



nurtue
grow together.

Low-fi Prototyping & Pilot Usability Testing

CS 147 - Winter 2022

Catherine H.
Dyllen N.
Meng G.
Rui Y.



INTRODUCTION

Value Proposition

Grow together.

Mission Statement

Nurtue exists to improve relationships between parents and their child(ren) by promoting healthy communication habits and communal support.

Problem/Solution Overview

Parents often struggle with making the “right” decisions with their child - especially during emotional moments like conflict. In addition, parents need a supportive community where they can share their struggles, but most lack access to consistent guidance.

Nurtue provides a supportive environment for parents and parenting professionals alike to convene, sharing best practices for communication and personalized advice. Parents can also strengthen their communication skills through research-supported interactive modules. *Nurtue* is our world’s new one-stop shop for parenting.



SKETCHES

Concept Sketches

We brainstormed 5 different concept sketches, including a smart device, gamified interface, wearable, chat-based interface, and mobile app.

Smart Device

Conflict Resolution Record

Smart Home Integration

Figure 1: Smart Device for ease of use in the home.



Gamified Interface

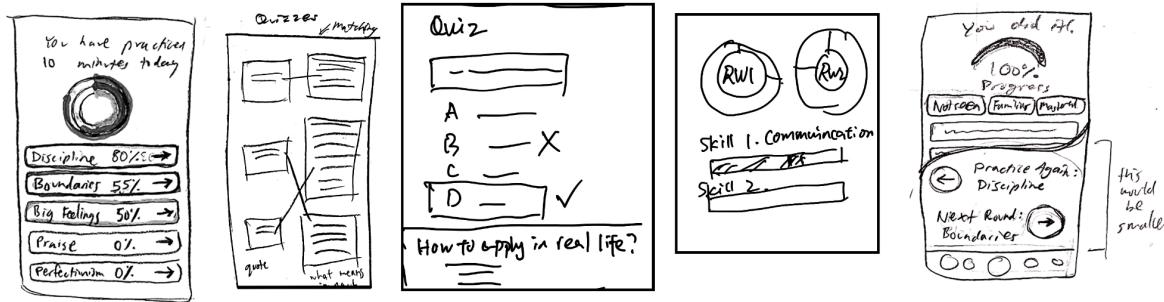


Figure 2: Gamified Interface to make the learning experience fun.

Wearable

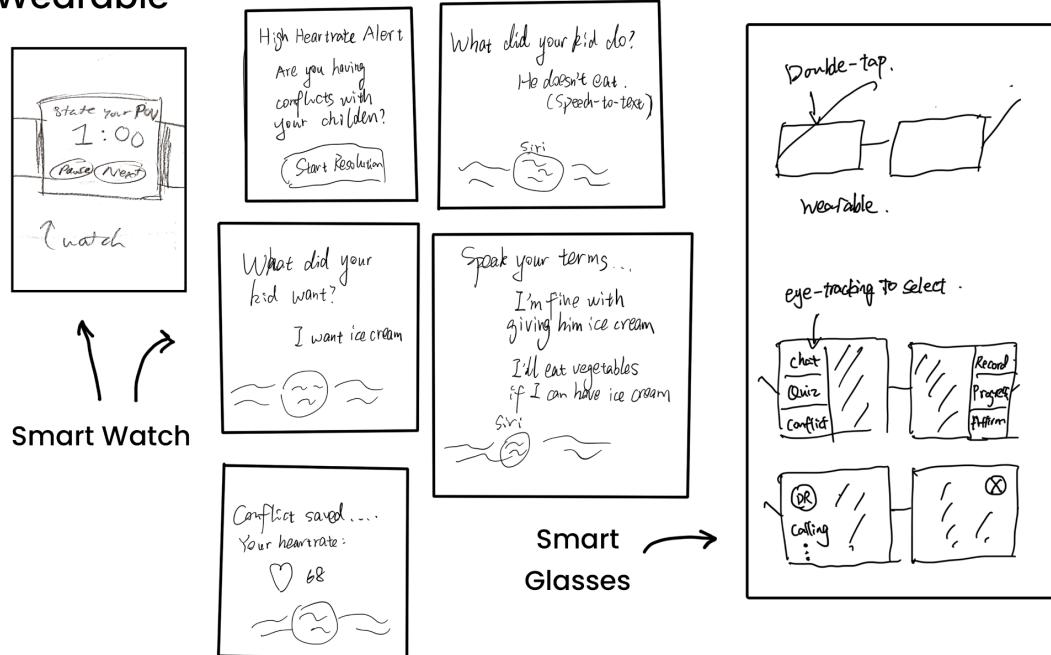


Figure 3: Wearable for easy access and use of health metrics.



