- Works as a lifeguard at the JHU Rec Center

CURRENT MESSENGER USE

Maia uses messenger groups for the activities above as well as:
- Group projects, some of which have ended
- Roommates
- Friends from home (this group is not very active)

FRUSTRATIONS AND NEEDS

- Wants to delete or star conversations
- Wants to easily create groups with classmates she is not friends with
- Does not have enough time for her Messenger to be cluttered with excessive features - no stories, games or "discover"
- Wants to be able to view messages at night without hurting her eyes, especially as she is winding down to get a good rest before practice
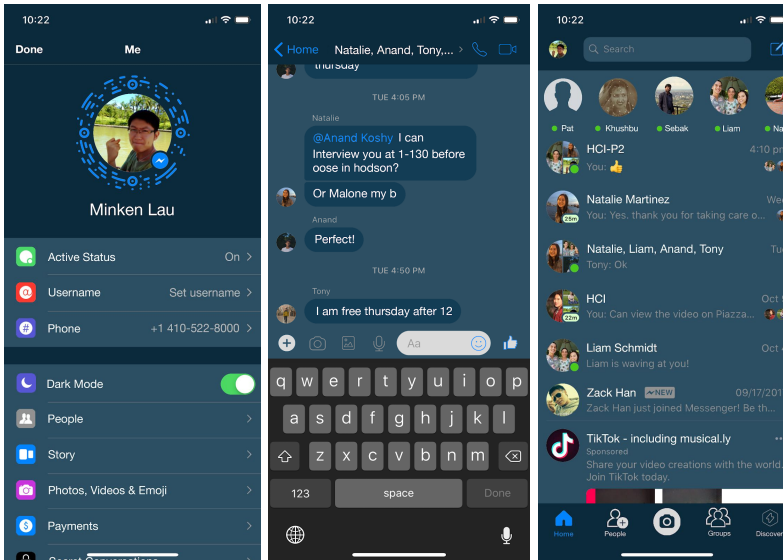
IDEATION & PROTOTYPING

Interface

Dark Mode

We implemented "Dark Mode" as a toggle-able option under a user's profile.

"Dark Mode" is a feature that allows users full Messenger functionality at night without negatively affecting vision.

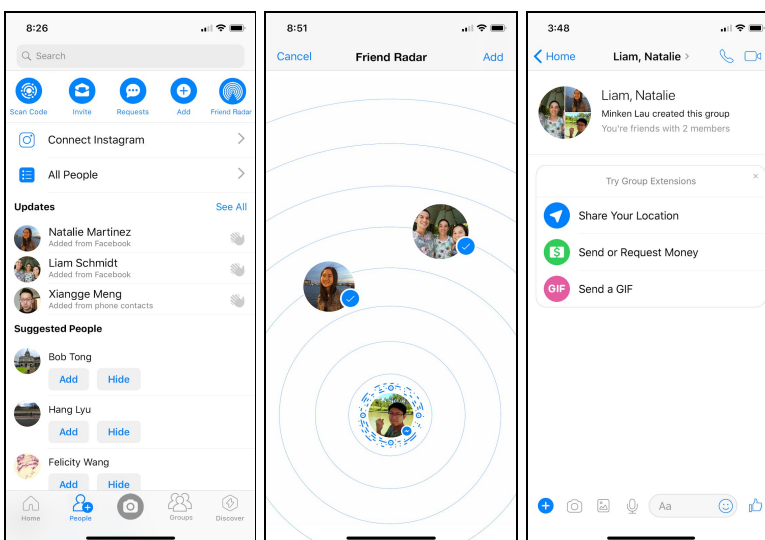The darker colors may also help users that interact with the app right before bed sleep better.

| Image 1a | Image 1b | Image 1c |

Friend Radar

Friend Radar aims to make the creation of groups easier.

Your location is accessed after entering the feature, and you are able to see users nearby that are also using the feature.

Users can select which people they want to add to the group, and then a group is instantly created and ready for use.

