

LUMi^o



Contents

- Executive Summary.....3
- Meet the Team.....4
- Overview.....5
- Discover.....6
- Define.....30
- Design.....42
- Deliver.....54

THE PROBLEM

With the ever growing advancements of technology, there comes less opportunities for face-to-face communication in our daily lives. Being out of practice leads to feelings of inexperience and anxiety.

Users lack an immersive tool to practice becoming an effective communicator.

TARGET USER

16-24

HOW MIGHT WE

How might we use mindfulness and confidence-building exercises to improve communication skills?

SOLUTION

An application with a smart mirror companion system with AR capabilities to provide live feedback and aid those who have trouble speaking with others, and help people to build their self-confidence.



LUMi



KEY FEATURES



Meet the Team



Anh Tran

Project Lead &
Visual Design



Isha Ray

Prototyping



Cherie Chen

Interaction Design



Madeline Walz

Research

Overview

Lumi is a system to build up those communication skills in both interpersonal and public settings. The application is paired with a smart mirror companion system with AR capabilities to provide live feedback and aid those who have trouble speaking with others by creating an immersive practice environment.

Discover

Urbanization

“The process by which large numbers of people become permanently concentrated in relatively small areas, forming cities.”

—Britannica

“Urban living style also causes that **human relations change**, and there become problems of compliance between the old citizens of the city and the newcomers... Thus, a **binary cultural structure** arises in cities. Changes in residential area, occupation, family structure, and social life cause the changes in language use. In fact, **language is not only a tool of communication**. It also represents us the manners, life experiences, and the perception of the world of that society.”

—“Urbanization, Standard Language, Dialect” by Hatice Tören

■ Connection to Urbanization

Relationships in a city are very different from those in a small town. There is more diversity and a different lifestyle. In this urban environment, communication is key. Every interaction gives information about you that can positively or negatively impact the conversation.

The Seven Barriers of Communication

Mindfulness

1. Physical Barriers

2. Perceptual Barriers

3. Emotional Barriers

4. Cultural Barriers

5. Language Barriers

6. Gender Barriers

7. Interpersonal Barriers

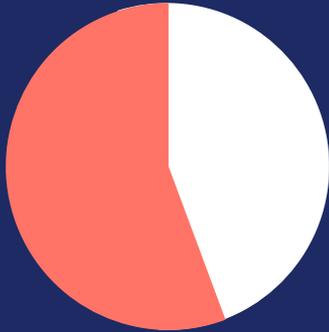
■ Mindfulness

“Bringing awareness to yourself and being in control of your mind”

—Mark Williams, professor of clinical psychology at Oxford Mindfulness Center

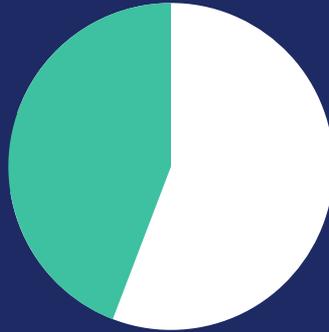
Elements of Communication

98% of communication is nonverbal.



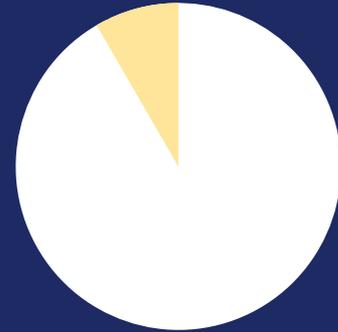
55%

Body Language



38%

Voice Tone



7%

Word Choice



Online Survey

52 responses



28% of respondents prefer communicating face-to-face.
32% prefer communicating via texting.
Less than 1% prefer using phone calls to communicate.



Confidence in personal conversations tended to be higher than confidence in professional conversations.



Only 11% of respondents said they do not struggle with low confidence in conversation.



55% of respondents said they are afraid of criticism or making a mistake.



46% of respondents feel like they don't belong with the people they are talking to.



32% of respondents said speaking makes them nervous or scared.



38% of respondents don't know how to start or respond to a conversation.



46% of teenage respondents struggle with emotional factors, such as fear, stress, and anxiety.



38% of respondents struggle with verbal expression, such as tone of voice, word choice, or language barriers.

Interviews

1 focus group

8 individual interviews

Focus Group

- Candidate 1: Maggie Herreea
Major: Fashion Design
Year: Freshman
- Candidate 2: Sasha Goldstein
Major: Animation
Year: Freshman
- Candidate 3: Faith Johnson
Major: Animation
Year: Freshman



Focus Group Takeaways

“I have been told that I’m awkward, but I am comfortable being awkward.”

“A lot of people avoid face-to-face because a lot of things could go wrong then you are still there.”

- Even though they have been told they are confrontational they still question whether they should speak up in difficult situations.
- Prefer face-to-face communication but may use digital because it’s easier.
- Need help with how to communicate with negative communicators

Wyatt Junnelia

- Freshman
Age: 18
- Friendly in nature. Always is in a positive mood.
- Can balance digital and face-to-face communication equally.
- Is more comfortable conversing in a group.



Tea

- Freshman
Age: 18
- Extremely shy and unconfident when speaking with others
- Prefers digital communication
- Needs more opportunities to talk to people
- Unable to talk to people of authority



Vivian

- Freshman
Age: 18
- Very confident, but still has trouble communicating with her classmates
- Afraid of being overshadowed by someone else if talking with a group
- Has a hard time contributing due to lack of experience



Interview Takeaways

- People don't flourish in conversation due to anxiety.
- Lack of experience prevents people from expressing their ideas.
- A good connection with people leads to good communication.
- Confidence in communication comes from practice.
- Being mindful of what you say is needed for good communication.

Define

■ Affinitizing

127 data points

Insights

- Communication can be done in two different mediums.
- Preference for how people like to communicate with each other varies greatly.
- People sometimes have difficulty agreeing with each other.
- People don't flourish in conversation due to anxiety.
- People have problems in expressing their ideas.
- People try not to dwell on others' negative opinions.
- A good connection with people leads to good communication.
- Confidence in communication comes from practice.
- Good communication requires awareness of the environment and other people.
- Being mindful of what you say is needed for good communication.