Chat-Based Interface

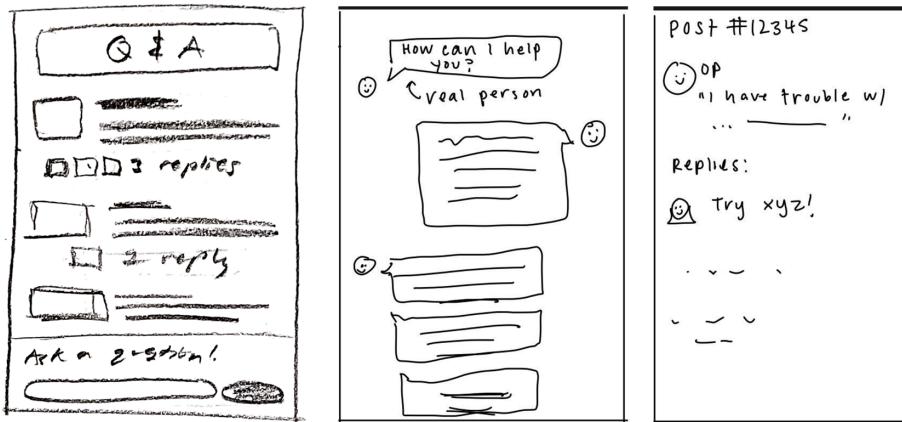


Figure 4: Chat-Based Interface to foster community & exchange advice.

Mobile App



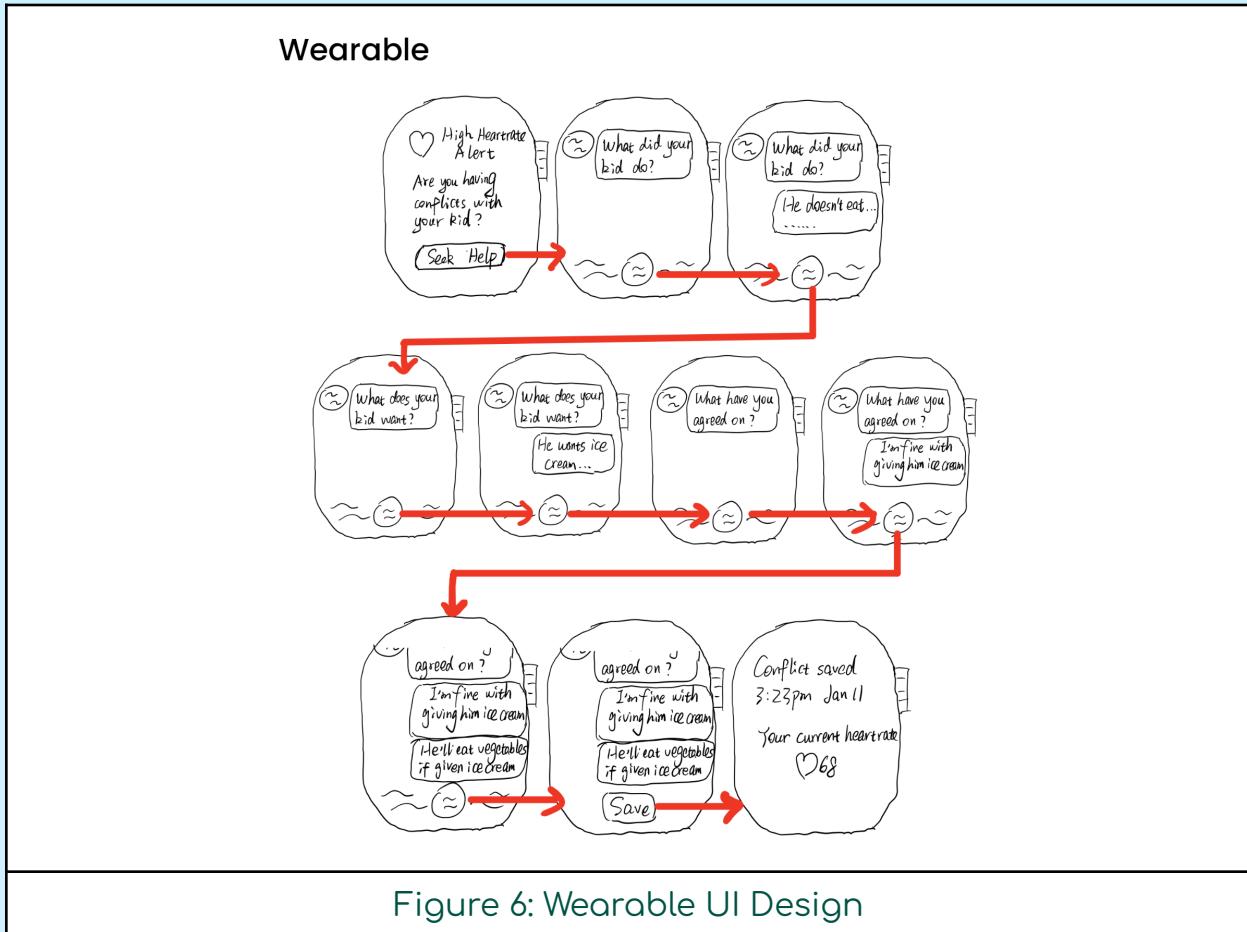
Figure 5: Mobile App Interface is widely used. Allows for multimedia inputs & real-time connections with users