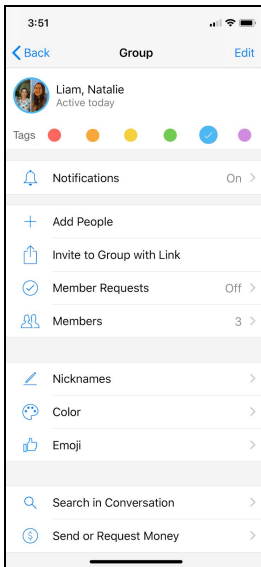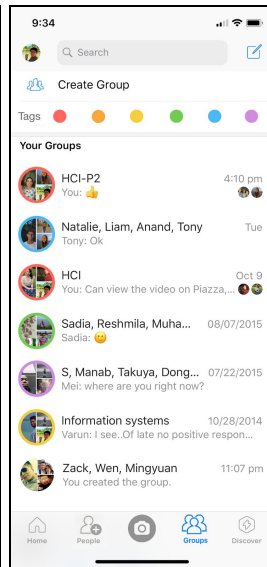| Image 2a | Image 2b | Image 2c |

Group Sorting

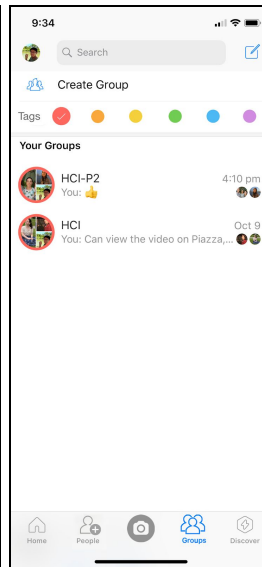Image 3a   Image 3b   Image 3c

One task users found difficult was locating groups in their long list of messages.

With our sorting feature, each group can be "tagged" with a color corresponding to the category of messages it belongs to. Groups default to "no color"

On the "Groups" tab, users can filter the groups that appear by color.

Intuitive Gestures
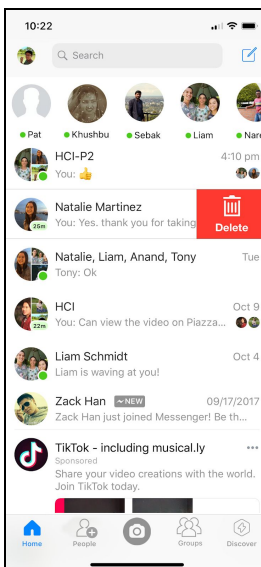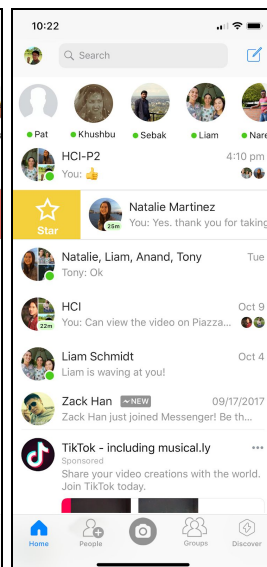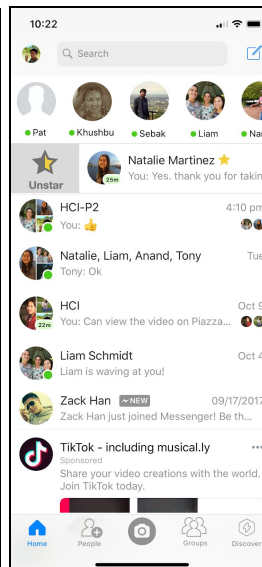

Image 4a   Image 4b   Image 4c

In Messenger's original design, swiping left or right on messages moved users between tabs on the home page.

We eliminated the unnecessary tabs and added intuitive swipe gestures - right to star and pin a conversation to the top, and one to delete a conversation

The "pin to top" feature also allows users to customize how their messages appear.

Storyboards

Night Mode

Maia has water polo practice at 7am.

Messenger's Night Mode allows her to get to sleep on time. Night Mode prevents Maia from having problems going to sleep after using her phone.

Creating a Group

HCI Project 3
Groups:

Maia and her team want to make a group in Messenger for their project.

Maia's teammates all open Friend Radar and appear on Maia's Friend Radar.

They create the group by clicking the Add button and then Maia runs off to a meeting that she is going to be late for.