Target Users

Ages 16-24

Both teenagers and young adults struggle with confidence in communication. People in this age range are in transitional periods where they need to talk to more people and learn new things quickly.

Problem Statement

With the ever-growing advancements of technology, there come less opportunities for face-to-face communication in our daily lives. Being out of practice leads to feelings of inexperience and anxiety.

Users lack an immersive tool to practice becoming an effective communicator.

How might we use mindfulness and confidence-building exercises to improve communication skills?

Personas

Unconfident communicator Liam

Usually confident communicator Amelia

01

ABOUT

Liam is the quiet person at work. He's been working there for a few months now, but still hasn't gotten to know his coworkers. Finding the confidence to talk to them is just so hard! And talking to his boss? Forget it - that's terrifying. He has the same problem with his teachers and classmates at school. Liam has plenty of things he'd like to say, if only he could get past his fear of being wrong. He knows he needs to get better at conversation

02

CURRENT FEELINGS

- Nervous
- Fear
- Doubts
- Shame
- Regret

03

FRUSTRATIONS

- Very little confidence in conversation
- Fear of being wrong
- No idea how to get better at conversation

04

GOALS

- Motivation to increase confidence and decrease fear
- A resource to improve conversation skills

05

PERSONALITY



Liam

Age: 15

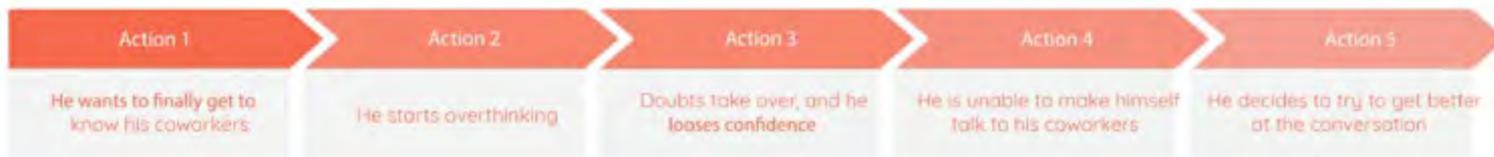
Gender: Male

Occupation: High school student, McDonald's employee

LIAM JOURNEY MAP

HIGH SCHOOL STUDENT, MCDONALD'S EMPLOYEE

Activities



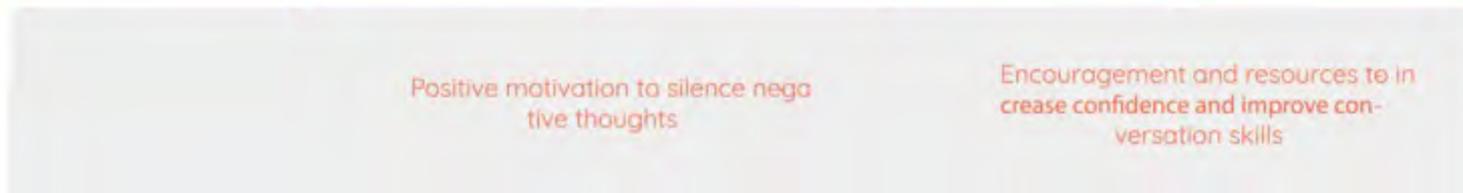
Feelings and Needs



Thoughts



Opportunities



01

ABOUT

Amelia started her freshman year of college a few months ago, and she is loving it so far. Mostly, she's been talking a lot with the people in the rooms next to her. They quickly became friends. She loves her classes – her professors are so easy to talk to! The problem is her roommate. Amelia's roommate constantly has friends over late, and is always complaining about something. Usually Amelia, she wants to do something about it, but speaking up isn't easy this time. Normally, she would just confront the person causing the problem or go to her RA, but she has to live with this girl! She doesn't want to risk making things worse by speaking up. Amelia doesn't like this lack of confidence because she is usually very sure of herself. She wants to be able to resolve these kinds of situations.

02

CURRENT FEELINGS

- Confused
- Tired
- Stressed
- Optimistic

03

FRUSTRATIONS

- Doesn't want to make her roommate situation worse
- Wants to resolve the conflict between her and her roommate

04

GOALS

- Confidence to confront her problems
- Knowledge about handling tough situations
- Loves having a conversation
- Wants to resolve her bad roommate situation

05

PERSONALITY

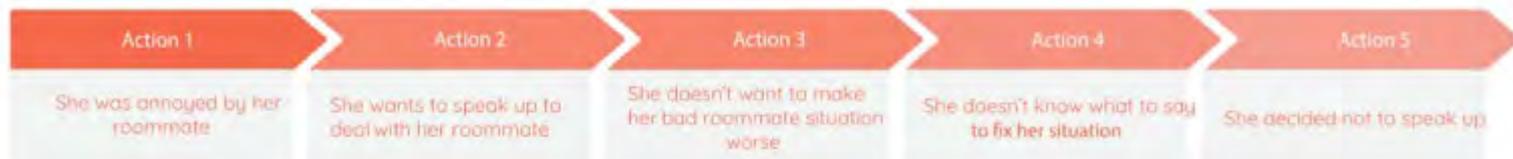


Age: 18
Gender: Female
Occupation: College freshman

AMELIA JOURNEY MAP

COLLEGE FRESHMAN

Activities



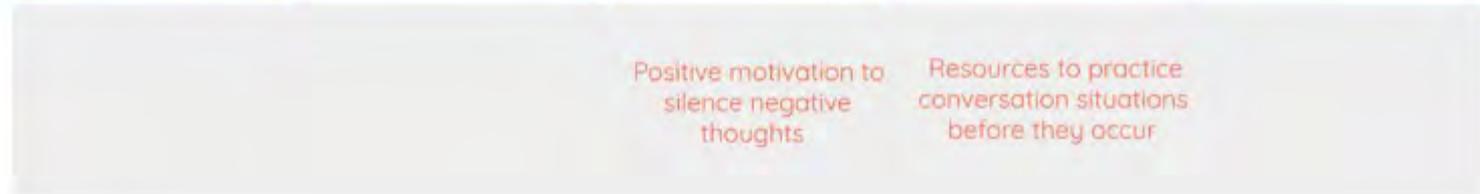
Feelings and Needs



Thoughts



Opportunities



Design

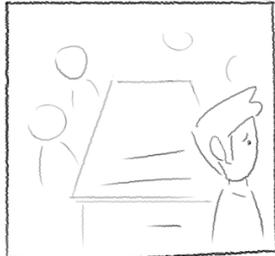
■ Concept I

- “Self-coaching” through a mini-cartoon version of the user
- Promotes self-reflection
- Practice communicating and get personalized tips from “yourself”
- Centered on mindfulness approach to building confidence