Top 2 Designs

The Wearable UI and Mobile App UI were chosen as our top 2 designs because they are accessible and portable, allowing users to use it wherever they are.

Design 1:



Pros	Cons
<ul style="list-style-type: none">Easily accessible & portableHas unique access to some of the most interesting data (heart rate/environmental noise)	<ul style="list-style-type: none">Small user baseSmall screen (tiny font)Long tasks cause sore armsPossible battery consuming



Design 2:

Mobile App

Figure 7: Mobile App UI Design

Pros	Cons
<ul style="list-style-type: none"> • Broad platform support and large user base coverage • Many people are used to using apps • Can take advantage of all the features that smartphones can offer (microphone/camera/push notifications) • Easy to include multiple features in an organized way (tab bar/hamburger menu) 	<ul style="list-style-type: none"> • Not easily accessible as smartwatches or home speakers • Limit screen space • Require extra installation



SELECTED INTERFACE DESIGN

We believe a mobile app is the best platform to suit the user's tasks. It will incorporate three main features that cover the major user tasks, including

- A forum board among parents and experts,
- A conflict resolution aid, and
- Interactive modules to promote healthy communication

Task Flows

Task 1 - Simple: Share your parenting struggles to get advice from fellow parents or/and experts in the field.

Task 1

The diagram illustrates a task flow between two mobile application screens. The left screen displays a discussion post by 'Bobby' (1 min ago) about his daughter's breakup, with a reply from 'Dr. Martha Stewart' (LCSW) providing tips for communication. The right screen shows a response from 'Dr. Winnie Thapoo' (Child Psychologist) and another from 'Marty' (Father of 1, 13 y/o). Red arrows indicate the flow from the left screen to the right screen.

Figure 8: Simple Task



Task 2 - Moderate: Practice more effective language to communicate with your child through interactive modules.

Task 2

*All x's in top left corner take the user to the main screen after the user confirms

Figure 9: Moderate Task

Task 3 - Complex: Resolve a particular conflict with a child in a peaceful manner, and come to an agreement that the parent can reference.