Star a Conversation

Maia has to scroll through all her Messenger groups to find the one that she is looking for. She wants for it to be easier to find a group that she uses often.
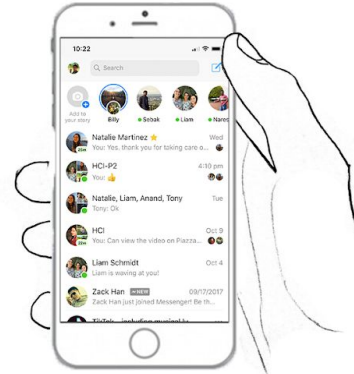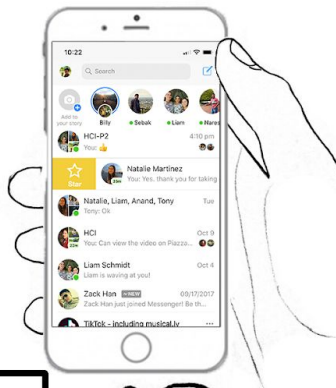
This group will now remain at the top of her list of Messenger groups.

USER FEEDBACK & REFLECTIONS

Prototype video

Our prototype video covers all three of our storyboarded scenarios:

1. Pinning a conversation and sorting groups
2. Creating a group with people nearby
3. Using messenger at night

Link: https://youtu.be/CMdXL-0K28A

User Feedback

Our participants were showed the prototype video. Their feedback is as follows:

Anand enjoyed the "dark mode" feature, but recommended that, "It would be even better if you could set a timeframe where the app would automatically turn to dark mode". He also commended the starring/pinning feature for keeping important conversations in sight that "sometimes get drowned in the list of other messages". He enjoyed the ability to sort groups, but thought that the user should also be able to have text labels corresponding to the colors for groups. Finally, he stated that he was a fan of the "Friend Radar" feature for creating groups, but thought it could be improved if it "…also automatically sent them a friend request too if you aren't already friends".

Tony felt that while the intuitive gestures were helpful and more natural to interact with, having only a "delete" ability on a left swipe could be improved. "I'm not sure how often I would use delete. Would I be able to bring a conversation back? Maybe adding an 'archive' option instead". He said he really liked the color sorting of groups, stating that, "I think the group color feature will be very useful for me, since I always have trouble looking for past messages!" As for the "Friend Radar" function, he liked that the location services only were activated when a user chose to enter the feature, but overall would prefer the scan code capability if it were more popularized.

Reflections

Based on feedback from our participants, we identified areas for improvement in the future, if we were to complete another iteration of our redesign:

1. Adding the option to allow "dark mode" to automatically activate at a certain time each night
2. Adding labels to the color-coded groups for clearer identification
3. Automatically sending a friend request to users that you are not already friends with after adding them to a group using the "Friend Radar"
4. Adding a "far right swipe" feature to archive messages (non-permanent deletion) instead of only offering the delete function (gesture common in other applications, such as email apps)

Overall, our participants seemed to enjoy the features we implemented, and agreed that they would improve the experience of using Messenger.

LESSONS LEARNED & TAKEAWAYS

In designing and executing the cultural probe with our two participants, we learned that it is important to persistently follow up with the participants. We noticed a decline in the quality of responses as the week went on. The first few for each participant were received in a timely manner with appropriate level of effort. However, as the week continued, the responses came in late at times, and were slightly rushed. Open communication was a must for getting the responses back on track, which we should have kept an eye on from the beginning.

Additionally, in recruiting our participants for the probe, we should have diversified our user pool. Both users had similar responses, despite the fact that one claimed to be an avid user and the other claimed to use the app minimally. Recruiting a user of a different demographic may have improved the diversity of our responses.

We also were able to learn about balancing how we redesigned and implemented new features between the two schools of thought, "Business Thinking" and "Design Thinking". Business thinking dictated how many of the existing features were implemented on the app. This includes the irrelevant ads placed in between messages, and trying to cram in a "Discover" and "Games" page on Messenger where they may not have been necessary. However, these sponsorships help to support the Facebook business, and are included as a compromise between the needs of businesses and the needs of the user. On the other hand, design thinking influences how the user interface is created, with a greater emphasis on simplicity and ease of use by the app's users. A good interface can strike the balance between these two ways of thinking, and is what we aimed to do in our redesign. For example, we streamlined the process and added features that benefit users, but also did not completely remove "Discover" and "Games", but instead consolidated them to one tab. The ads were also left as-is, as users reported that they were non-invasive.