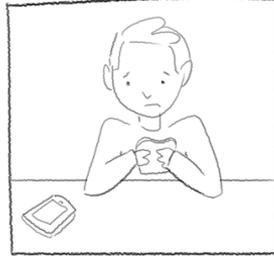
Concept | Storyboard



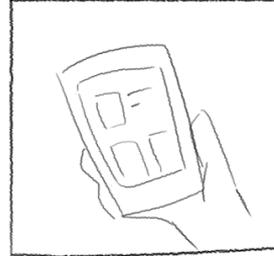
Liam has been at his first part-time job for 3 months. He wants to get to know his coworkers.



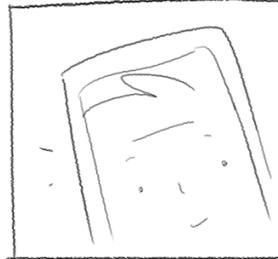
However, he always gets too nervous to talk with them at lunch.



His self-confidence is at a low, and he blames himself for letting it get to this point.



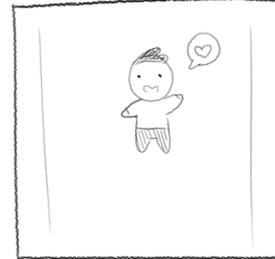
He was searching for self help tips on gaining confidence online, when he found an app.



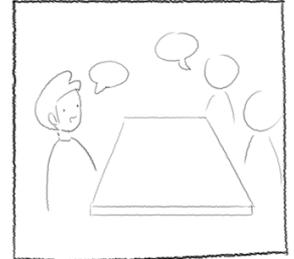
Liam uploaded his photo to the application.



A basic cartoon caricature is created for him. He is able to talk to, and get speaking tips from it.



Liam receives positive encouragement and can practice speaking back and forth with character.

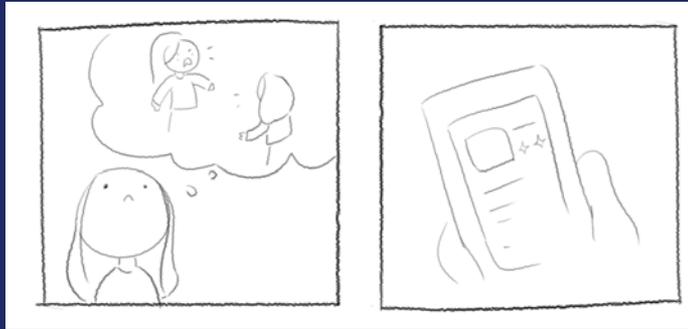


With a little bit of assistance, Liam has gained back his confidence.

■ Concept 2

- Use of AR glasses to practice specific social situations
- Creates an immersive environment
- Building confidence through experience
- Speaking and analysis
- Centered on improving communication skills

Concept 2 Storyboard



Amelia has a problem with her roommate. She doesn't want to confront her roommate without preparation because she wants to stay on good terms. She doesn't know how to approach the problem sensitively. Amelia recently downloaded an application that could help her practice these situations.



Amelia is able to practice with the application and wearable AR glasses. Through the glasses, she is able to talk to her "practice roommate," and speaks out her conversation. Using voice and facial recognition, the AI gives suggestions on how she can improve her interaction.



Amelia feels much more at ease bringing up the topic with her roommate after thoroughly preparing for the situation.

Elements We Liked

Concept 1

- Centered on mindfulness approach to building confidence
- Building confidence through experience

Concept 2

- Creates an immersive environment
- Promotes self-reflection
- Confidence-building exercise
- Centered on improving interpersonal and public communication skills

CTFAR Technique – The Self-Coaching Model

CTFAR stands for:

- C: Circumstance
- T: Thoughts
- F: Feelings
- A: Actions
- R: Results

There are many reasons why it's a good idea to coach yourself:

- Bring awareness to your thinking
- Be able to solve your own problems
- Learn how to think more deliberately
- Learn how to tell a different story about your past
- Learn how to create positive emotions and control your body language

CTFAR Example

Negative

Circumstances: I have been working there for 3 few months now, but still haven't gotten to know any coworkers – I really need to say something.

Thoughts: What if I mess up? What if they laugh? What if they don't actually like me?

Feelings: Anxiety, fear, frustration

Actions: Decided not to talk

Results: Could not improve the relationship

Positive

Circumstances: I have been working there for 3 few months now, but still haven't gotten to know any coworkers – I really need to say something.

Thoughts: Sarah likes pets – I can open by talking about cats.

Feelings: Hope, excitement

Actions: Starts talking to Sarah, then others

Results: Built successful relationships

Mirror Technique

- Researchers infer that if subjects can tell that the image on the reflective surface is in fact them, then they have developed a cognitive sense of self.
- The mirror can be used to critique ourselves. But it also offers perspective on just how unkindly we're treating ourselves. Our preliminary research shows that looking with the intention to be kind to yourself can reduce anxiety and self-criticism (Well, et al., 2016).

Refined Concept

- An AI-assisted application to provide live feedback and aid those who have trouble speaking with others and help people to build their self-confidence.
- A tool for using traditional practicing methods in a new and more interactive way.
- An application with a mirror companion system with AR capabilities.

Competitive Analysis



RISE Self Esteem

Improve your self-esteem



Orai

A personal AI speech coach



Happier

Improve your emotional health and be happier



The Mirror

In-home exercise classes on the mirror



MirroCool

Personal assistant and home security



Competitive Analysis



	RISE	Red Bird	happier	M	MIRR COOL	LUMI
Mindfulness			✓			✓
Confidence Building	✓	✓		✓		✓
Improving Conversation Skills		✓				✓
Smart Mirror with App				✓	✓	✓



Deliver

Lo-fi Wireframes



■ Card Sorting

Closed sorting: 11 participants

Open sorting: 15 participants

What is Card Sorting?