Task 3

*All x's in top left corner take the user to the main screen after the user confirms

Figure 10: Complex Task

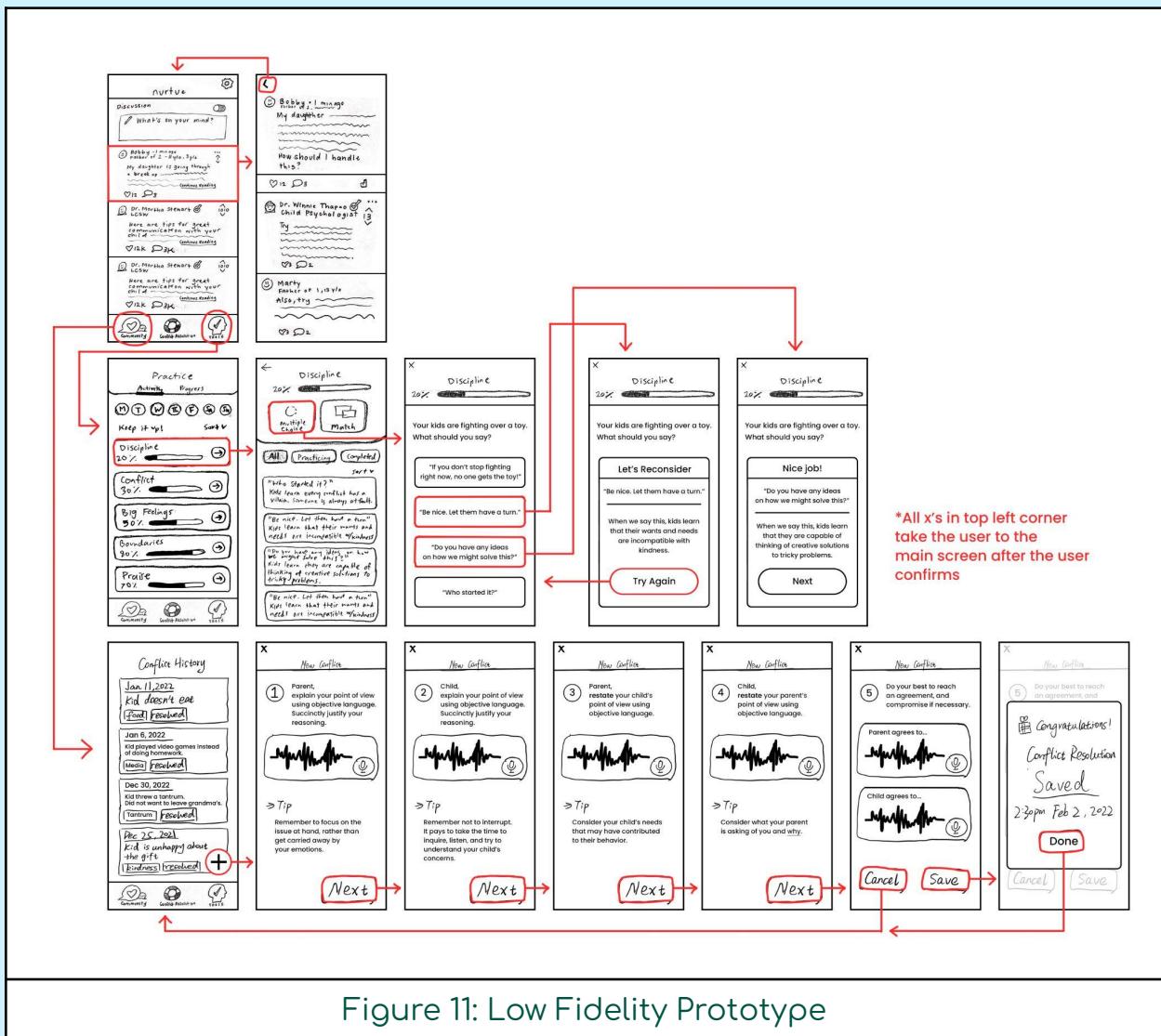


PROTOTYPE

Description

To retain the low fidelity nature of our sketches while still providing our participants with an interactive prototype, we uploaded our sketches to Marvel and wired them up with hotspot insertion.

Full System





TESTING METHODOLOGY

Participants

Recruiting from parenting email lists, we targeted parents with children aged 8+ to represent the maturity required to solve conflicts with parents. (The age 8 was determined from experience prototype interviews.)