APPENDIX

Responses for Cultural Probe Survey

10/16/2018	Anand Koshy	Tony Yang
Which icons did you click today?	Home, Messages	Messages, Groups
What time of day did you use Messenger?	Morning (7AM - 11AM) Midday (11AM - 2PM) Night (6PM - 12AM)	Midday (11AM - 2PM) Afternoon (2PM - 6PM) Night (6PM - 12AM)
Did you send pictures or take pictures using messenger today?	Yes	Yes
How did you interact with "Stories" today?	Did not interact with stories	Did not interact with stories
If you did not interact with stories today, explain why.	Stories don't seem to be a very active feature, so there usually aren't any to view and for the same reason I don't bother uploading any either.	Don't know if anyone posted any today
Did you send voice messages today?	No	No
Did you use video call today?	No	No
How many groups/people did you send messages to today?	2 Groups, 1 Individual	4 Groups, 5 Individual
How many groups/people did you receive messages from today?	3 Groups, 1 Indiviudal	2 Groups, 1 Individual
Any additional thoughts?	-	-

10/17/2018	Anand Koshy	Tony Yang
Which icons did you click today?	Home, Messages	Home, Messages
What time of day did you use Messenger?	Afternoon (2PM - 6PM) Night (6PM - 12AM)	Morning (7AM - 11AM) Midday (11AM - 2PM) Afternoon (2PM - 6PM) Night (6PM - 12AM)
Did you send pictures or take pictures using messenger today?	No	No
How did you interact with "Stories" today?	Viewed a story	Did not interact with stories
If you did not interact with stories today, explain why.	-	-
Did you send voice messages today?	No	No
Did you use video call today?	No	No
How many groups/people did you send messages to today?	2 Groups	4 Groups, 8 People
How many groups/people did you receive messages from today?	2 Groups	5 Groups, 8 People
Any additional thoughts?	I've noticed that a lot of the ads I get on Messenger are pretty irrelevant	Did not send images, but sent pdfs. UI for free and for sale (one individual) was different.

10/18/2018	Anand Koshy	Tony Yang
Which icons did you click today?	Home, Camera, Messages	Home, Camera, Groups
What time of day did you use Messenger?	Afternoon (2PM - 6PM) Night (6PM - 12AM)	Morning (7AM - 11AM) Midday (11AM - 2PM) Night (6PM - 12AM)
Did you send pictures or take pictures using messenger today?	No	Yes
How did you interact with "Stories" today?	Viewed a story	Did not interact with stories
If you did not interact with stories today, explain why.	-	-
Did you send voice messages today?	No	No
Did you use video call today?	Yes	No
How many groups/people did you send messages to today?	2 Groups	2 Groups, 5 People
How many groups/people did you receive messages from today?	2 Groups	2 Groups, 6 People
Any additional thoughts?	-	I tend to look up groups on the web, but sometimes it can be frustrating cuz it doesn't pop up immediately, especially if the group does not have a name.

10/19/2018	Anand Koshy	Tony Yang
Which icons did you click today?	Home, Messages	Home, Messages
What time of day did you use Messenger?	Midday (11AM - 2PM) Afternoon (2PM - 6PM) Night (6PM - 12AM)	Midday (11AM - 2PM) Afternoon (2PM - 6PM) Night (6PM - 12AM)
Did you send pictures or take pictures using messenger today?	No	No
How did you interact with "Stories" today?	Did not interact with stories	Did not interact with stories
If you did not interact with stories today, explain why.	There weren't any stories to view and I don't like uploading stories	-
Did you send voice messages today?	No	No
Did you use video call today?	No	No
How many groups/people did you send messages to today?	1 Groups	2 Groups, 7 People
How many groups/people did you receive messages from today?	1 Groups	2 Groups, 7 People
Any additional thoughts?	-	-

10/20/2018	Anand Koshy	Tony Yang
Which icons did you click today?	Home, Camera, Messages	Home
What time of day did you use Messenger?	Morning (7AM - 11AM) Night (6PM - 12AM)	Midday (11AM - 2PM), Afternoon (2PM - 6PM), Night (6PM - 12AM)
Did you send pictures or take pictures using messenger today?	Yes	Yes
How did you interact with "Stories" today?	Viewed a story	Uploaded a story
If you did not interact with stories today, explain why.	-	-
Did you send voice messages today?	No	No
Did you use video call today?	No	No
How many groups/people did you send messages to today?	1 Groups	4 Groups, 8 People
How many groups/people did you receive messages from today?	2 Groups	6 Groups, 8 People
Any additional thoughts?	-	Two people responded to my story. Posting to my story was not very intuitive and not as customizable as other apps' stories.