- Closed sorting: Users are given a list of features and categories. Their task is to sort the features into the categories.
- Open sorting: Users are given a list of features. Their task is to sort the features into categories, which they name as they see fit.

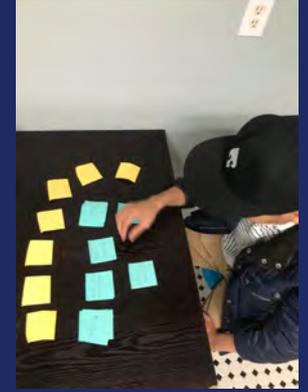
Results

Closed Sorting:

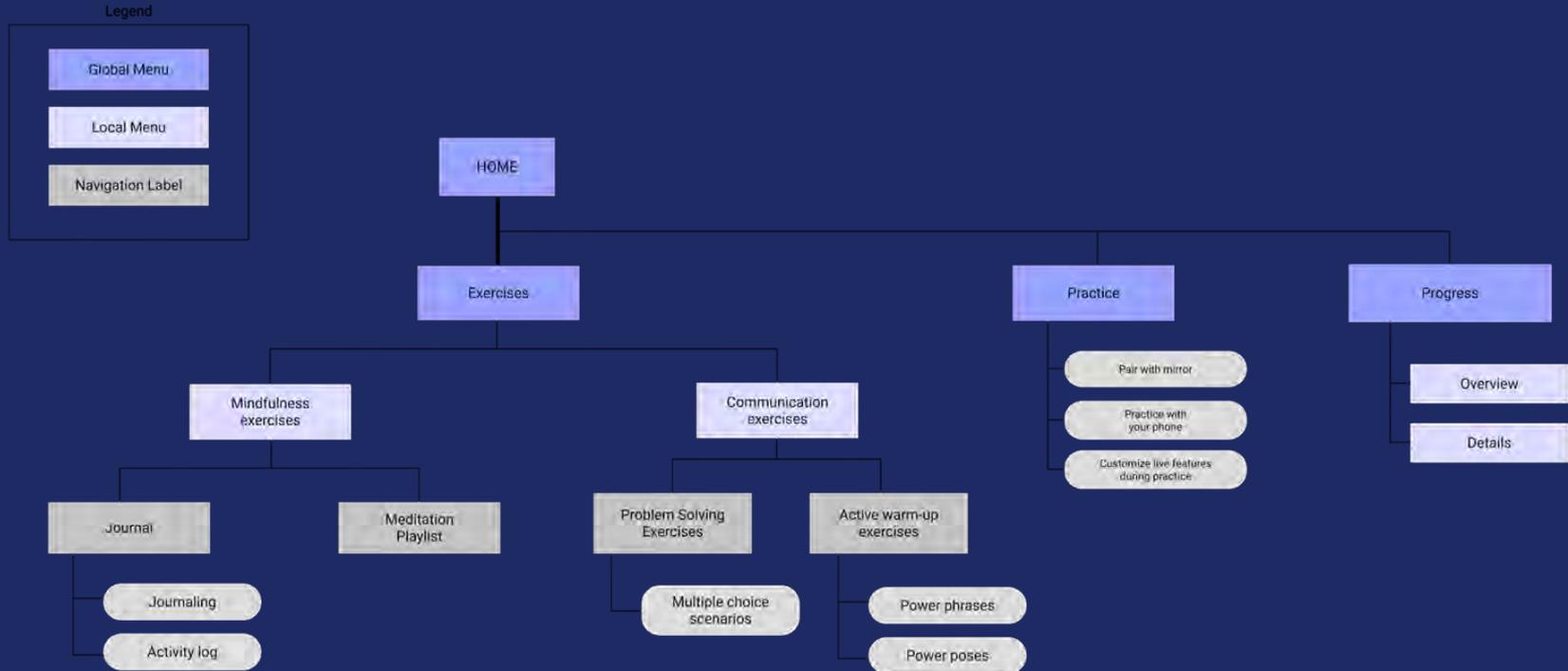
- The results were all very similar
- Wording in the pre-existing labels were not clear and needed improvement

Open Sorting:

- Extremely valuable
- Participants categorized with similar groups, but unique names

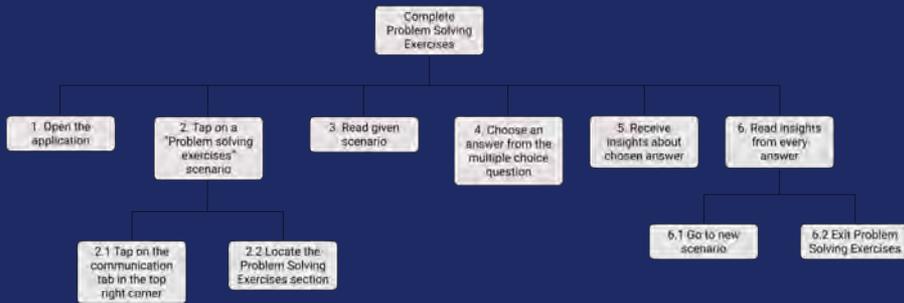


Blueprint

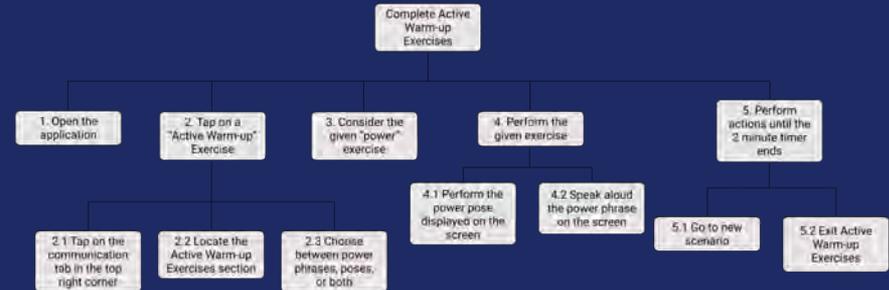


Task Analysis

Task flow: completing the "Problem Solving Exercises"