#1: A Hispanic real estate agent in San Diego. She is 40 years old, and she has a 9-year-old boy.

#2: A self-employed Asian father living in Fremont. He is 43 years old and he has an 11-year-old boy.

#3: An Asian high school math teacher living in Boston. She is 38 years old and is the mother of a 10-year-old girl and a 7-year-old boy.

Environment

All testing was conducted remotely through Zoom. We sent the low-fi prototype link to participants and asked participants to share their phone screens with us.

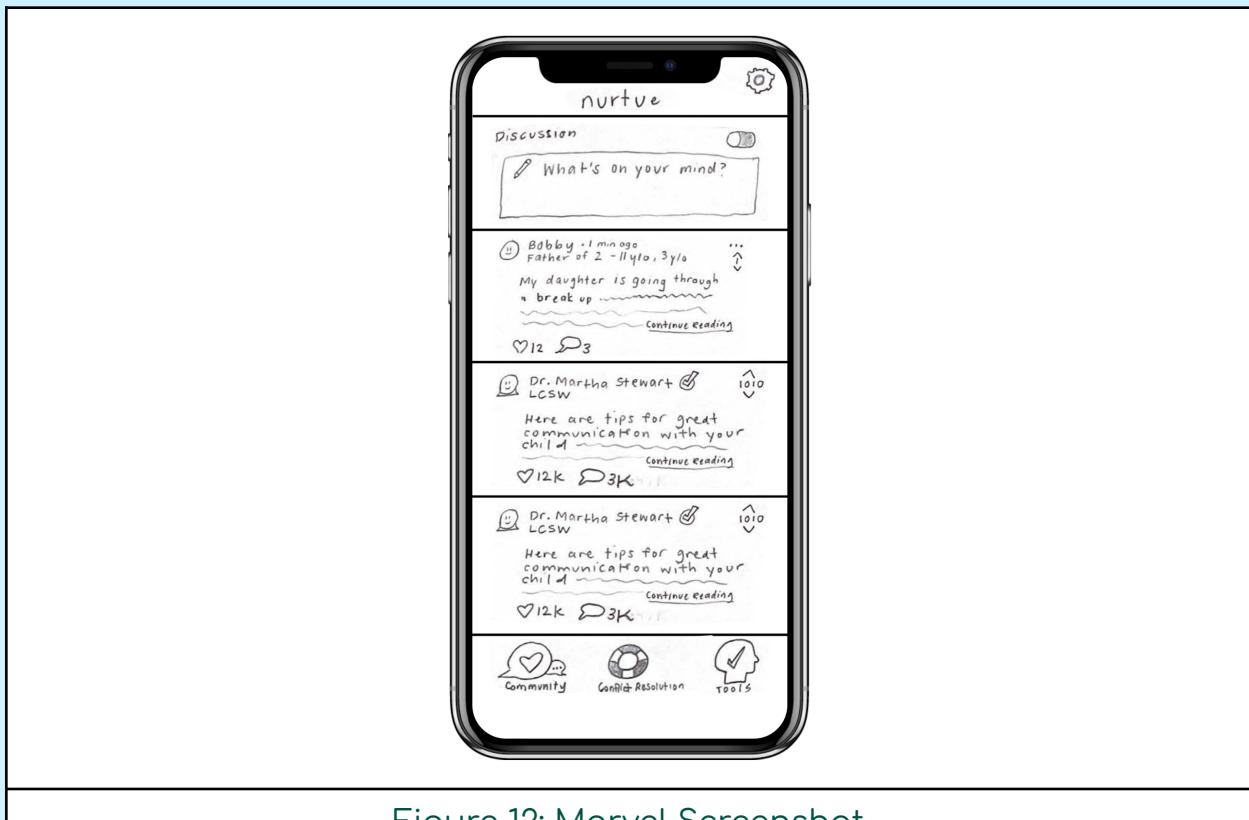


Figure 12: Marvel Screenshot

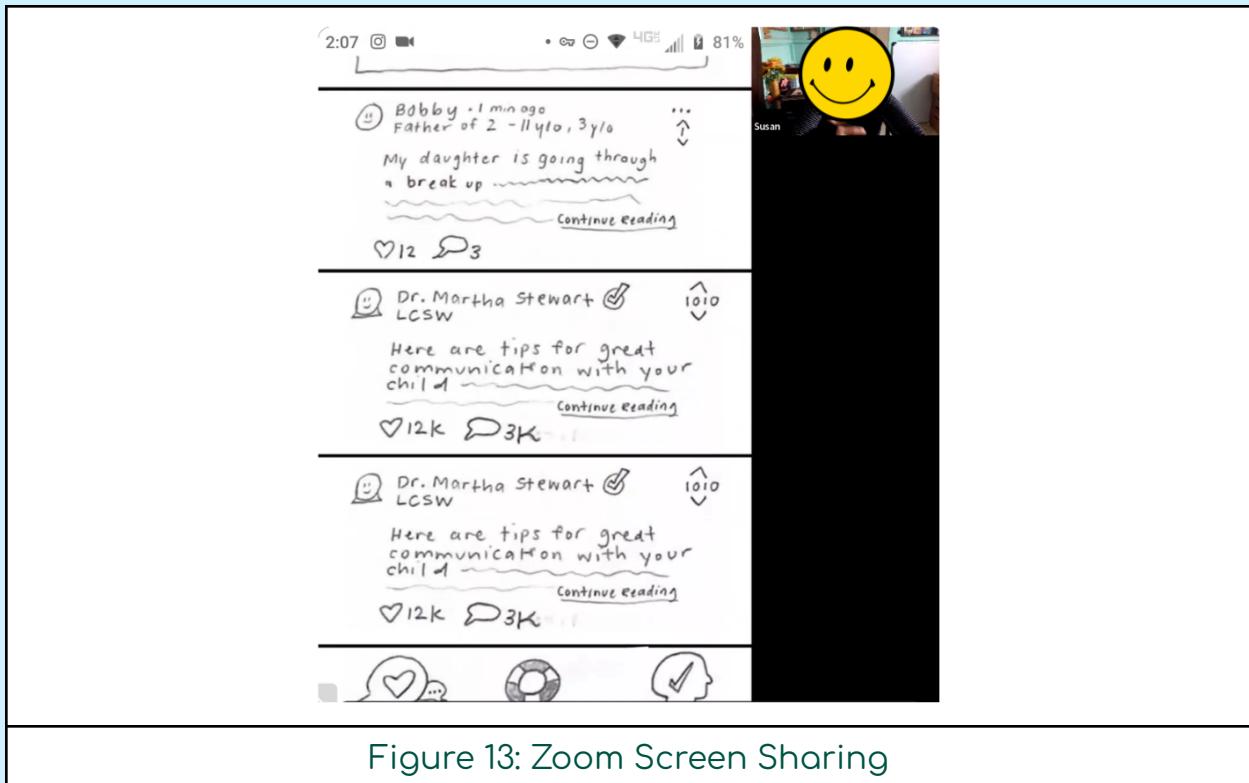


Figure 13: Zoom Screen Sharing



Tasks

Simple: Share your parenting struggles to get advice from fellow parents or/and experts in the field.

Moderate: Practice more effective language to communicate with your child through interactive modules.

Complex: Resolve a particular conflict with a child in a peaceful manner, and come to an agreement that the parent can reference.

Usability Goals

At this stage, our usability goals were overall success and accuracy. These factors were measured through task completion, which helped us identify what features/designs are (and are not) intuitive.

Procedure

Participants were instructed to view the Marvel prototype on their phones. Our facilitator introduced the project and emphasized the think-aloud protocol, and other members took notes. If the participant stopped talking, our facilitator would prompt them to vocalize their thoughts. After participants completed our tasks, we asked questions about their overall experience and collected additional feedback. One participant had difficulty expressing ideas in English, so we communicated in Chinese and translated his responses after the session.

Key & Other Test Measurements

Success

- User was able to complete the desired task without help.
- User found the interface functions as expected.

Error



- User became stuck or took an incorrect path on the way to completion.
- User asked a question or sought help to complete the task.

Additional feedback

- Verbal responses to what the user liked and found valuable about the prototype.
- Verbal responses to what the user disliked about the prototype.