10/21/2018	Anand Koshy	Tony Yang
Which icons did you click today?	Home, People, Messages	Home
What time of day did you use Messenger?	Morning (7AM - 11AM) Midday (11AM - 2PM) Afternoon (2PM - 6PM) Night (6PM - 12AM)	Midday (11AM - 2PM) Afternoon (2PM - 6PM) Night (6PM - 12AM)
Did you send pictures or take pictures using messenger today?	No	Yes
How did you interact with "Stories" today?	Viewed a story	Uploaded a story
If you did not interact with stories today, explain why.	There weren't any stories to view and I don't like uploading stories	-
Did you send voice messages today?	No	No
Did you use video call today?	No	No
How many groups/people did you send messages to today?	1 Groups	2 Groups, 6 People
How many groups/people did you receive messages from today?	1 Groups	2 Groups, 6 People
Any additional thoughts?	-	Stories were hard to use, couldn't create a poll like Instagram, couldn't move text around

| 10/22/2018	Anand Koshy	Tony Yang
Which icons did you click today?	Home, People, Camera, Messages	-
What time of day did you use Messenger?	Midday (11AM - 2PM), Afternoon (2PM - 6PM), Night (6PM - 12AM)	-
Did you send pictures or take pictures using messenger today?	Yes	-
How did you interact with "Stories" today?	Did not interact with stories	-
If you did not interact with stories today, explain why.	Nobody uploaded any stories	-
Did you send voice messages today?	No	-
Did you use video call today?	No	-
How many groups/people did you send messages to today?	2 Groups	-
How many groups/people did you receive messages from today?	2 Groups	-
Any additional thoughts?	-	-

| 10/23/2018	Anand Koshy	Tony Yang
Which icons did you click today?	-	The one with the lightning bolt
What time of day did you use Messenger?	-	Midday (11AM - 2PM) Afternoon (2PM - 6PM) Night (6PM - 12AM) Early morning (12AM - 7AM)
Did you send pictures or take pictures using messenger today?	-	Yes
How did you interact with "Stories" today?	-	Did not interact with stories
If you did not interact with stories today, explain why.	-	No stories posted
Did you send voice messages today?	-	No
Did you use video call today?	-	Yes
How many groups/people did you send messages to today?	-	5 Groups, 8 People
How many groups/people did you receive messages from today?	-	3 Groups, 8 People
Any additional thoughts?	-	Accidentally video called someone because the button is in the same spot to close the chat window

Survey Link

https://docs.google.com/forms/d/e/1FAIpQLSeNIyll-87LTQ7ocPf9QSV8wCDhJ1xBlb40Nxhwv
9G687eqCQ/viewform?fbclid=IwAR3qn7wXCUUHomTIZx-AejZJx5a1A40kulI0jdMM4nLo3-S30
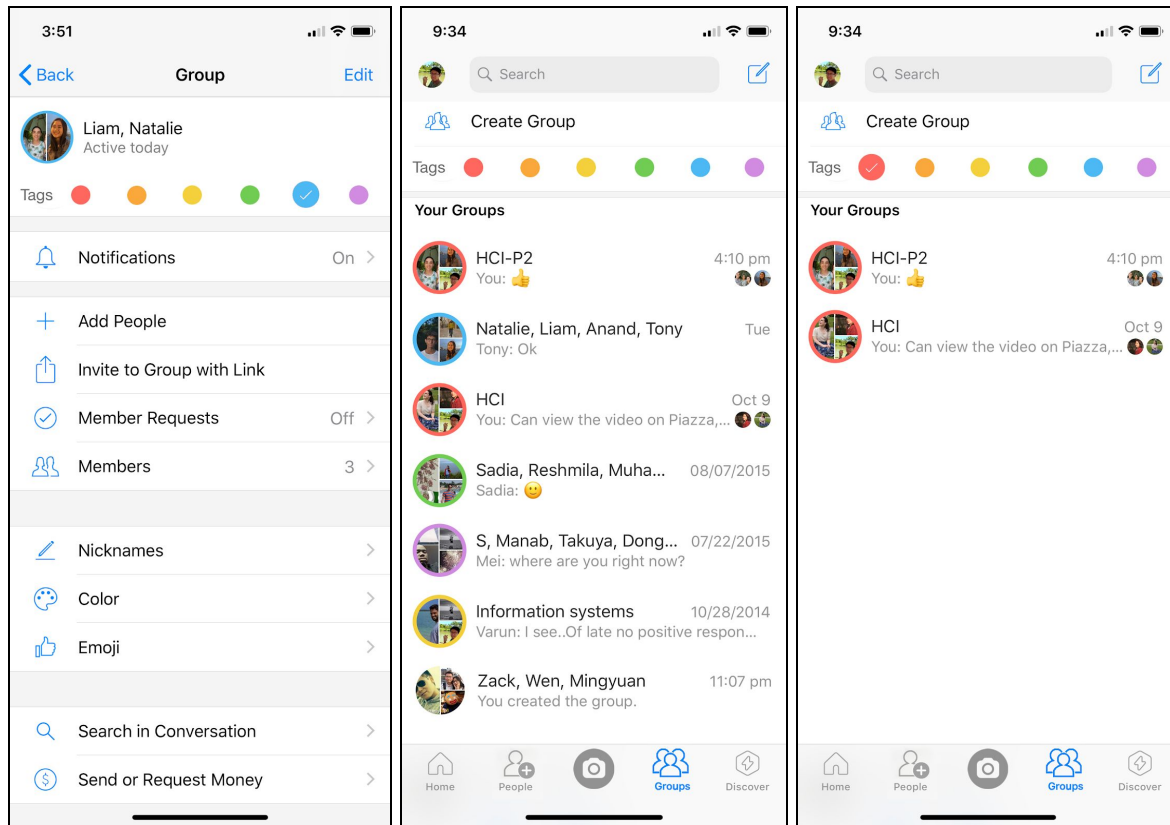F-1_qEJRJw