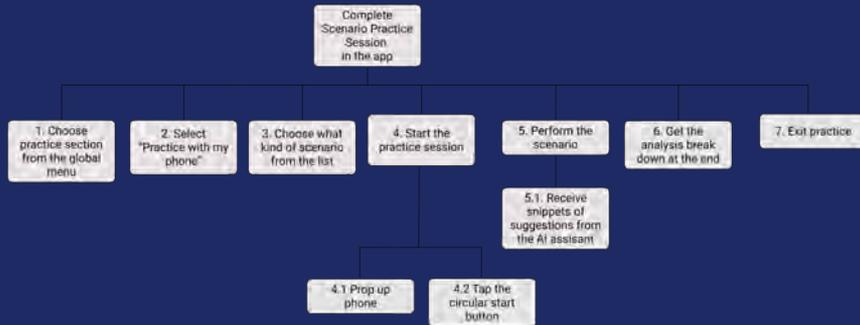


Task flow: completing the "Active Warm-up Exercises"

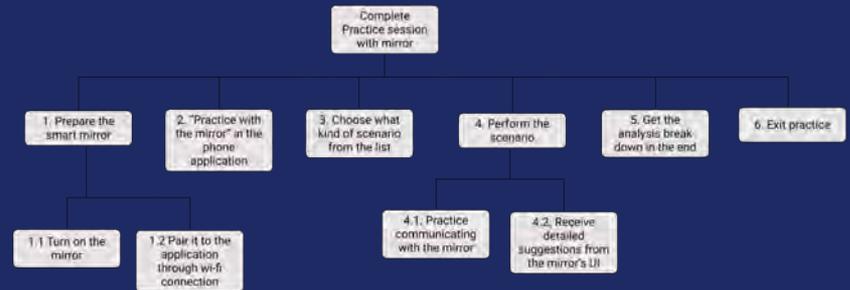


Task Analysis

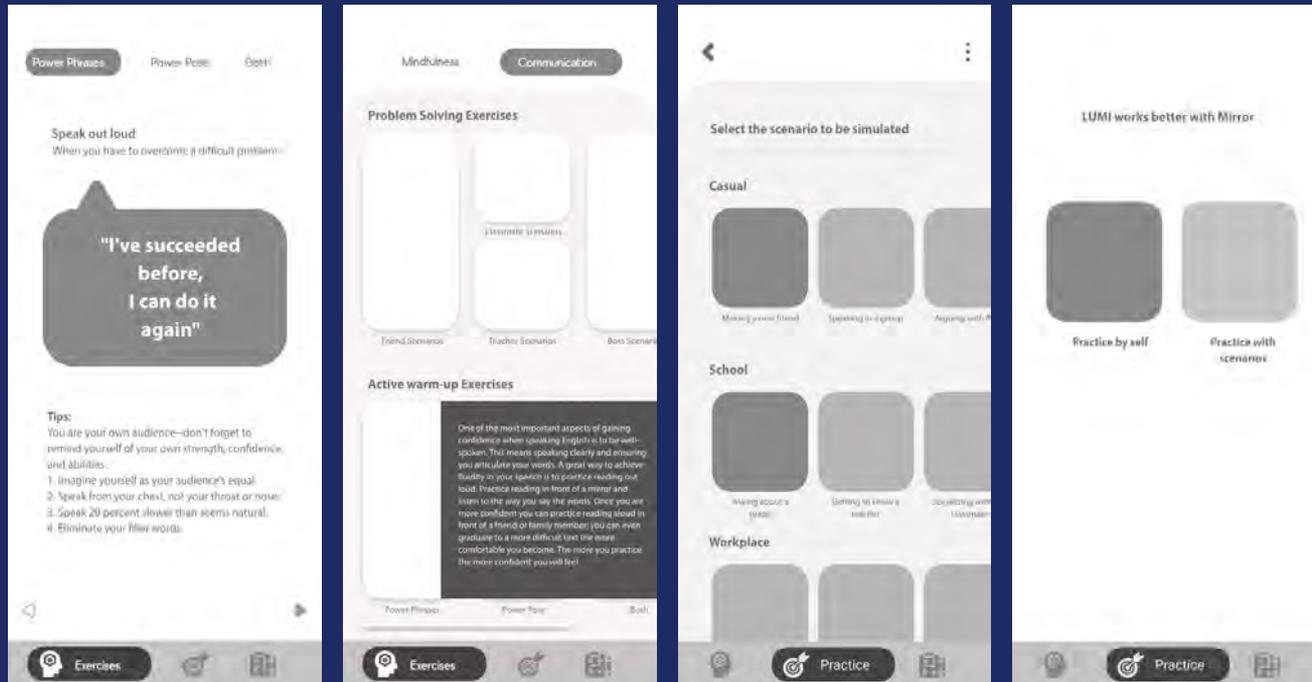
Task flow: completing Scenario Practice session (APP)



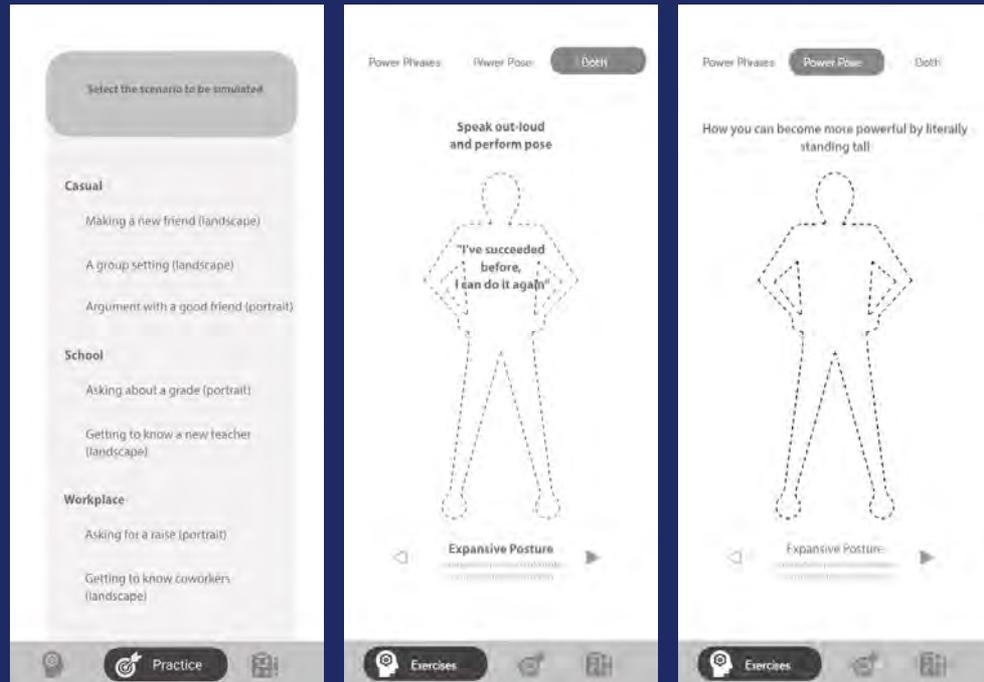
Task flow: completing the Scenario Practice session (MIRROR)