Team Member Roles

- Greeter/Facilitator: Meng
 - Notetaker: Rui
-

RESULTS

The participants we interviewed found the community tab comforting and useful. Most wished for a way to filter the posts to just see posts that pertain to their specific situation, their children's age groups, or their children's gender. We also noticed that for non-native English speakers, the large amount of text was hard to read and understand.

Participants had more trouble navigating to the practice exercises, as our UI design had labeled them as "Tools". Once they selected the category they wanted to practice (in this case, "Discipline"), they were confused by the next screen. Their eyes landed on the educational content itself rather than the buttons above to start practicing. Additionally, some participants questioned the credibility of the game in determining what is considered the "right" thing to say to a child.

Our participants enjoyed the conflict resolution feature and emphasized the importance of following through on an agreement. The audio recording of their discussion may bring discomfort to some parents, as it can easily become an "I told you so" situation. Some participants preferred the recording feature to avoid the hassle of typing out an agreement, while others did not want to record their voices at all. Not all participants agreed with the reward system: they believed some



agreements should not be rewarded, but rather expected of children to follow. One participant even suggested a punishment system instead.

DISCUSSION

The user testing was incredibly useful in indicating what areas of our user interface design were unintuitive. For the most part, participants achieved our key measurements of finding the tasks without help and in a timely manner, although users had the most trouble navigating the practice exercises (some important UI elements went unnoticed). Our key measurements were least successful with our second participant, who was a non-native English speaker and struggled to understand that the interface on Marvel was a prototype rather than the actual app. This provided us with important insight to make our app more accessible for different types of users.

To reduce the amount of text on the “Community” screen, we decided that every post would be titled, and only the user information and the title of the post would appear on the front page. We will add both a search and filter icon at the top of the posts so users can specify the type of content they are looking for. The top of the screen will have a welcome greeting and affirmation, the text input box will be removed, and a plus button in the bottom right corner will be added to avoid the clutter of UI elements.

We will rename “Tools” to “Practice” so the navigation is more intuitive. The screen that all participants had difficulty with will be extremely simplified. It will briefly explain the game and have one button to start. We will also include sources/citations within the game itself so users feel that they can trust the information.

We realized that listing “Conflict History” focuses on the negative rather than positive, so we changed it to “History” while showcasing the agreements instead. Each stage of the conflict resolution exercise will no longer be recorded; only the agreement screen will allow the option to voice record or input text. We plan to add a timer within each stage of the exercise to keep users on task. It will be set to a default time that users can change in the settings. Lastly, we will remove the rigid reward system because it depends on the severity of the conflict. Users will instead be prompted to consider including rewards or punishments when they record their agreement.



APPENDICES

Consent Forms

[Link](#)

User Test Scripts

Hi [name]! Thank you for taking the time to do the user test with us.

This is a class project for one of the computer science courses at Stanford. We have the idea of an app named “Nurtue”. It’s a personal growth app for parents where you can ask experts questions, practice parenting skills, and solve conflicts with your children.

I just sent the consent form to you through Zoom chat. Could you sign it and send it back to me?

As you test our app, we hope that you could think aloud and say everything you’re thinking as you perform actions. There are no wrong answers; we’re just trying to learn how people interact with our app. We’d like to know what you’re thinking as you use the app, what you expect to happen, and if you find anything surprising or difficult to use. After the test, feel free to share any feedback with us.

Before we start, we want to collect some demographic information from you:



Do you agree to share your age, ethnicity, occupation, and where you are located?

Age:

Ethnicity:

Occupation:

Location:

Now let's set you up for the testing.

Method 1 (only tested on iOS):

Can you go to [<https://marvelapp.com/prototype/d7d445g>] on your phone? (send the link via Zoom)

Follow directions on how to save the webpage onto the home screen.

Open the webpage from the home screen.

Now please hug your laptop so your phone screen is in the laptop's camera view/share screen on your phone.

Method 2:

Open link on your laptop + share screen

<https://marvelapp.com/prototype/d7d445g>

Nice! Now let's begin our testing. For the test, you're trying to figure out how this app works, and you're welcome to tap, swipe, or scroll anywhere on the screen.