Images

Section 1: Dark Mode
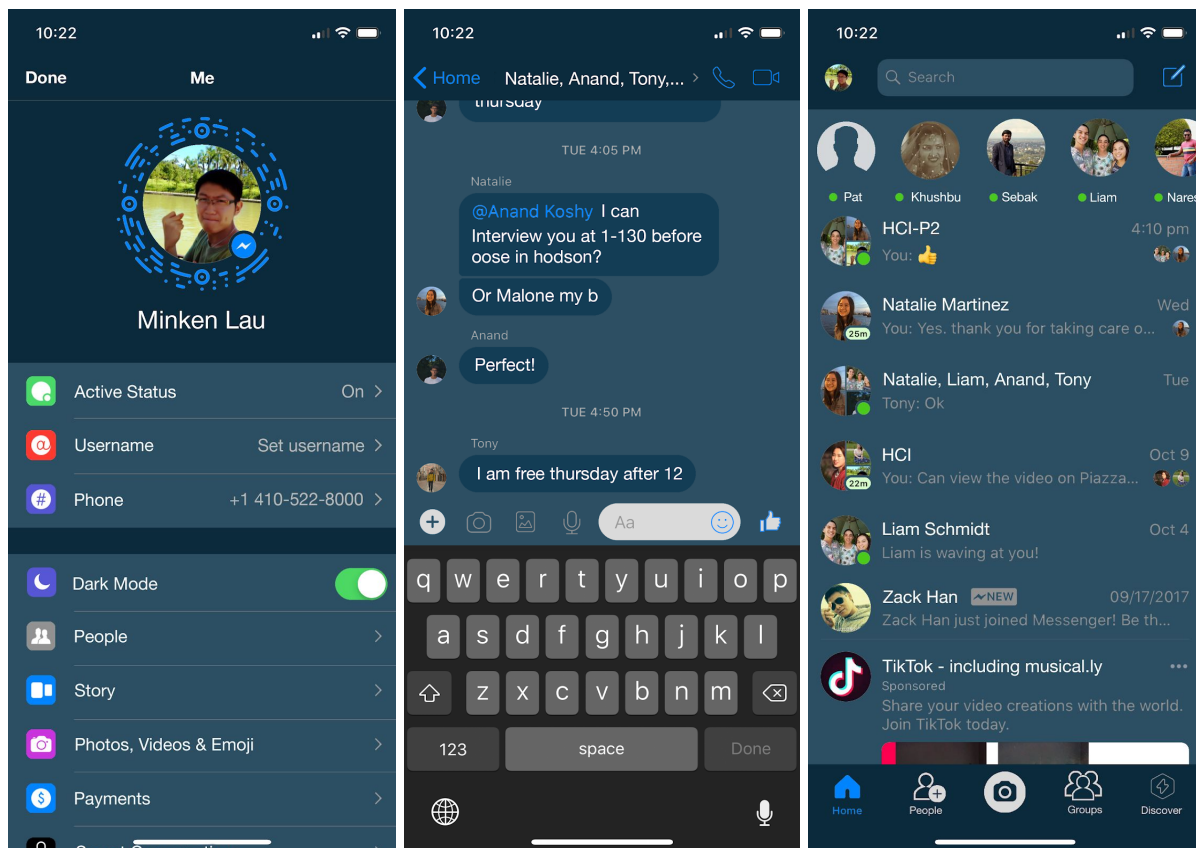
Section 2: Friend Radar