Mid-fi Wireframes



Mid-fi Wireframes



Design Questions

- What size should the mirror be?
- What kind of wall mount does it use?
- What kind of rotation system?
- How does the mirror connect to the app and your account?
- How is navigation and selection done in the mirror?
- How will we match the mirror's UI design and feel to the app's?
- How long are practice sessions? Warm up sessions?
- What are the benefits of using the smart mirror?
- How would users practice through mirrors?
- Will the live AI feedback be accessible in the app version?
- What types of activities will the users be asked to perform?

■ User Testing: Lo-Fi and Mid-Fi

5 user testers

2 expert testers

Users



- Halle
- Graphic Designer
- Junior



- Pablo
- Game and Visual Designer
- Senior



- Jeniferann
- Fashion Designer
- Sophomore



- Sarah
- Industrial Designer
- Junior



- Tori
- Animator
- Sophomore

Experts



- Allison Steinweg
MA Communication



- Nona Lee Davis
SCAD Communication Coach

Evaluation Methods

- Quasi-Empirical (Wizard of Oz)
 - Immersive
 - In-the-moment thinking
 - Think aloud protocol
- Questionnaire
 - System Usability Scale (SUS)
 - Reliable data

User Testing



Mirror Activity

After going through the app wireframes, we had them look at the low-fi prototype of the mirror. We asked for their thoughts about the size and rotation, then had them do an activity. We gave them some features from the analysis overview screen and had them arrange those features on the mirror. They also had an option to add features they thought should be included.



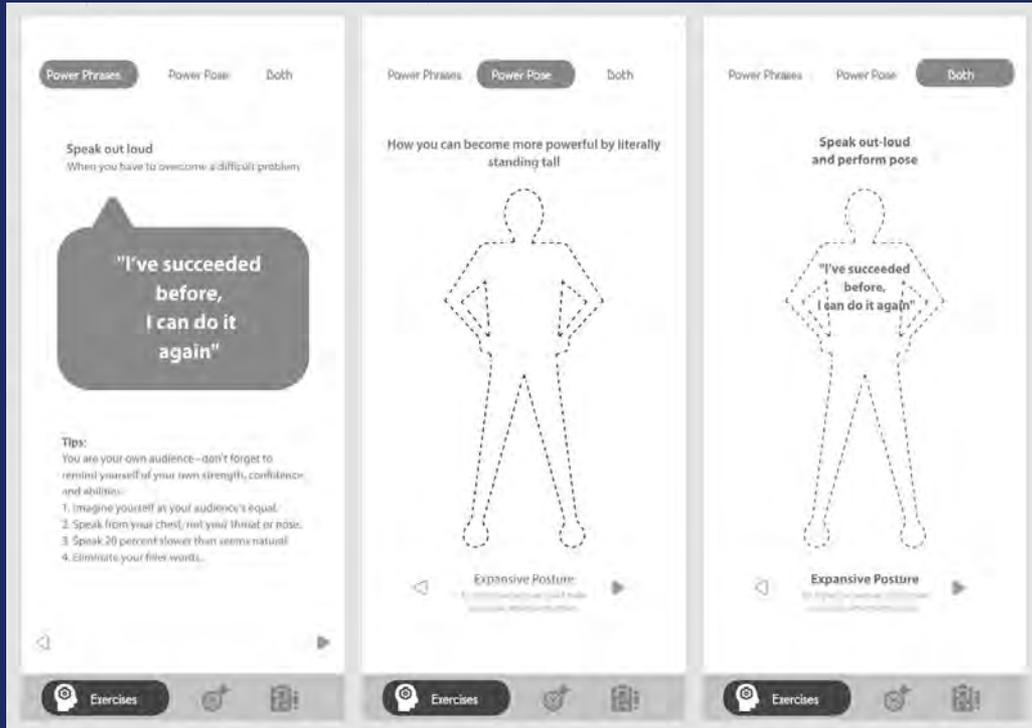
Results: Positive

- Most users liked all parts of communication exercises
- All users enjoyed doing the scenarios
- Most users received all they needed from the progress page
- All users said the app helped them be aware of their negative thoughts
- All users liked the flow of the app
- All users liked the concept of using a smart mirror to build confidence
- All users said practicing with a mirror can help them silence negative thoughts.

Results: Negative

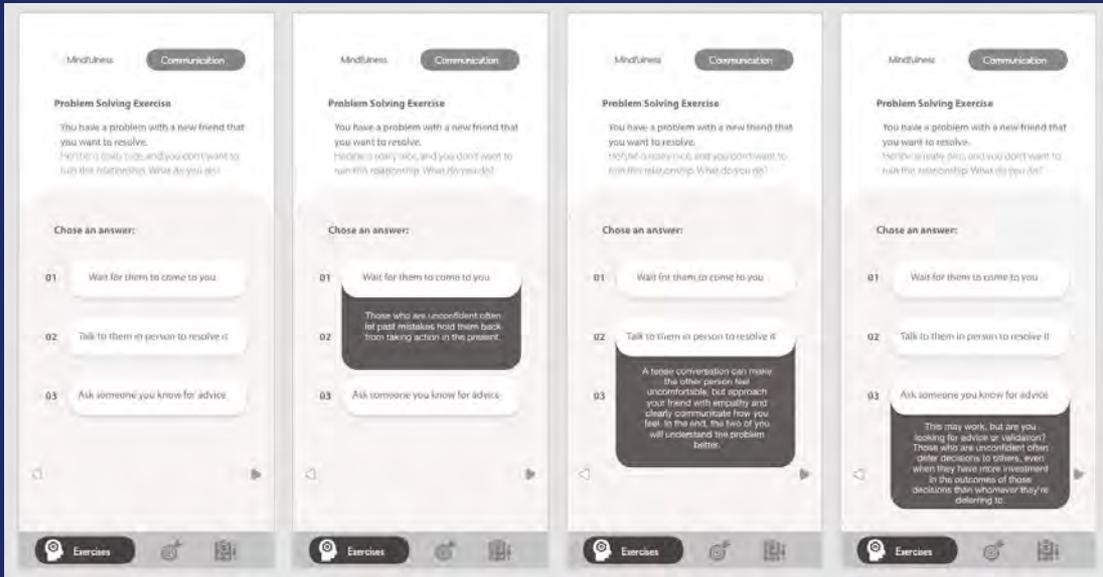
- Most users missed the communication tab the first time
- About half of users wanted more explanations and examples
- All users needed more emotions for the journal
- About half of users said the mirror was too big
- Some users said they need more privacy when using the mirror