[tester demos the system; share tester's own app prototype] I will show you the basics of how to use this app. Some of the elements respond to touch. For example, you can see there are three icons at the bottom of the screen. Tapping on each of them will take you to the corresponding page of the app. [tap on the icon and show the user what happens] Okay! Now we want you to complete some tasks on our app prototype.

First, we would like you to navigate the app to read a Q&A post that was made by a fellow parent.

[tester logs critical incidents]

Ok! (not necessarily successful) Now can you try navigating the app to practice discipline? You can think out loud.

[tester logs critical incidents]

Ok! Imagine you are now having a conflict with your child because your child keeps playing video games instead of doing homework. Now can you navigate the app to resolve the conflict with your child? You can think out loud.

[tester logs critical incidents]

That's all for the prototype! Thank you so much. Do you have any advice or feedback for our prototype?

Thank you for the input. We would like to ask some other questions.

- What do you like about the prototype?



- What do you dislike about the prototype?
- What features do you find most valuable and why?
- How would you describe your overall experience with this product?
- When you are using the conflict resolution feature,
 - Do you think a timer is needed for each section when you are filling out the point of view?
 - Would you prefer writing it down in text or recording your thoughts using audio?

That should be all for today. Thank you and feel free to contact us if you have any more questions!

Critical Incident Logs

Participant #1

Incident	Severity Score
"Looks like a basic social media platform to engage with parents and experts"	0
Click "Continue Reading" and notice posts from Dr Winnie and a fellow parent	0
Don't know where the quiz is (went to the conflict resolution first)	3
Notice the quiz list but not really drawn to the "multiple choice" button	2
Notice the all/practicing/completed segments	0
"I like it that you give you information about the wrong answer"	0
Tap the "plus" sign to add a conflict entry	0
Directly click "Next" in the conflict resolution but ignore the input area	2
"Didn't know if it means that you need to have	1



conversations with children or that you can record audio" - comments on the waveform graphic	
"I told you so" feel (when using conflict resolution with kids)	0

Participant #2

Incident	Severity Score
"The app is for the kids, not for the parents. I feel it's for the kids, not realistic."	1
Can't find the quiz for discipline training. Keep entering the conflict resolution	3
"I can't understand what the app is for."	4
Think the list in the quiz page is what others feel	3
"I don't think every parent would choose the right answer for the quiz."	2
"Are quizzes authenticated by experts or officials? It would be great to have sources for all materials Parents may not be persuaded by our materials."	1
"If I have conflicts, I won't have time to resolve conflicts in the app."	4
Can't find the way to add conflict record in the app in a short time	3
"I didn't know if I was in the right place."	3
"I have to go through many steps."	3
"It's kind of a self cool down app"	0
"I don't need apps to set rewards. "	3



"Who will hold the phone if in conflict? If I'm in conflict about kids having too much screen time, why would I give them a phone?"	4
Have questions about "20%" progress bar in the quiz	2

Participant #3

Incident	Severity Score
Find the expert/fellow parent posts easily	0
Notice the displayed child's age. Think it's good to show it.	0
"What happens if a parent has more than one kid. Include kid genders as well."	3
"Labels in conflict history make it easier to search for parents."	0
Can't find the quiz page	4
Try to click on the "practicing" button and the list of terms rather than the "multiple choices" button	3
"Are there any motivations for parents to use the quizzes?"	3
Click on the conflict history but don't notice the "plus" button. Go to quizzes and discussions instead.	3
"I wonder if it is for me to explain the kids' feelings or ask kids to speak." - comment on the conflict resolution waveform graphic	2
"It's difficult for kids to make a resolution. Better add an option to allow parents to do step 2."	2
Notice you can speak. Wonder if you can write in case you don't feel comfortable being recorded.	2



Like steps of conflict resolution. Think they can push parents to care about their child's issues.	0
Smile at step 5 (agreement) in conflict resolution. Think it's interesting.	0
"Setting a reward can be a bad thing. But also case by case."	3
"What if they still have problems after four steps (of conflict resolution)? What happens if you fail to reach an agreement?"	3
"Would be good if there can be someone from a third party coming in (during the conflict resolution)."	2