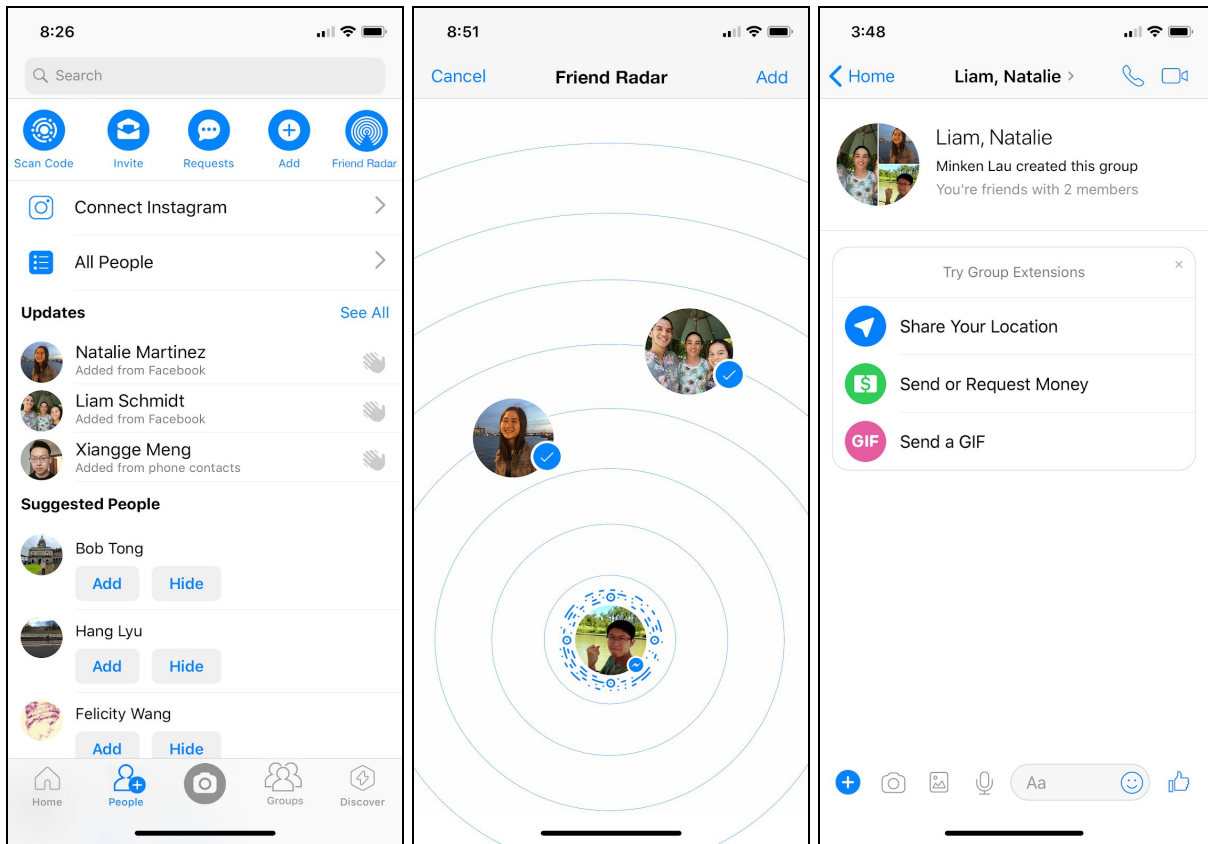
Section 3: Group Sorting

Section 4: Intuitive Gestures