Feedback about Features



- “Good – not something that’s well-known.”
- “I will do all of them if there is no one else in the room.”
- “Tips are very useful.”
- “I love the idea of showing what to do instead of only telling you are doing good.”

Feedback about Features



- “I like the explanations for scenario options. It is a good guide, would help more ways than expected.”
- “Not just about speaking, everyday situations! Not all people encounter that and understand what to do.”

Feedback about Features



- “I like the combination of tracking your mood with practicing your speaking ability.”
- “I like the habits and word choice. People do things unconsciously and don’t realize until someone points it out.”

Expert Testing



Results: Positive

- Reading out loud is good to help people build confidence
- Habit insights section is correct
- Seeing the changes in mood are a good solution to suggest what they need to help
- The concept makes sense and works effectively
- Both experts like the communication exercises: power phrases and power poses

Results: Negative

- Add a Likert scale for mood
- Add the neutral mood in the journal
- Use 'I,' not 'you,' because 'you' can sound like an accusation
- Show a timer on the screen for power poses
- Should also suggest the right location and where to stand or sit
- Add rhythm as an analyzing element in the tone of voice section

Significant Quotes

“What we sound like in our head and what we sound like out loud are very, very different.”

“The concept for this app is so valuable because usually when we come up with technology to help with presentation, it’s all focused on the formal presentation and not as much on the informal context.”

“A lot of times when we approach people with our problem we have to make sure we use it in the I sense, ‘I am feeling this way.’ You have to be very careful not to say, ‘You made me feel this way’ or ‘You did this’ or ‘You did that’ because then that person can feel attacked.”

“You found a very unique niche within the market... That’s where we see some of our most meaningful innovations.”

SUS Score

Score: 71.43

SUS score	Grade	Adjective Rating
> 80.3	A	Excellent
68- 80.3	B	Good
68	C	Okay
51-68	D	Poor
< 51	F	Awful

■ User Testing: Hi-Fi

5 testers

Testers



Louis Baker

Graphic Design professor



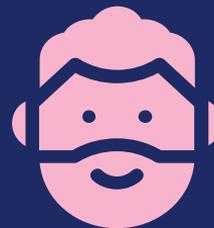
John Howrey

Graphic Design Professor



Satyakam Sharma

Industrial Design
Professor



Inwon Jong

CXO at Frendesign



Quy Ho

Senior UX Design

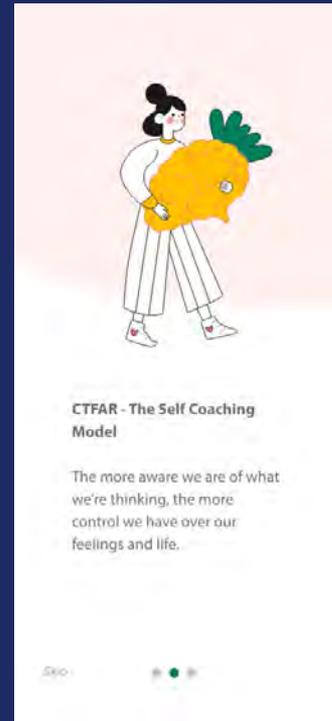
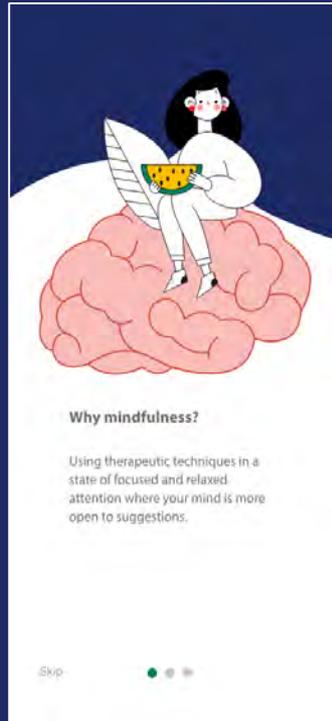
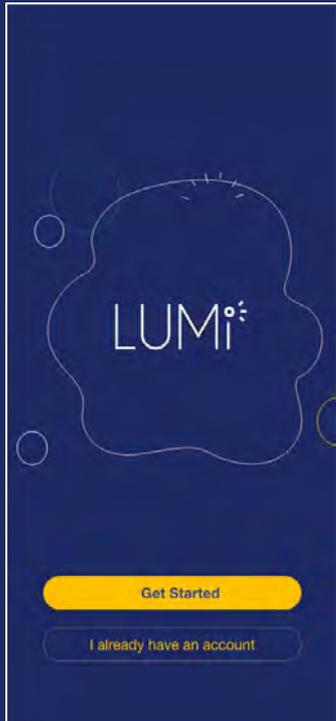
Results: App

- Improve hierarchy of meditation exercises page
- Consistent grid and illustration styles
- Make labels clearer

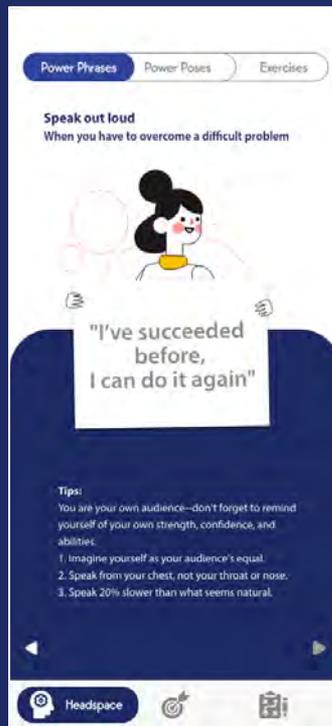
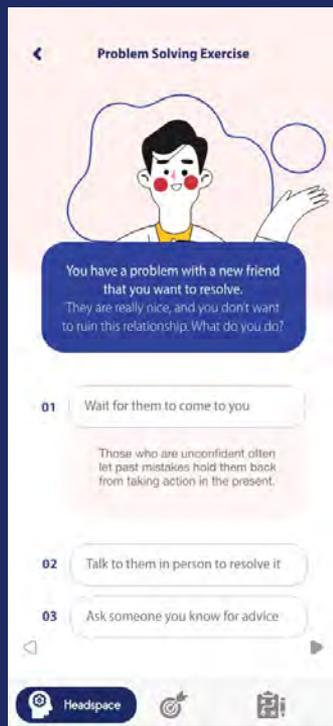
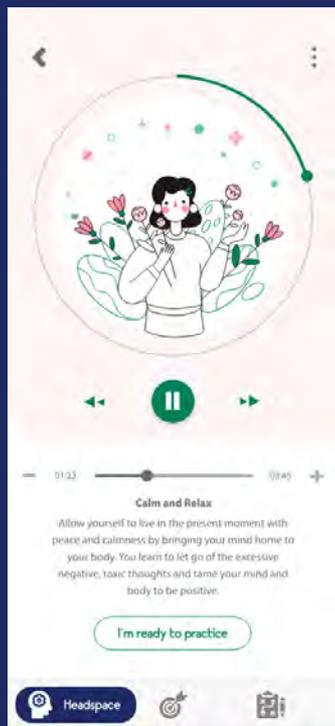
Results: Mirror

- Difficult to read text
- Transparency of simulated practice person is confusing
- Simplify information to avoid interference and distraction
- Show motion tracking and gesture interface
- Make interface more user friendly, especially for scale and usage
- Base interface on the mental model of a TV interface

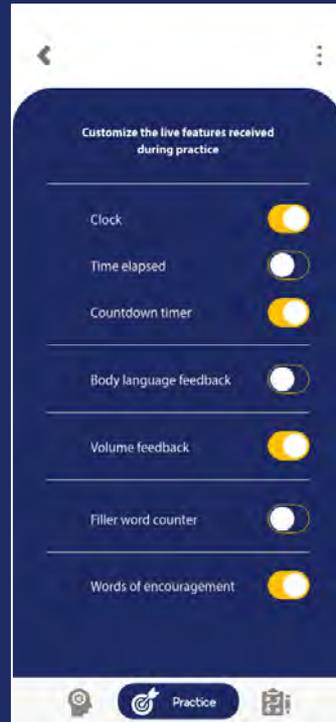
Hi-fi Wireframes: App



Hi-fi Wireframes: App



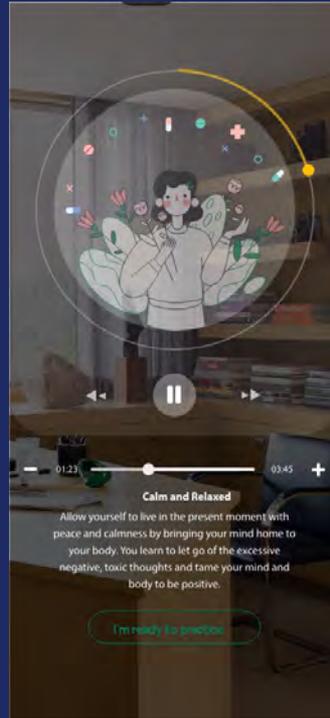
Hi-fi Wireframes: App



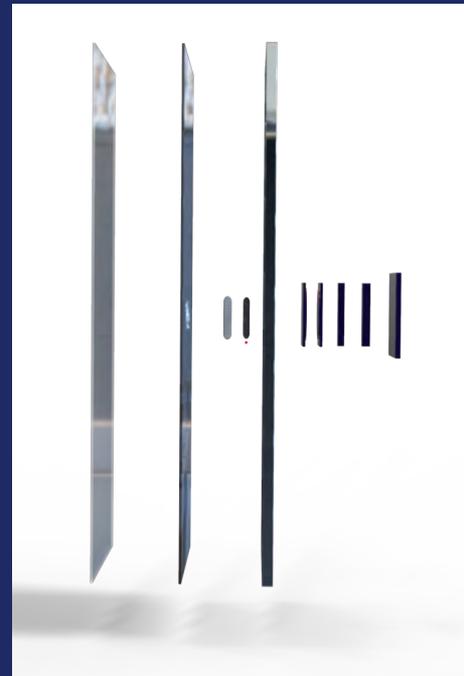
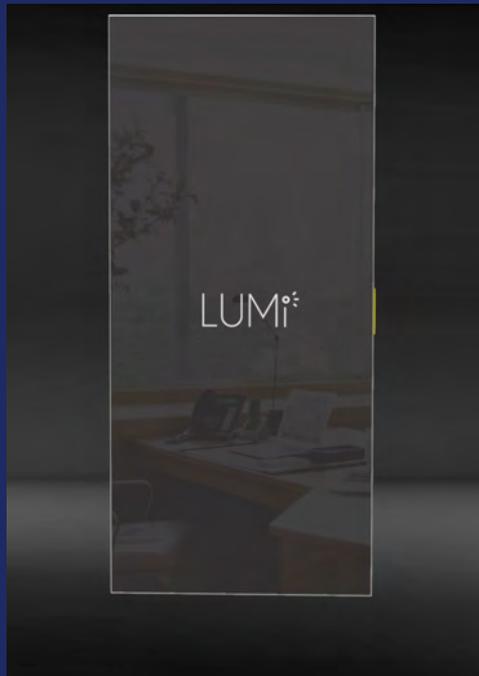
Hi-fi Wireframes: Mirror



Hi-fi Wireframes: Mirror



Mirror Renders



Thanks!
